Ministry of Higher Education and Scientific Research

Al-Ayen University

3rd International Scientific Conference of Al-Ayen University

ISCAU-2021

Abstracts of Third International Scientific Conference of Al-Ayen University

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Contents

About the university

Al-Ayen University is a solid scientific institution that aims to create a promising era on the academic prospective. The university was established in accordance with the Private University Education Law No. 25 of 2016.

It is located in Thi-Qar governorate, near MIGA Mall. The University has five colleges including Dentistry, Pharmacy, Health and Medical Technology, Engineering of Oil and Gas, Physical Education and Sport Sciences. It is distinguished by the modern laboratories, foreign and Iraqi teaching staff as well as distinctive classrooms that will help students in consolidating their scientific level.

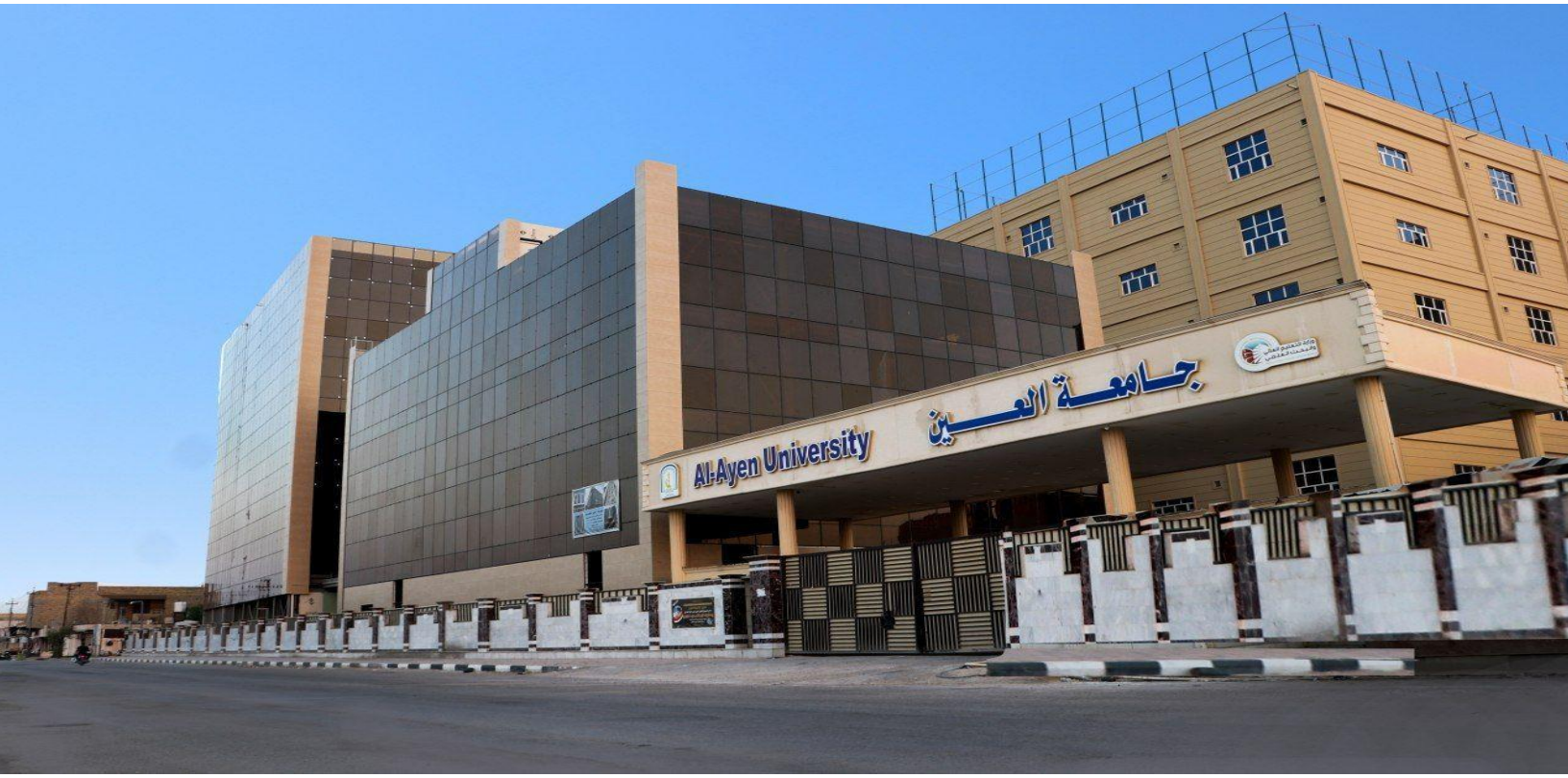
Although the university established recently; however, it has achieved world class quality in the educational programs and services provided within the University, assigning scientific research to serve national development issues by relying on advanced technology, especially information technology, developing competitiveness in the field of education and research between Iraqi and international Universities.

حـول الجامــعة

جامعـة العـين مؤسسـة علميـة رصـينة تهـدف لخلـق جيـل واعـد تأسسـت وفقـاً لقـانون التعلـيم الجـامعي الأهلي رقم 25 لسنة 2016.تقع في محافظة ذي قار قرب ميكا مول.

إن الجامعـة تضـم خمـس كليـات وهـي: كليـة طـب الأسـنان و كليـة الصـيدلة و وكليـة هندسـة الـنفط والغـازو كليـة التقنيـات الصـحية والطبيـة وكليـة التربيـة البدنيـة وعلـوم الرياضـة. كمـا أنهـا تمتـاز بـالمختبرات الحديثـة والكـادر التدريسـي الأجنبـي والعراقـي بالإضـافة إلـى قاعـات دراسـية مميـزة ستساعد الطلبة في ترصين مستواهم العلمي.

تسـعى جامعـة العـين علـى ان تكـون واحـدة مـن الجامعـات المحليـة والاقليميـة الرائـدة فـي التعلـيم الجـامعي والبحـث العلمـي وذلـك مـن خـلال تطبيـق المعـايير العالميـة فـي المعرفـة والتعلـيم والابحـاث العلمية وخدمة المجتمع



About

Under the Auspices of the Minister of Higher Education & Scientific Research Prof. Dr. Nabeel Kadim Abdul Al-Sahib and under the supervision of the president of Al-Ayen University Prof. Dr. Shafik S. Shafik. The Al-Ayen University held scientific conference entitle "3rd International Scientific Conference of Al-Ayen University" in the period 4- Nov 2021

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عن المؤتمر

برعاية معالي وزير التعليم العالي والبحث العلمي الاستاذ الدكتور نبيل كاظم عبد الصاحب المحترم وبأشراف السيد رئيس جامعة العين الاستاذ الدكتور شفيق شاكر شفيق المحترم. اقامت جامعة العين مؤتمرها العلمي بعنوان " المؤتمر العلمي الدولي الثالث لجامعة العين" يوم الخميس الموافق من 4 تشرين الاول 2021 .

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م.م محمد كاظم الكوفي

كلمة رئيس الجامعة

بعد مضي اكثر من عام نلتقي في مؤتمرنا الثالث. نلتقي في محفل علمي وعرس بحثي مهم يحوي على بحوث جمعت بين طياتها مواضيع مهمة وملفته للنظر في اختصاصات علمية مختلفة. ولكن قبل التطرق الى تفاصيل مؤتمرنا العلمي الثالث اسمحولي ان اتطرق الى موضوع اؤمن بأهميته وخاصة لمحافظتنا العزيزة ذي قار. ان اهم عنصرين لتطور اي حضارة هما الانسان وبيئته، فبناء الانسان يتطلب تغذيته بالمعرفة المطلوبة وخلق روح التفكر والتفكير داخله وهذا يحتاج إلى جهد جبار يبدأ مع التعلم في مراحله الاولى ويستمر، ولابد من ان يتابع بشكل دائم كي لا ينحرف هذا الفكر عن ما اريد له ان يكون. أؤكد لكم امتلاك مجتمعنا كم هائل من القيم والأخلاق التي تؤهله ليكون في المقدمة ولكن هناك عبئ كبير يقع على عاتق التربويون من معلمي ومعلمات الروضة الى اساتيذ الجامعات في زرع هذه القيم في نفوس طلبتنا واعادة احيائها في مجتمعنا عن طريق التواصل المباشر وفي جامعة العين اتبعنا هذا الأسلوب وهو محاورة الطلبة مباشرة والاستماع إليهم واعطائهم دور في طرح أفكارهم وتفعيل دور الارشاد التربوي وكانت النتائج إيجابية وكانت القاعدة الأساس في التعامل هي اؤمر المعروف بمعروف وأنهى عن المنكر بمعروف .اما القسم الثاني المهم جدا في تطور اي حضارة هو البيئة وكما هو معلوم فأن البيئة تحتم على الفرد تصرفاته، لذلك على المختصين وخاصة الباحثين في الجامعات والمراكز البحثية وضع ستراتيجية واضحة المعالم لكيفية تطوير بيئة ذي قار من المدن الجاذبة ومع الاسف ما نشاهده الان هو العكس تماما فبيئة هذه المحافظة طاردة لناسها بكل اصنافهم من مستثمرين وأصحاب شهادات وغيرهم ويحزنني جدا ما لمسته من بعض اهالي هذه المحافظة(وتأكيدا ليس الجميع) هو عدم محبتهم لها وتغليب المصلحة الفردية على مصلحة المجتمع. ولذلك ادعو الى عقد مؤتمر حقيقي يشترك فيه كل من يجد في نفسه القدرة على العطاء من أعضاء مجلس النواب الفائزين بالانتخابات في ذي قار وبكل اطيافهم ومن حكومة ذي قار متمثلة بالسيد المحافظ المحترم وقيادة العمليات ورؤساء الجامعات ومدراء الدوائر كافة والشخصيات الذي قارية من شيوخ عشائر وناشطين وغيرهم، يكون هدف المؤتمر وضع رؤية موحدة ومتفق عليها من الجميع عن ما تريده ذي قار من بنى تحتية وخدمات وغيرها وفق برنامج زمني محدد وبملف واحد يتبناه الجميع ويسعون لتنفيذه. ومن اجل ذي قار نحن في جامعة العين حاضرين لأستضافة هذا المؤتمر والتكفل بكل متطلباته. وبالعودة الى مؤتمرنا العلمي الدولي الثالث فقد تم استلام اكثر من ١٨٥ بحث علمي بأختصاصات مختلفة، ولكن فقط ١٣٤ بحث استوفت شروط المشاركة في المؤتمر والتقييم العلمي. ايضا من ما يميز مؤتمرنا تعاقده مع اربع مجلات مختلفة لنشر البحوث المشاركة وكلها ضمن المستوعبات العالمية المعتمدة من قبل وزارة التعليم العالي والبحث العلمي. وساهمت الجامعة بالقسط الأكبر من اجور النشر لكل المشتركين في المؤتمر وكان الدعم الاكبر لطلبة الدراسات العليا. وفي الختام احب ان أوجه شكري وتقديري واعتزازي الى أللجان العلمية والتحضيرية ولجنة الاستقبال على جهودهم الجبارة في إنجاح هذا المحفل العلمي الرائع .كما وأقدم شكري وتقديري الكبيرين الى باحثينا الكرام الذين قدمو بحوث نوعية مهمة واشكر الاساتيذ الافاضل الذين ساهموا في تقييم هذه البحوث. ايضا لا يفوتني ان اشكر رئاسة واقسام جهاز الاشراف والتقويم العلمي ومدير دائرة التعليم الجامعي الاهلي وكل اقسامهم للدعم المتواصل والاهتمام العالي بجامعتنا على الخصوص وبكل الجامعات والكليات الاهلية. والشكر بكل معانيه موصول للفريق الوزاري للتعلم الالكتروني لدورهم الفاعل وتفانيهم في دعم واسناد الجامعات والكليات الاهلية والحكومية .

3rd International Scientific Conference of Al-Ayen University (ISCAU-2021)

Computer and Communication Papers

Design and Analysis of 50 channel by 40 Gbps DWDM RoF system for 5G Communication based on Fronthsul Scenario

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Abstract. The establishment of 5G networks launched before few years and is projected to bring about significant changes in people's daily lives, which connect nodes using optical transceiver modules and optical fibers. The connection between the Central and Base Stations is the most intriguing part of the 5G network, and many academics have examined it extensively in order to improve and maximize network efficiency and achieving the highest data rate with less complexity, and cost-effectiveness. As a result, this paper has been used the Optisystem program and a Dense Wavelength Division Multiplexing (DWDM) Radio over Fiber (RoF) approach to demonstrate, plan, and execute in this article. For higher-speed transmission systems targeted toward Tbps connectivity, a 50 by 40 Gbps data transmission system is proposed. Channels 1, 4, 8, …, 48, and 50 were chosen as samples for the investigation. The output analysis was based on the eye-opening parameters, Quality Factor (QF), and Min Bit Error Rate (MBER) for the distances ranging between (60 - 180) Km.

The results showed a higher data rate performance for the proposed system to reach 2 Tbps for future applications. Furthermore, QF parameters showed encourage results as the averaged obtained values were above the threshold by ranging between (0.22- 13) dBm.

KEYWORD: DWDM, RoF, 5G, optisystem, data rate

A HYBRID AUTHENTICATION AND SECURITY APPROACH IN IOT HEALTHCARE APPLICATIONS USING FOG COMPUTING BASED DATA MINING

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Internet of Things (IoT) is currently considered to be among the most recent technologies that enable a large number of physical objects to be linked across the Internet to exchange and transfer information among them. Within the scope of healthcare applications, such delay would form a dangerous risk in case the system does not meet the compatibility requirements of health monitoring, in addition to the several security and privacy threats that are encountered. One of the solutions suggested to reduce the service latency and network congestion is the application of Fog computing with Cloud services. To ensure the safe transmission of data between IoT devices and the cloud, while keeping the possible network latency and response time to a minimum, the proposed work based on a three-layered IoT-Fog computing model is implemented. It deploys an authentication, encryption and data mining cluster analysis stages with cloud computing in real environment. The proposed work aimed to address the issues of security and accuracy in IoT-fog computing systems through authentication phase between the sensors in the end-device layer and the fog layer, in addition to the encryption of the communication between the fog and the cloud layer to ensure its security. The proposed system based on several medical data sensors, such as the temperature sensor, the heart echo, and the sensor of oxygen level in the blood with a heart rate. The fog server computed the digest between the sensor layer and fog layer for the authentication process to send the sensors data. As for the encryption process between the fog and cloud servers, it was implemented using AES and shared key generated by ECDiffieHellmanCng. Data mining cluster analysis using k-means is implemented to cluster the data in the cloud server. The obtained results indicate that the model succeeded in decreasing the network latency while increasing the security of connection and accuracy of performance when implemented in healthcare applications, as time of encryption between fog and cloud computing was between 1.1 milliseconds and 1.3 milliseconds, and the latency is calculated based on the used test bed as 1ms, 2.5ms, 5ms, 8, 10.5 according to the distance range. The knowledge discovery for healthcare data analysis using k-means in the cloud with the evaluation metrics were cohesion 98.195 and silhouette index 0.769

Big Data Processing with Hadoop and Data Mining

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Abstract

A stroke occurs as a result of intense blood flow, causing confusion in the brain as a result of the brain cells not getting enough oxygen and nutrients, and these cells begin to die. It is very important that the cases of stroke are diagnosed early and very accurate, as it contributes to treating the condition or reducing the risks associated with it if it is predicted early. In this paper, we propose early prediction of stroke diseases using different data mining-machine learning approaches. The six different classifiers have been trained, namely: Naïve Bays (NB) Neural Network(NN), Support Vector Machine(SVM), Random Forest (RF), Decision Tree (DT), k-nearest Neighbor(KNN). Results of the base classifiers have been aggregated using the data mining processes (attribute filters) approach to reach the highest accuracy. Also, here this study has achieved an accuracy about 98.5499 %, where the Hadoop count / Hadoop–Weight performs better than the base classifiers. This model gives the best accuracy for the prediction of stroke. The false-positive rate and false-negative rate of the Hadoop count / Hadoop–Weight are the lowest compared with others.

Keywords: Big data, Hadoop, Data Mining, Mapreduce, Stroke.

Attribute Selection For Stroke Prediction Based On Hadoop and Machine Learning

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Abstract

A stroke occurs as a result of intense blood flow, causing confusion in the brain as a result of the brain cells not getting enough oxygen and nutrients, and these cells begin to die. It is very important that the cases of stroke are diagnosed early and very accurate, as it contributes to treating the condition or reducing the risks associated with it if it is predicted early. There are many research trends that are based on the databases that are provided to health centers, and some of them rely on databases for research purposes. Where the research is based on a big healthcare dataset. This paper presents a prototype to classify big healthcare dataset stroke attributes that combine Hadoop and machine learning algorithms. Machine learning can be portrayed as a significant tracker in area s like surveillance, medicine, data management with the aid of suitably trained machine learning algorithms. The results showed that the proposed system contributes to predicting the occurrence of stroke with an accuracy of about 98% for both systems that are based on Hadoop (Count-Weight).

Keywords: Stroke, Data pre-processing, Classification, Machine learning, Weight.

Hybrid Spectrum Technique for Independent Fine Adjustment of Either/Both Bandpass Edge in Spectrum Sensing Applications

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Abstract:

In wireless communication technology, efficient use of the spectrum in cognitive radio requires sensing the current spectrum, dynamic adjustment of their operation, and transmission characteristics. Spectrum sensing is a crucial issue of cognitive radio. Reconfigurability, multi-resolution pass-band characteristics, spectrum detection, and frequency band allocation policy lead to an efficient communication system with proper integration of the radio spectrum. This paper presents a new multi-resolution hybrid spectrum method for fine independent adjustment of either/both edges of a band-pass filter suitable for spectrum sensing applications. Independent adjustment of either edge of a band-pass filter is not applicable by the use of CDM, MCDM, or VDF methods. The method is based on incorporating the wrapped filter of the VDF method for the low-pass prototype spectrum edge, fine-tuning, and MCDM-I technique for the final desired hybrid band-pass spectrum. The response of the MCDM-I technique is driven by complex-valued impulse response obtained by the inverse Fourier transform of a hybrid combination of low-pass prototype spectrum within the Nyquist band combined with the image of the VDF modified spectrum. This method shows an efficient technique with a complete variety of controlling positions of pass-band edges within the spectrum. The implementation filter complexity depends mainly on the use of N-point 2x FFT, where N is the low-pass prototype filter length and VDF update coefficient.

Keywords: Spectrum sensing, Frequency response, VDF technique, MCDM technique, Complex FIR filte.

Data Mining Techniques for Extraction and Analysis of Covid-19 Data using Techniqus K-Means Clustering

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Abstract: the aim of this survey is to deeply analyze the Corona-Virus Diseases (Covid-19) using the data mining based K-Means Clustering technique. Researcher's prediction will not only allow detection and pipeline to predict how much money their detection method for COVID-19 will make, but it will also allow them to justify their characteristics, such as type of infection and choice of vaccine in order to reach a certain detection using data mining based model. In this way, it overcomes the challenge of new COVID-19 forecasting: the lack of historical data. With the data mining algorithm, researchers provide prediction at 15 to 20 different methods with an accuracy above 80% after training. The training is performed on 80% of data while the testing is done on remaining 20% of data. Such prediction will also allow other interested third parties to predict the success of a COVID-19 detection before it is released on open source community. In the process of prediction, some researchers found the variables most associated with COVID-19 detection, and to see how the various prediction models are affected by them. Nevertheless, those data mining based methods can greatly benefit from modern artificial intelligence techniques for this purpose that can handle complex features and give out great prediction results. Therefore, employing historical COVID-19 data and using them in data mining algorithms to predict disease could save companies millions of dollars on rather unsuccessful detection. The results were adopted by quantitative prediction identical to the classification of COVID-19 using artificial intelligence. The results achieved by the SMV model with ML sentiment analysis have a very high accuracy in predicting behavior (87.71%). Correcting many types of behavior for different people and its ability to perform is much better than predicting all COVID-19 with a decrease in loss.

Keywords: Data Mining, Covid-19, K-Means, Population, Disease, Clustering

Homomorphic Encryption between Client and Cloud Server

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Abstract

A cloud server is a service that can be accessed over the Internet. The problem with the cloud server is the lack of security and privacy, and to solve the problem, a more secure method must be provided. In this paper, the encryption between the client and the cloud server has been clarified and the accounts request processing on encrypted data without the need for a secret key using this system. This type of encryption is called partial type, as are schemes (Paillier and RSA). These schemes allow a person to double or add to the performance, provided that this depends on knowledge of the encrypted data and information related to the encrypted work. The other type is the full encryption of the data, but it is difficult for the programmer to do this alone, but it requires a team of specialists.

Keywords: Cloud Server, RSA, Fully Encryption.

Big Data Analysis for Healthcare Application using Minhash and Machine Learning in Apache Spark Framework

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Abstract

Analysing data on a large scale is becoming important and engages in convincing many researchers to use new platforms and tools that can handle large amounts of data. In this article, we present new evaluation sentiment analysis for large-scale datasets of COVID-19 Vaccine Stance tweets and COVID-19 Tweets IEEE data port datasets in the Apache Spark data system. The Apache Spark Scalable Machine Learning Library (ML) is used. We designed hybrid minhash models from the library with four classification methods: Logistic Regression (LR), Naive Bayes, Support Vector Machine and Random Forest classifiers in a parallel and distributed manner. In addition, Minhash with locality Sensitive hashing (Minhash-LSH) is compared to Minhash-ML. Performance parameters such as user, system and real time, time consumed, and accuracy have been applied in the comparative analysis to analyse the behaviour of the classifiers in the AWS spark Cluster, Local Spark cluster and in conventional system. Results have indicated that the models in spark environment was extremely effective for processing large-dimension data, which cannot be processed with conventional implementation or take much time related to some algorithms. The proposed model achieves accuracy above 99% in case of Vaccine tweet dataset when classified with Minhash-RF and Minhash-LR classifiers. Also, 100% in case of COVID-19 Tweets Provided by IEEE data port when using Minhash-SVM, Minhash-RF and Minhash-LR classifiers.

Keywords:
Big data, Apache spark, Sentiment, Machine Learning, Minhash-LSH, COVID-19 Tweets, Healthcare.

New Design and Analysis Microstrip Triple Band-Notched UWB of Monopole Antenna

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Abstract

This article discusses the design, analysis, and fabrication of an optimal (20 x25 x1.6) mm3 Ultra-Wideband (UWB) antenna for wireless communication applications with a frequency range of (3.1-10.6) GHz. The antenna is composed of two distinct sections. The first step is to construct an antenna with a frequency range of (3.1 to 10.6) GHz. The second step involves manipulating the antenna to reject interference from the (WiMAX) band at (3.1–3.7) GHz, the (WLAN) band at (5.1–5.8) GHz, and the X-band at (7.1–7.8) GHz. By altering the routes taken by surface current, desirable frequency bands can be gated. Additionally, it demonstrates that by altering the characteristics of the etched holes, the frequency band may be tailored to the application needs. The suggested antenna meets the design requirements for a fair gain, a suitable Voltage Standing Wave Ratio (VSWR) less than two, a small size, a high data rate, an optimal radiation pattern, and linear operating phase ranges. To strengthen the proposed antenna's immunity to interference, several upgrade processes are performed in conjunction with extensive parametric evaluations.

Keywords: UWB, WLAN, VSWR, *FCC, WiMAX.*

Extraction and Classification of Semantic Relations from News Recommendation

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Abstract

The classification of semantic relation between terms or objects within text is required for a variety of semantic interpreting tasks, such as textual entailment and inquiry answering. In most circumstances, though, attributing a linear semantic relationship between entities/terms is difficult. This work presents a method for categorizing composite semantic relations based on one or more relationships between entities/terms. In contrast to earlier techniques, the proposed model combines a vast commonsense knowledge and understanding of triple connections with machine learning techniques based on lexical and redistributive word embedding properties . To solve the compound semantic relation classification task, we used a distribution of income navigation technique and sequences classification.

Keywords: Semantic Relationship, News Recommendation, and Classification are some of the terms used in this paper.

BRAIN TUMOR DETECTION AND CLASSIFICATION USING CONVOLUTIONAL NEURAL NETWORK (CNN)

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ABSTRACT

Brain tumor, according to the W.H.O. is one of the significant causes of death worldwide. Due to its complexity and silent nature, early detection of this disease makes it hard to detect. The associated danger of clinical occurrences, which makes it a severe public health condition globally, is affiliated with chronic brain tumor disease. Even though it is widely accepted that chronic brain tumor disease has significant interactions with magnified hazards of end-stage excretory organ disease, vessel occurrences and all-cause mortality, there is still a lack of comfortable information on individual patients. The research will apply the deep learning-based Convolutional Neural Network (CNN) technique for this brain tumor prediction problem , especially on the Image Dataset. The CNN has been a popular method and highly sought after the meaning of model classification in today's society. The CNN based expert system works like the human brain with input, neurons, hidden layers and output. For this research, chronic brain images of healthy and unhealthy images are collected with good lighting conditions to identify all hidden features. The image samples are then passed through different image processing methods such as Grayscale, B&W, Complement, Robert, Resize and power Transform. The chronic is then passed through a texture feature extraction algorithm know as Convolutional Neural Network (CNN). The features that have gotten are Contrast, Correlation, energy, Homogeneity, Entropy, Mean, Standard deviation, Variance, skewness and Kurtosis. After the feature extraction, the data are arranged on a spreadsheet that serves as a record. Lastly, a convolutional neural network has one hidden layer, 16 input neurons, and two healthy or not outputs. The data are split into train and test datasets with 70% for training, 10% validation and 20% for testing. The detection accuracy was 92.78%, with the execution time of 5.33s only depending on the number of iterations or epochs. For the confusion matrix of brain tumor detection and classification, an accuracy of 97.9% was recorded, the precision of 98.3% was accounted for with the recall of 98.5%, and the end an A.U.C. of 99.7% was calculated for this dedicated research work.

Keywords: Chronic, CNN, brain tumor, deep learning, detection, classification, prediction, segmentation.

Study the Effect of Dielectric Permittivity and Changing Substrates Material on Microstrip Patch Antenna

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ABSTRACT

In this paper, three different cases of analysis were investigated. The first case is study the effect of varying the dielectric permittivity on the Microstrip Patch Antenna (MPA). While the second case is to inspect the impact of modifying the thickness of the substrate with the insertion of an air gap between the patch and the substrate. Investigating the effect of changing the type of the conductive material in the third case (copper, aluminum, gold, platinum, and graphene were used). It is found that the bandwidth depends on the substrate type. The use of graphene patch give a relative gain of 15dB. It is also found that the increase in dielectric constant (ε_r) causes the bandwidth downsizing as well as decreasing the gain. Using a wooden substrate increases the antenna bandwidth. Utilizing the air gap, between the patch and the substrate, to enhance electrical insulation. It is found that reducing the air gap caused a noticeable bandwidth reduction.

Keywords: Microstrip Patch, Antenna, Dielectric, Bandwidth, Permittivity, SWR, Resonant Frequency.

Probability of false peaks circular and concentric array antennas direction

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Abstract*:* Evaluation of angular coordinates of radio sources has attracted a great interest in areas such as radar, sonar and wireless telecommunications systems. The problem of estimate the radar angular coordinates of radio sources is the key to improve productivity,. however, in the wireless telecommunications systems information, the coordinates are enables the spatial separation to increase operating members in this paper, the functioning of the radio direction-finding techniques in the system ring and concentric array antennas is investigated. we focus on the issue of false peaks in the DF relief ring and concentric array antennas. A radio direction-finding method MUSIC with super resolution are considered and discussed.

Keywords: superresolution, antenna array, DOA estimation, circular arrays, concentric circular arrays.

Self-Test and Calibration Methods for Micro Electro-Mechanical Systems

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ABSTRACT

For the testing of micro electro-mechanical systems, we propose a taxonomy of built-in self-testing methods. these solutions that are non-intrusive, cost-effective and are typically non-intrusive during the testing process are being actively sought after as the cost of MEMS testing can account for 50 percent of the total cost of the end product. The selection of testing methods is analyzed extensively, and a classification table for such methods is presented according to three performance metrics: ease of application, test application, usefulness. Performance table also provides a field test domain for the method. While BIST methods do depend on the application at hand, utilizing the inherent multimodal sensing capability of most sensors could be a promising approach for effective built-in self-test.

Keywords: Micro-Electro-Mechanical Systems (MEMS), Self- Test Self-Calibration, Built-In-Self-Test (BIST).

Recognition and Classification of Facial expressions using Artificial Neural Networks

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Abstract

This paper addresses the problems of recognition and the classification of the facial expressionsfrom videos. Currently there are excellent results focusing on the control environments, where artificial facial expressions are found. It is by far the largest database of facial expression, valence, and arousal in the wild enabling research in automated facial expression recognition in two different emotion models. On the other hand, much remains to be improved when it comes to the uncontrolled environments, in which variations in lighting, camera angle, face framing, make the small amount of labelled data available in impediment when the training models of automated learning. In order to attack this difficulty, the Reproductive Confrontational Networks technique was used in an innovative way, which allows a large number of unlabelled images to be used with a semi-supervised training style.In this paper; nearly half of the retrieved images were manually annotated for the presence of seven discrete facial expressions and the intensity of valence and arousal. From facial expressions, as well as the primary theoretical frameworks that have been offered to explain these patterns, we propose that this is an area of inquiry that would benefit from an ecological approach in which contextual elements are more explicitly considered and reflected in experimental methods and may suggest heretofore unexplored underlying mechanisms.

***Keywords*:** Facial Expression, Biometric System, Artificial Neural Networks, GANS, SFEW.

Fast Fourier Transform Coupled with Machine learning Algorithm For K-Complexes Detection

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Abstract

This paper proposes a novel K-complexes (KCs) detection approach using sleep Electroencephalogram (EEG) recordings. A segmentation technique is used to partition an EEG signal into intervals. Then, Fast Fourier Transform (FFT) is applied to each EEG segment. To find out the most effective input features to represent the EEG signal, the FFT coefficients were investigated. The extracted features are then utilised as the input to an ensemble classifier which is designed using three classifiers: *K*-means, the Naïve Bayes algorithm and least square support vector machines (LS-SVM). A comparison with existing studies is made and the results showed that the proposed model outperformed state of the art. The proposed approach can be developed as a online system to detect KCs in EEG signals. in addition, it can be applied to other EEG data such as detect sleep apnea.

Keywords Electroencephalogram. *K*-complexes. Fast Fourier Transform. Ensemble classifier.

Big data visualization: A survey

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Abstract

Due to the rapid development in our world today, multiple data sources from various sources such as sensors, the internet of things, healthcare data, etc., have been increased. So, it is necessary to analyze these data to obtain valuable data and visualize it with visualization tools. Big data visualization plays an essential role in today's world for decision-makers. This paper surveys big data concepts, big data visualization concepts, and big data visualization tools and techniques. Moreover, this paper presents an up-to-date comprehensive comparison among numerous big data visualization tools based on the characteristics and criteria of each visualization tool.

Keywords: Big Data, Big Data Visualization, Big Data Visualization Tools and Techniques.

Building a Smart System for Preservation of Government Records in Digital Form

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ABSTRACT

In this research paper, we concentrated on the development of a smart system for the preservation of Government of Iraq records in digital format. In literature, many existing preservation techniques and models have been discussed and presented with their detailed comparison as preservation rate of digital data growth has increased. Many western countries have already upgraded their paper-based systems to the smart system for preservation of government records including Turkey. In methodology, we used python language for the implementation of smart system application with OAIS framework to preserve archived paper-based records, it also provides a roadmap for the new digital ecosystem. It offers a framework that can be used to identify roles and responsibilities within a bounded system. Major ministries of Iraq (i.e. finance, electricity, science and technology) are developing specific guidance for preserving digital artifacts and records. Records accession, normalization and transformation have also been performed on the records during the process of preservation to clean the records and format conversion. In results, we achieved good preservation of most of the records from 2015 to 2019, the goal is to preserve which most of the records it belongs to digital format. The distribution of records preservation for major ministries of Iraq government in term of paper based and digitally preserved records from year 2015 to 2019. The preservation of digital records was recorded very low in 2015 as much of the record archival were paper-based in all major ministries of the government. However, year-by-year the smart system tends preserve the records in digital format from old paper-based format and till 2019 large amount of records are being converted to the digital format. To have such smart system can be very helpful for preserving the records of the government, and useful for understanding how records are being preserved and their functionality.

Keywords: Smart system, preservation, records, modelling, digitalization, government, Iraq

HAND GESTURE RECOGNITION USING ADVANCE DATA MINING

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ABSTRACT

Using data mining approaches, we investigated the use of hand motion recognition. I discovered that employing data mining for hand gesture detection has numerous advantages in gesture recognition applications. For starters, we use data mining to recognize hand gestures using channel bandwidth. Second, we provide great resolution on the time axis, which makes them ideal for data mining applications. In general, we need a short-duration sent signal that is closer to an impulse. For hand gesture recognition, data mining has the same frequency components as an impulse but distinct phase components. Our imaging techniques must be strong enough to distinguish a hand from a distance of items that are far away. In these articles under evaluation, data mining equals the recognition of hand gestures of the pulse divided by the duration. Having high energy with a short duration will cause the power to be very high, and the transmitter may not be able to manage it.

Keyword: Hand, Data Mining, Classification, Clustering, Gestures, Detection.

PREFIX METHOD OF PARALLEL PATTERN SEARCH AND HOMOGENEOUS COMPUTING MATRIX

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Abstract: This article focused on the development of matrix methods of pattern search with hardware implementation based on associative memory. The objective is to reduce the search time by forming a set of prefixes and their parallel processing with a set of associative computational matrices. The method uses dynamic reconfiguration of text character relationships so that the text as a char is alternately represented by matrix-string data structures. The method is based on parallel comparisons of a pattern and specially prepared prefixes with a matrix representation of the test. The comparison matrices obtained in the search steps allow us to calculate the amount of text shift by more than 1 character, which leads to a reduction in the search time. As a result, the original pattern is represented by a triangular matrix consisting of prefixes shifted to the right. The extreme prefix has a length of one character. The text for this method has a two-dimensional representation with the number of columns being equal to the length of a pattern. The representation of a pattern as a set of prefixes makes it possible to reduce the total number of steps by analyzing a variety of options for the initial search positions. The constructed computing matrix is based on combining the results of a parallel search and highlighting the priority position of a partial occurrence, excluding unproductive (blank) steps.

Keywords: Characteristic matrix, Comparison matrix, Substring, Reconfiguration, Bit slice.

ECG -signal Classification Using efficient Machine Learning Approach

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ABSTRACT

The heartbeat is a collection of waveforms of impulse produced by various cardio tissues of the heart. The ECG classification is represented basic challenge is to deals with the irregular in the signals of ECG that is important to diagnose the patient condition. The heartbeats classification have been developed by automatic algorithms from electrocardiogram (ECG) registers. The waveform of ECG has many deviation so heartbeats classification from ECG records is a complex problem, in addition many edges and that, Although many developed works have manipulated that problem, but it is not got good results. There are inconsistencies at the comparison between the results, the compare have be between the similar patterns (intra-patient, inter-patient or patient-specific) to be justly compare. A computer is often assisted in analyze and interpreting the signal of ECG using signal processing and paradigms assessment techniques. This article supplies a theoretical survey of ECG classification depend on machine learning.

Keywords: Machine Learning, Database, classification, decision tree, SVM, Naïve Bayes, Deep Learning, ESN

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Engineering and Mathematics Papers

PROPERTIES OF CERTAIN ANALYTIC MULTIVALENT FUNCTION DEFINED BY RUSCHEWEY'S TYPE

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ABSTRACT. By means of certain extended derivative operator of Ruscheweyh's type, we introduce and investigate subclasses $K_{n,m}^{p}(\lambda, \alpha, \beta)$ of p-valent analytic function of complex order. The various result obtained here for each of the subclasses included coefficient estimate, distortion theorem, radius of starlikeness and convexity ,close- to- convex ,extreme point, □ − neighborhood ,partial sums, integral operator and closure theorem.

Keywords: Multivalent functions, Ruscheweyh derivative, distortion theorem, starlike functions, convex functions, close- to- convex functions, extreme point. Mathematics subject classification: 30C45, 30C50.

Study of the behaver of the A(z) analytic functions on the Theorems Cauchy-Gursat & Morera.

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Abstract. During this paper, are going to prove analogs of the Cauchy-Gursat & Morera theorems for A- analytic functions.

Keyword: A −analytic function, $A-Rectifiable$.

Representation In Contemporary Architecture

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Abstract. "Reality" can only be known or given meaning through systems of signs organized in forms through "representation" which is the embodiment of a previous thing, ideas and beliefs, values or content, images, notes, events, or effects ... etc, according to philosophical and ideological orientations (Zeitgeist). Representation is the main pillar of design to embody the architectural values with the aim of constructing subject (the text of architecture) and communicating with reality, history, the future and with the other. Architecture is representative of its time and represented in it, representing its ideas, orientations and philosophy, and this shows the importance of representation in architecture and determines the field of research, and given the absence of a comprehensive concept of representation in architecture, the research problem is determined in the absence of a comprehensive and clear concept of representation in contemporary architecture, so that the goal of the research is to achieve this perception, through an approach that includes two parts, the first focuses on the general theoretical presentation of the concept of representation, and the second part includes constructing a theoretical framework for it, and applying it to an architectural model to reach the results of the application and discuss them in order to reach the final results of the research. Representation is a form of imitation and embodiment of something previous by copying or simulation, and this determines two main levels of the theoretical framework of representation, namely the origin of representation (its content) and its embodiment (representation). Therefore, representation has three meanings, the origin of representation, representation, and the act of representation. Representation is present in all architectural directions, and two main directions of representation can be identified in architecture, the first (representational, classical) is objective and semantic that expresses an ideology or thought, in which architecture is a means of expression truly and clearly. The second (non-classical) depends on an arbitrary beginning that represents events, traces, notations, or abstractions that are empty and devoid of meaning, and the recipient drops the representation on it according to his cultural background, so that architecture is a place for the production of thought, not technic to transfer it.

Key words: Representation, modern architecture, postmodern architecture

Experimental Investigation on Compressive Behavior of Reinforced Concrete Columns Confined by Geopolymer Adhesive Jacket

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Abstract. The strengthening and rehabilitation of reinforced concrete structures is an important issue all over the world. Fiber reinforced composites are mainly used for the strengthen and rehabilitation of concrete members. However, its use is limited due to its high price and environmental effects and its adoption of epoxy as an adhesive, where epoxy is considered inefficient at high temperatures and loses most of its properties. The solution of this problem leads to the use of low-cost locally available geopolymer adhesive paste. This paper presents the experimental results of testing seven reinforced concrete columns confined by fiber reinforced geopolymer adhesive jacket. Variable include jacket materials used (carbon fiber, jute fiber, steel wire mesh, window mesh fabric, (3x3) mm polyethylene mesh, and (4x4) mm polyethylene mesh). The results were it was found that the geopolymer paste is an efficient adhesive with the various types of materials used in the formation of the confinement jackets. Carbon fiber jackets are considered the most efficient in terms of performance compared to other types, but the most expensive at 34$ per square meter. Where the improvement in the (load improvement ratio and deformation capacity) by (3.146 and 3.68), respectively, and the confinement jackets consisting of (jute fiber and steel wire mesh) are considered the most efficient in terms of cost and performance compared to other specimens, with load enhancement by (1.79 and 1.7) and deformation capacity by (2.43 and 16.2), respectively compared with unconfined RC columns. Finally, confinement by fiber reinforced geopolymer adhesive is more suitable for use in strengthening and rehabilitation of RC columns in areas with a hot climate.

Keywords: RC columns, Confinement, Geopolymer adhesive, and jacketing.

Bearing Capacity of Pile Foundation Using Different Methods based on SPT measurements for a Soil in Nasiriyah

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Abstract. Pile foundation is an essential issue in most geotechnical projects, which can support different structures such as buildings, storage tanks, and bridges. The bearing capacity of pile foundations can be estimated by using field tests results such as the Standard Penetration Test (SPT) that is performed as part of site investigation because the static load pile test method is expensive, and no analytical solution is available to accurately estimate the bearing capacity of pile foundation in addition to the complex nature of piles embedded in the soil. Many methods are used to estimate the bearing capacity of pile foundations based on SPT; however, the results obtained through performing the bearing capacity based on SPT may give different results depending on the design method. This research used seven empirical equations based on SPT to estimate pile foundation bearing capacity and evaluate the results. The research methodology ruminates the data obtained as part of a site investigation of the water intake project in Nasseriyah, which includes the results of SPT at six boreholes. The types of soil are estimated based on the results of the SPT, where disturbed samples were obtained through performing the test and the soil classification based on the undisturbed samples from the boreholes. The number of blows was corrected before being used in the calculation. The research showed that the method of Shioi and Fukui, for all the six SPTs, gave the maximum bearing capacity. At the same time, the minimum value was obtained by the method proposed by Bazaraa and Kurkur. The bearing capacity estimated by other methods such as Schmeretmann, Decourt, and Meyerhof's equations indicated moderate values located between these computed based on the Shioi and Fukui and Bazaraa and Kurkur's methods. The last method can be considered a conservative method.

Keywords: Piles; SPT; Nassriyah soil; Bearing capacity

Climate change effect on the South Iraq stormwater network

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Abstract. The important issue that municipalities face is the process of urban flood control and monitoring due to the damage these floods cause to infrastructure. To reduce potential climate change risks, this study aimed to develop a decision to determine the efficiency of stormwater networks in Basra, Iraq. Based on the data obtained from 1979 to 2018, the Storm Water Management Model (SWMM) program was used to simulate the stormwater network in Basra and use this data to predict the annual precipitation in the future until 2099 using the Statistical downscaling Model (SDSM). The results indicate a future rise of (0.14 to 1.07) °C as a maximum temperature. As a result of climate change, the intensity of rain is expected to increase beyond the network capacity to reach 21.5 mm/hr. The network's design capacity is 11.5 mm/hr., leading to 34% of manholes overflow.

Keywords: SWMM, SDSM, Climate change, Stormwater network.

Reviewing the Effects of Noise Pollution on Students (College and University)

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Abstract. This paper reviews research, studies and questionnaires on issues relating to the effects of noise on students at colleges and universities. Issues covered include factors affecting; colleges and universities campuses noise sources, outdoor and indoor classroom, and educational labs noise sources; health effects of noise on students; and acoustic environment of the classrooms.

An optimal solution to the unit commitment problem for a hybrid power system

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Abstract. This paper address the unit commitment problem for a power system consisted of conventional fossil power plants and wind energy farms. The main objective function to be reduced is the cost of fuel while meeting the technical and environmental restrictions such as limitation of power generation for each unit, startup cost, shut-down cost, spinning reserve, CO2 emission, wind speed limit. The artificial technique adopted to search for the optimal solution is Salp Swarm Algorithm. The suggested algorithm is utilized in a typical hybrid power system. Two cases studies are tested. The first one is for a power system free of renewable sources. The second case is for an integrated power system with a wind farm consisted 20 turbines. The obtained results are discussed.

Keywords: Unit Commitment, wind farm, load demand, constraints, Salp swarm algorithm, Total operation cost.

Spatial Analysis Based Method to Determine the Optimal Locations for Asphaltic Concrete Plants: Case Study in Karbala Governorate of Iraq

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Abstract. The construction of a new capital improvement facility is a significant and long-term investment. Site selection is a crucial decision made by that has an impact on a wide variety of activities, from land use planning to industrial facility siting. The location of facilities is crucial to the success or failure of such investments. The location of an asphaltic concrete plant is determined by a complicated set of elements that include economic, social, technological, and environmental considerations. The process of selecting locations that fulfill the selection criteria's desired parameters is known as site selection. Handling of geographical data and fulfilment of various criteria are critical to the effectiveness of decision-making in such a process. Geographic information systems and cost breakdown methodologies are incorporated systematically in solving asphalt concrete plant site selection challenges in this study, which was carried out in Karbala governorate of Iraq. Finally, combining a GIS model with a cost breakdown technique allowed for the discovery of optimal asphaltic concrete plant locations that balanced economic, environmental, and social factors. According to the study, there are around 120 potential asphaltic concrete plant locations, each with a minimum area of 40,000 square meters.

An integrated framework for measuring construction project performance success

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Abstract: The construction sector is plagued by an inability to assess project performance., as there is no agreement between researchers on a comprehensive measure of project performance and the main reason is that each project has different priorities and goals, so there is a permanent need to understand and define areas of performance that affect the project's success positively, in this study an integrated framework is developed to assess the performance of the project's success. The literature review summarized 17 main factors and 130 sub-factors that affect the performance. Delphi was used in this research in two rounds, Round I questionnaire field survey of experts and engineers are undertaken to assign weights to each factor on a five Likert scale. Round II the analytic hierarchy process (AHP) was used to analyze the results using an expert choice program. The resulting framework consists of 9 main factors and 20 sub-factors. The resulting framework was applied to a case study consisting of 50 accomplished school buildings. The performance coefficient for each school was measured . Measuring performance in building projects is difficult. Only a few of the-ranking indicators can use to assess the project's performance.

Investigating and Evaluating the Application of Green Building Principles in the Iraqi Construction Legislation

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Abstract. The environment is considered a basic element of life. It affects the living system of all organisms directly and indirectly. The proliferation of energy problems and environmental degradation supports the urgent need to implement green building principles. The study aims at investigating and evaluating the application of green building principles in the Iraqi construction legislation through conducting a comparative analysis of Iraqi environment and construction legislation with green building principles. In addition, it aims at developing a questionnaire designed to study the extent of Iraqi engineers' understanding of green building principles in the Iraqi legislation, and how these principles are employed in the legislation from engineers' perspective. Based on the analysis results, the principles of indoor environmental quality followed by materials and resources and water efficiency were partially applied; whereas the other four principles were not applied. From engineers' perspective, the results indicated the failure to apply all principles of green building. The results of the study have identified the deficiency found in the legislation and developed a set of recommendations and solutions that contribute to the application of green building principles, the most important of which include the inclusion of green building principles in the syllabus of engineering colleges.

Cementitious materials of waste used in the production of geopolymer concrete: an overview

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Abstract: The need for concrete is steadily rising to satisfy the growing demand for infrastructure development. It is well knowledge that the manufacturing of OPCs uses a significant amount of natural resources and energy, as well as emits a significant quantity of carbon dioxide into the environment. As a result, solutions must be found to make concrete more environmentally friendly. Geopolymer is a cementitious inorganic alumina silicate compound produced from cementitious ingredients. To produce concrete that is more ecologically friendly, efforts must be made to utilize this kind of concrete locally. This research looks at materials having cementitious characteristics that may be generated locally as industrial by-products or waste materials and are utilized to make geopolymer concrete. Having the use of various materials with cement characteristics, many research materials demonstrating the properties of geopolymer were evaluated.

Keywords: Geopolymer, Cementitious materials, Fly ash, Silica fume.

COMPUTER MATHEMATICS IN THE STUDY OF PRIME NUMBERS

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Abstract: From the beginning of human history, prime numbers aroused human curiosity. What are they? Why are the questions related to them so hard? One of the most interesting things about prime numbers is their distribution among the natural numbers. On a small scale, the appearance of prime numbers seems random, but on a large scale there appears to be a pattern, which is still not fully understood.In this paper we use the Maple software to bring the romantic world of prime numbers closer. We discuss the most important results and their application in the Maple system.

Keywords: computer mathematics , prime numbers , number sequences

Study of Swelling Potential Soil in Diwaniya City Based on Previous Empirical Equations.

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Abstract. Al-Diwaniya city is within the Mesopotamia plain lands with clay and silt character, the high shallow groundwater level about (0.60-1.55) m from the ground level is one of its features. Revealed the properties of soil and groundwater serious problems that occur to buildings and roads in the city, as a result of soil expansion and contraction. To understand the problem, ten boreholes were drilled, field information was recorded and the examination was conducted. The results showed that the clay percentage (11% -67 %), Plasticity Index (15 %-35 %), and Soil activity (Ac %) is low to moderately active. Four empirical equations from previous works were used to estimate the potential soil swelling, and evaluate the relationship of the physical properties of the soil with the swelling potential. All samples collected from Diwaniya city showed that the soil had low to medium swelling potential, it's possible that it'll be risky for lightweight structures at medium swelling potential. Also, the relationship between swelling potential (Sp %) and plasticity index (PI %) is strong and acceptable, converse the relationship between swelling potential (Sp %) and clay content (Cc %) was weak. This indicates that swelling soil depends on the quality of the mineral present in clay and does not depend on clay percentage, as the type of mineral that appeared in this study is Kaolinites, and Illites according to the plasticity chart of Diwaniya soil samples. Groundwater level is effective in deformations. For this, it is necessary to plan the construction according to groundwater level of the city, as it affects the swell and shrinkage soil.

Keywords: Diwaniya City, Empirical Equation, Plasticity Index, Swelling Potential

Petrographic study of Injana Formation in selected areas in Iraq

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Abstract. Injana Formation is extensively exposed in Iraq. Three sections have been chosen from Zawita, Tikrit and Tar Al-Najaf areas. Systematic sampling has been performed and 32 samples for petrographic investigation were collected from the outcrops of selected areas. The megascopic description in precise details is also attained.Petrographic investigation using polarized transmitted light microscopy reveals an intense effect of the Zagros-Taurus provenance on Injana sediments. Zawita and Tikrit sections are closer to the source area from the Tar Al-Najaf section. The mineralogical component, size and shape of sand grains confirmed this result. Injana sediments in Tar Al-Najaf subjected to long transportation because the source rock is far away and long distance from this area.

Keywords: Sediments; Zawita; Minerals; Injana; investigation

A GIS-based Network Analysis for Truck Vehicles in Baghdad's City Road Network

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Abstract: Most applications use distance as a weight to solve the shortest path problem. We employed a variety of parameters in this paper, including (Route Distance, Speed, and Capacity of the Road, and the time it takes each trip to the road). The major goal of this study is to determine the most effective approach for communicating this essential spatial information to end-users using GIS software. To discover the best route, most algorithm for best route (Dijkstra's shortest path algorithm, Euler's algorithm, etc.) are utilized. The proposed upgraded approach was applied to the Baghdad city road network as a case study. Baghdad has a problem in Processes for urban transportation planning are being implemented, particularly in terms of selecting appropriate transportation policies to address mobility issues. The Origin – Destination Matrix is a crucial component of the transportation planning process. One of the necessary aims of transportation studies in Baghdad city is the O-D matrix, which is the travel demand between (central Baghdad city and the commercial centers). The findings of this study can help local transportation authority's choose the best transportation policy, maximize income, and better manage resources.

Keywords: Geographic Information System (GIS), O-D matrix, Best Route, HV (Heavy Vehicle) and Traffic Vol.

Total Petroleum System Study Of Nahr Umr Oil field Southern Iraq

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Abstract. The Nahr Umar field is located in the Basrah Governorate in the southeastern part of Iraq, about 30 km north to northwest of the city of Basrah. The Shatt al-Arab passes through it and divides it into two parts.The research included studying the oil-producing formations and knowing their chemical properties, as well as the source rocks and linking the relationship of the oil system to this field. Rock samples were collected by 41 rock samples (including 19 reservoir samples and 22 source rock samples from Yamama Formation and Sulaiy Formation). In addition to collecting 39 oil samples from wells NR-7,NR-9, NR-18 &NR-23. They represent four crude oil samples and 35 oil samples extracted from Lower Fars Zubair and Yamama reservoirs. These samples were subjected to analyzes using different techniques that included the Gas-chromatography,SRA technique,Liqiud chromotography (HPLC) , Gas Chromatography- Mass spectrometry GC Mass , Method of isolating asphalt from oils. The study showed that the total organic matter TOC in the formations of Zubair, Yamamah and Sulaiy in varying proportions, but the Sulaiy Formation recorded the highest percentage, reaching 4.9%, so this formation is very rich in organic matter and is considered an excellent source rock of the type II & III .And it has a high ability to generate hydrocarbons. As for the maturation of the organic matter, depending on the maximum temperature T max, which ranges between (442-446), and the reflectivity of Vetrenite R0 % ranging from(0.8-0.86) , it is considered mature rocks and has the ability to generate oil only.The reservoir oils under study were classified into two groups depending on the geochemical characteristics. The first group includes the Mishrif and The lower Fars reservoirs, while the second group includes Nahr Umar, Yamamah and Zubair reservoirs. The study indicated that the sulfur content of the first group ranges from (2.2 - 2.3), where these oils have a high sulfur content. These percentages of sulfur decrease with increasing API. We note the low maturity in the reservoirs of the first group, and also, the data of the study, which included the sulfur content Pr/Ph, CPI, showed that the oils of the first group originated from limestone rocks. The study also showed that the oils of the second group contain a lower percentage of asphalt than the first group, and this is evidence that the oils of the second group are sourced from muddy carbonate rocks, deeper than the carbonate rocks generating the oils of the first group. The results also indicated that the sections of asphalt and resins do not exceed 26% in the oils of the second group. While it reached 39.64% in the first group, and this is evidence that the second group has greater mobility and migration than the first group.**Key words** : Geochemical Analysis ,Nahr Umar , API, Sulfur content .

Effect of core heterogeneity on core-flooding experiments: a simulation study

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Abstract. Reservoir simulation became a basic tool to predict behavior of oil reservoirs under a certain production scenario. Core-flooding is a key source of data for the reservoir simulation. In cases of old oil fields with no new well-drilling, there is always a limitation in number of cores that can be used for core-flooding experiments. This makes use of heterogeneous cores a vital option. Homogeneity or heterogeneity state of the cores can be revealed by the X-ray computer tomography scanning technology. Most of core-flooding equipment use a conventional core-holder with only inlet-outlet pressure transducer. This paper presents a simulation study for effects of heterogeneity on core-flooding experiments. The implicit finite differences approach was used to solve the diffusivity equation for 1D-linear flow of a slightly compressible fluid. The core sample has been discretized to grid-blocks with 4 different configurations for the permeability. The study shows that although for the same average permeability, the pressure gradients along the core sample is a function of heterogeneity. Thus, core-flooding of heterogenous cores by a conventional core-holder will show misleading results. A core-holder with taps or pressure sensors to measure pressure gradients at sections along the core sample is a crucial issue to obtain meaningful results.

Keywords: Core-flooding, heterogeneity, simulation.

Superconvergence of conforming and nonconforming finite element approximation for elliptic problems by L^2-projection

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Abstract. Finite element superconvergence method focuses on approximating the element with an exact solution with a percentage greater than the estimated value of the optimum order error. It is considered as one a great interest due to its very rapid convergence. In this paper, we review the superconvergence in the method of finite elements conforming and nonconforming of elliptical problems of the second degree through arithmetic experiments to show the merits of each of them and using the L^2- projection. The results of the presented examples, which were arithmetically solved and represented using Matlab, indicate a great accuracy in the superconvergence of NCFEM and CFEM projections using L^2.

Keywords: Superconvergence, CFEM, NCFEM, Second Order Elliptic Equation, L^2 –Projection.

Improvement of mechanical properties of AA5052 by using different nanoparticles with constant weight percentage of Al_2O_3 , TiO_2 and ZrO_2.

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Abstract: The present work is to study the effect of adding nanoparticles to aluminum alloy on mechanical properties. The AA5052 was using as based material with constant weight percentage 7%wt. of different nanoparticles such as alumina (Al2O3), titanium dioxide (TiO2) and zirconia (ZrO2) with an average grain diameter 25-35 nm. The stir-casting method has been successfully used to fabricate composite specimens. The results of this study showed that the mechanical properties strength and hardness for the AA5052 reinforced with nanoparticle Al2O3, TiO2 or ZrO2 with 7% weight percentage was improved. The best percentage improvement of mechanical properties of AA5052 was with 7% wt. of ZrO2 about 54% for ultimate tensile stress UTS, 33.8% for yield stress YS and 20.5% for V. hardness than the based material AA5052, well for other adding of titanium dioxide TiO2 and alumina Al2O3 with the same weight percentage 7% the improvement were 35.8% and 13% for ultimate tensile stress UTS, 15.4% and 6.3% for yield stress YS and 10% and 5.8% for V. hardness respectively.

Structural health monitoring of oil pipeline using wireless sensor networks

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Abstract. Due to the rapid developments in electronics and computing, wireless monitoring of devices and equipment is becoming a suitable option, and wireless sensors are receiving much attention compared to other traditional monitoring systems. This research presents the design of a wireless system to monitor the health of the structure of oil pipelines on the basis of vibration monitoring to detect the harmful events that may be exposed to the pipelines such as drilling or breakage, etc. and diagnose them early to avoid the damages that result from them, which often lead to serious consequences and great economic losses, and may lead To massive loss of life and bad social impact. The monitoring system was designed and implemented using a three-node wireless sensor network (WSN). Each node consists of an accelerometer that measures vibration and a 32-bit ARM microcontroller that sends data to the coordinator node (base station) for data collection and analysis. The received pipe vibration signal is analyzed for several different states. Normal state(no event), knocking state by hand hammer, and drilling state by an electric drill. The results obtained showed the ability of the proposed system to accurately detect harmful events that may be exposed to pipelines.

Keywords: Wireless Sensor Network, Acceleration, Vibration, oil pipeline

Effect of Nanoparticles on Fatigue Life of Aluminum Alloy as Composite Materials under Constant and Variable Loading.

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Abstract: This present work is to study the effect of adding nanoparticle on the fatigue life of aluminum alloy under constant and variable loading. The AA5052 was using as a base material with different nanoparticles such as alumina (Al_2O_3), titanium dioxide (TiO_2) and zirconia (ZrO_2) with an average grain diameter (25-35 nm) at constant weight percentage such as 7%wt. The stir-casting method was used to fabricate composite specimens. The results of this study showed that the fatigue strength under constant loading of AA5052 with 7 w % Al_2O_3, 7%TiO_2 and 7%ZrO_2, nanoparticles was higher than that of as cast AA5052 as well as fatigue life factor (FLIF %) at different amplitude stresses were improved. The best Improvement of fatigue strength at 10^7 cycles was for AA5052 with 7%wt ZrO_2 nanoparticles was 23.7% as well as the fatigue life factor (FLIF %) at different amplitude stresses (60, 50 and 45MPa) was improved with (40.6, 76.7 and 54.8%) respectively, while the improvement in fatigue life (FLIF%) under variable amplitude loading for high-low and low-high sequence loading of AA5052 with 7wt% ZrO_2 nanocomposite were enhanced by 44% and 37.7% respectively compared with fatigue life of AA5052.
Keywords: Al5052; metal matrix composite; variable loading.

Quality assessment of heavy metals presented in crude oil by identification spectral lines by the LIPS - technique

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Abstract. Petroleum is a complex mixture containing on the major and minor elements from organic and inorganic compounds and amounts of inorganic elements and metals. Compositional determination of crude oil is one of the most important topics for its identification and subsequent processing. In this study we identified the analytic lines of heavy metals (HMs) found in crude oil extracted from Iraq south field that are unique spectral by using the laser-assisted plasma (laser material processing) that led to the ionization of the sample in the hot plasma, the plasma emission spectrum was recorded by the spectrometer connected to the fiber optic and resolved spectra were used for identification of detected metals based on the principle the finger print. We are selection and determine the result optimum of the global reference line properties (highest signal intensity I, induce temperature T_e) and lower skew value of analytic lines intensity when use the limited laser parameters and lower pretreatment time (drying time). After five pretreatment stages, the treatments by drying the sample at different time (1-9) day with constant temperature at 30 C^o were executed. Found results are designated and compared in all cases and the atomic parameters of selected lines were taken by assisted NIST database. For control the challenge presented by the properties of the crude oil samples, as organic liquid case (crude oil). The optimum results obtained indicate that the LIBS - technique is effective and rapid technique to identify the heavy metals (HMs) presented in the crude oil. The major elements such as C, H, N, O and minor (trace) Fe, V, Ni, Cr, Cu, Co, Ce, Mn, Mo, Ti, Ta. Sc, U, W, Hg, Pb, Sm, Y, Tm, Er, Eu, Re, Zr, Dy, La, Rh, Ru, Th, Gd ,Nb and Nd metals have been identified and their parameters calculated based on analysis of the spectrum that contain all information needed to derive the elemental analysis in the crude oil.

Keywords: - Crude oil -heavy metals (HMs) - Nd: YAG laser -laser-induced plasma

Study the effect of axial heat conduction in microchannel heat exchanger with different channels geometries

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Abstract: In this paper numerical investigation has been made to study the effect of axial heat conduction in microchannel heat exchanger with different geometries of channels (square, circle, iso- triangle, trapezoidal). The flow is studied with varying Reynolds number (100-900) as laminar, incompressible, 3D, single phase, steady state are solved numerically. The behiaver of axial heat conduction under different thickness of wall is investigated in this article. The results showed that, existing axial heat conduction reduction the effectiveness of heat exchanger and rate of heat transfer also with increasing Reynold number axial heat conduction increased. The paper study the effect of channel shape and explained the triangle channel has maximum axial heat conduction followed by trapezoidal channel. The factors which affect on axial heat conduction are Reynold number, thickness of separating wall, direction of flow and channel shape Worked in this paper comparison between the results of parallel flow and counter flow of microchannel heat exchanger with considering axial heat conduction. Three types of working fluids (air, water, ethylene-glycol) used in this work, also to simplifying efforts and reduce time for researchers in this field predict correlations describe the effect of axial heat conduction

Key words: axial heat conduction, Microchannel heat exchanger, Laminar flow, Numerical investigation, Thermal performance .

Investigation from the laser- parameters effect on improvement the signal of spectral analysis lines of metals in the crude oil by using LIPS-technique

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Abstract. In this work, we study effect a laser–parameters on the properties of spectral lines generated from crude oil-plasma by using laser induced plasma spectroscopy. LIPS-Technique is a novel technique for elemental analysis based on the unique spectral signature by laser generated plasma. In this technique, laser pulses are applied for generating of the crude oil-plasma in air through focusing a Nd : YAG laser at wavelength 1064 nm and pulse duration 10 ns on test sample to study the capability of (LIPS) as a rapid tool for metals analysis presented in Iraqi crude oil extracted from south field. Optimal laser – parameters of laser-energy (E) and pulse prepetition rate (P.P.R) were evaluated for improving the properties of reference analytic lines (I, T) of GRL and the internal reference lines of iron, nickel and vanadium analytic lines. The analytic lines properties have also been studied for the 606.09 nm wavelength as global reference line for all plasma spectrum (all analytic lines) and the 689.87, 662.4 and 607.31 nm wavelengths as reference line for each Fe, Ni and V metal responsibility. The measured values of the global reference and internal reference lines properties (signal intensity I and Stimulation temperature T) were enhanced values. The optimum obtained results indicate that the LIPS performance is rapid and active method to control on the spectral analytic lines properties and identify the all metals presented in the crude oil.

Keywords: -Crude oil -heavy metals -laser-parameters -laser-assisted plasma (LIPS)

A

nalysis of Earth to Air Heat Exchanger system for the heating applications with different channel shapes

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Abstract: This paper studies numerically the effect of channel shape on the overall performance of (EAHE) through winter season. Five shapes cross section of (EAHE) channel (circular; square; elliptical; triangle and rectangle) are studied numerically according to the climate conditions for Nasiriyah city in southern of Iraq. First the built numerical model was validated against experimental model and the results of comparison showed good consensus. After the validation and by using CFD modeling the overall performance of EAHE system with all shapes of channel was analyzed with ranges of air velocity, inlet air temperature and by assuming that the volume and the cross-section area for all shape of EAHE channel are constant. The results illustrated that, the system of EAHE is suitable for using in heating applications, also the results proved that, the circular cross section channel has the best performance.

Key word: channel shape, (EAHE) , CFD

An experimental study to enhance the heat transfer by the flow disturbing

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Abstract. Heat transfer is an important area of industrial and daily applications, and technological improvement is required while reducing project cost and is a fundamental working principle of air conditioning systems. The main idea of the research is to increase the turbulence of the flow. By generating vortices using obstructions placed at different locations from the heat source. To create a helical path for particles due to obstacles and to change their velocity and kinetic energy. Three grids made of cylindrical iron rods with a diameter of 3 mm with regular spacing between the bars (1,2,4) cm were used in the channel from the heat source (20,40,60) cm, and three speeds (1425, 2140, 2850) RPM from the air drawn to the end of the channel and the best thermal performance in the type of mesh, and in the location of effect, and the speed of air intake, 1cm, 60cm,1425 rpm, respectively

Keywords: Heat transfer, Enhancement, Vortices, Turbulence

Laser-produced Aluminum nanoparticles: Synthesis and Analysis

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Abstract. The liquid laser ablation technique is used to create aluminum nanoparticles using Nd:YAG laser nanosecond pulses. Nd:YAG pulse lengths of 6 and 10 nanoseconds are used in both systems, with variable energy in the range of (700-760 mJ). Using a TEM with a same size distribution, the creation of aluminum nanoparticles was eliminated. Additionally, it has been discovered as soon as the same parameters of the laser are applied, the typical nanoparticle sizes for cupper are 80 and 120 nm. Furthermore, the theoretical Mie-Gans model was employed to approximate both aluminum nanoparticles' temperature distributions. The maximum temperature of aluminum nanoparticles has also been determined to be between (800 K) and (1200 K), particularly when nanoparticles are prepared with 10 ns Nd:YAG.

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Physics Papers

Effect of Electrode Type on Non-Thermal Plasma Production

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Abstract: The atmospheric pressure plasma jet (APPJ) is a promising technique because its robustness of applying in many fields, due to its advantages such as high efficiency, safety, no toxic residue, and low cost. Therefore, in this paper, a simple yet approach has been implemented to optimize the better electrode types in the system of the plasma jet. A low-cost homemade plasma jet system is being utilized for the experiment. The plasma jet system is worked by a home-made high voltage AC power supply device, this device provides high voltages (peak-to-peak values) from 0 to 20 kV with variable frequencies between 0 to 12 kHz. Three electrode types are used, Aluminum Al, Copper Cu, and Silver-Ag. The discharge voltage is fixed at 9 kV during the experiment and the frequency at 7 kHz. In addition, working gas is Argon with 4 standard liter per minute as a fixed flow rate to show the effect of electrode type on plasma production. Optical emission spectrometer is used to analyze the spectra of the argon plasma with three electrodes types of the system. This study shows that the produced atmospheric plasma jet with Al electrode is more efficient than of those with Cu,and Ag electrodes due to electron temperature and reactive species production.

Keywords. Reactive Species; Non-thermal Plasma Jet; Op- tical Emission Spectroscopy; Electrode Type.

Effects of AuNPs capped gelatin and photodynamic of laser on evaluation of response in superficial skin tumors in laboratory mice.

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Abstract: Prepared gold nanoparticles and covered with gelatin were synthesized with little difference in gelatin concentration by reducing the volume of a chloric acid stock solution with a fixed volume of sodium citrate dihydrate (34 mm) solution. The nanoparticles exhibited excellent colloidal stability and transmission electron microscopy (TEM) revealed the formation of well-spherical gold nanoparticles (AuNPs) of different sizes. The methodology yields particles with a size of 10-20 nm Depending on the concentration of gelatin used, the gelatin AuNPs exhibit size-dependent surface Plasmon resonance behavior as measured by UV visible spectroscopy, and it was SPR ranged from 518 to 543 nm. The aim of this study is to evaluate dynamic therapy using a 532 nm wavelength laser with gelatin-coated gold nanoparticles as photosensitizers in vivo.According to the findings of the study, the green diode laser has the best photodynamic therapy effect on cancer cells in vivo after cells photosensitization with gold nanoparticles covered with gelatin at a concentration of 1% and an exposure time of 60 seconds.

Keywords: AuNPs capped gelatin, photodynamic, 532nm laser, laboratory mice, HAuCl4.

A Theoretical Study on the Optical and Electronic Properties of the PVA-TiO_2-Ag Structure

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Abstract. This study aims to clarify the effect of adding nanomaterials on the structural, optical, and electronic properties when added it to a pure polymer. In this research, a poly vinyl alcohol (PVA) polymer (75 atoms) was used. We calculated the Optimized geometry, IR spectrum, the distribution of HOMO and LUMO, and some of electronic properties like (Cohesive energy, Chemical hardness, Chemical softness, Electronegativity, Electron affinity, and Ionization potential) by using density function theory (DFT) and Gauss View program at B3LYP level with bases set SDD, after which we added the nanomaterials TiO2 (titanium oxide) (74 atoms) and Ag (Silver) (74 atoms) to the PVA polymer chain to obtain the nanocomposite and recalculated Characteristics Once again, and we note the effect of adding nanomaterials on the pure polymer, and to make a comparison between those properties for each of the PVA polymer nanocomposites.

Keywords. Polyvinyl Alcohol, DFT, SDD, TiO_2, nanocomposite.

Phase-Coupled Synchronization with Optoelectronic Feedback

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Abstract- In this research work, a phase-coupled scheme containing two chaotic lasers was evaluated using the theoretical dimensionless model. It is possible to significantly increase the perturbation in laser behaviour with the incorporation of optoelectronic feedback. The study presented a novel impact study pertaining to synchronization of the phase of sustained chaotic oscillators with weakly coupled. For coupled chaotic lasers, especially in mix-mode case of synchronous system, the phases remain safe. Even though the amplitudes vary untidily and are almost without correlated. In the study, the authors identified a novel synchronization model when coupled with a chaotic oscillator. This occurred in the presence of entraining the frequencies whereas the phase difference remained unbounded.

Keywords. optoelectronic feedback, phase-coupled, phase-looking.

Effect of the Three Dimensional Conformal Radiotherapy (3DCRT) peripheral dose on the nipple region of the Opposite breast of the obese cancer patients.

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Abstract. Background: Obesity is one of the important risk factors for breast cancer and may lead to increased exposure to the opposite breast as well as alter dosage distribution during treatment. The dosage distribution on the opposite breast might be evaluated using point dose measurements. This study looked at how body mass index affected the amount of dispersed dosage that reached the opposite breast.

Study of Inelastic Coulomb Form Factors in ^{18}O using the Radial Wave functions of Transformed Harmonic-Oscillator

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Abstract. The Inelastic Coulomb form factors for 18O for the transitions with the multipolarities J = 2 and J = 4(four different states for each of them) are studied using the bound state radial wave functions of transformed harmonic-oscillator(THO) in the framework of local scale transformation (LST). The parameters of such THO are adjusted so as to regenerate the size radii (rms proton, neutron and matter radii)for18O. The effect of the core-polarization to the calculated charge form factors are accounted using Bohr-Mottelson and Tassie models. Finally, the quadruole moment for 18O is calculated.PACS number(s): 21.*1*0.Ft, 21.60.Cs, 25.30.Bf.

Keywords: inelastic Coulomb form factors,charge density distribution, size radii, root-mean square radius,transformed harmonic-oscillator, local scale transformation, 18O

Dispersion Parameters of PVA-PAAm-Sb_2O_3 Nanocomposites Prepared by Casting Solution Method

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Abstract: In this study, the influence of Antimony Trioxide Sb_2O_3 addition on several optical and structural characteristics of polymers was investigated. For this purpose, many films have been made by adding Sb_2O_3 to polymers with various weight percentages of (Sb_2O_3) with polymer utilizing the casting method. The absorbance and transmittance spectrum in the wavelength range (200-1100) nm, were measured. The indirect allowed transition's absorption coefficient, extinction coefficient, refractive index, real and imaginary dielectric constants, and energy gap have all been determined. The experimental results showed that the absorption coefficient was less than 10^4 cm^{-1} this is indicated to allowed indirect electronic transitions. The refractive index and extinction coefficient were increased with increasing of the addition of Sb_2O_3 wt.% content. The energy gap was comparable to Tauc and Wemple–DiDomenico models.

Radioactivity levels in Sediment Samples of Tigris River in Baghdad governorate, Iraq

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Abstract: The specific activity of the radionuclides (238U, 232Th, 40K, and 137Cs) for thirty different sediment samples from Tigris River within Baghdad city, Iraq were measured using gamma-ray spectrometer, employing a NaI (Tl) scintillation detector. The results show that the average value of the specific activity for 238U, 232Th, 40K, and 137Cs were (38.42, 21.08, 606.97, and 28.92) Bq/kg, respectively. The average values of the radium equivalent (Raeq), absorbed dose rate in air (D), external and internal hazard index (Hex, Hin), annual effective dose equivalent indoor and outdoor (AEDEin, AEDEout) and the risk idex (Iγ) were calculated for the investigated area, were (115.31 Bq/kg, 55.97 nGy/h, 0.31Bq/kg, 0.42 Bq/kg, 0.07 mSv/y, 0.27 mSv/y, 0.87 Bq/kg) respectively. The rates of specific activity and radiological hazard index in sediment samples were all lower than the global limit, according to the results of this study. The study's findings may be useful as baseline radiometric data for future epidemiological studies and monitoring efforts in the study area.

Key words: specific activity, radionuclides, gamma-ray spectrometer, radiological hazard index, River sediment, γ-Spectrometry, Gamma dose rate, Radiation hazard indices

Spectral examination of Erbium dissolved in distilled water at different pH and concentrations

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Abstract. The present work coal to investigate the spectral properties of Erbium dissolved in distilled water and prepared in different concentration and acidic function (pH). Distilled water is the suitable solvent of Erbium. The produced solution was soluble depend on molecular weight of Er. The spectral properties completed by using UV-visible spectroscopy in order to study the effect of concentration and pH on the absorption spectrum, besides the structural properties was exanimated by spectroscopy of Field Emission Scanning Electron Microscopy (FESEM), as well as the crystallinity analysis of samples through X-Ray Diffraction (XRD) examination. Results refer to, in the same concentration, the absorption spectrum not affected by changing the pH, while at different concentrations the absorption spectrum was varying with it and different peaks were appear specially in case of high concentration (10-2) gm/cm3. FESEM spectroscopy refer at concentration 10-2 gm/cm3 with pH5 clear not homogeny's structure and the range of particle size was (316-594) nm, while at the same concentration but in the acidic medium with pH10 appear more homogeneous structure and smaller than in case of pH5 they ranged between (31- 83) nm. From XRD analysis found with increasing the concentration the crystal structure appeared, while at low concentrations (10-6) gm/cm3 the structure was amorphous. In addition, at the same concentration at pH10 the structure was amorphous, while at pH3, the structure was polycrystalline.

Keywords. Erbium, UV-visible, acidic function, spectroscopy, structural properties.

Image Classification Schemes Based on Statistical Moments of Wavelet and Gradient Matrix

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Abstract. Texture classification is used in various pattern recognition applications that possess feature liked appearance. This paper aims to improve the classification accuracy of texture based two methods first one extracting a directional based texture features using gradient matrix. Two different types of features are proposed: (i) first order gradient feature vector, (ii) max-min gradient feature vector, second methods was discrete wavelet transform, the statistical distribution of various relative moments was adopted, applying two level of DWT. Each one of these feature vectors is studied individually. Four types of Euclidean distance metrics were used for classification decision purposes. The considered method was applied on 475 classes of textures belong to 32 sets from Salzburg Texture Image Database, each set holds 16 images per class, so the total 7600 image images were tested. Each image was separated into seven bands of color component (i.e., red, green, blue, and gray….). Concepts of average and standard deviation were calculated to determine the inter/entra scatter analysis for each feature to find out the best discriminating features that can be used. Final result of DWT was 99.98 for testing sets and 99.71 for training sets, while the final result of GM was 98.3 for testing sets and 96.2 for testing sets.

Keywords: Texture classification, texture analysis, gradient features, DWT features

Assessment of lung cancer risk due to exposure to radon from oil well in (Majnoon) Basra

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Abstract. The natural radioactivity levels of Majnoon oil field (MJ-95), which is considered one of the oldest oil fields in Basra, were studied using scintillation detector gamma ray spectrometer with NaI(Tl) detector. Soil samples were collected from MJ-95 plants at different depths. Radon (Rn) concentrations within and outside the oil field were calculated using a set of formulae. The highest value in the sample in depth 2750m was 93.36Bq/m3 and the lowest value in the sample in depth 2850m was 0.58Bq/m3. The average risk of cancer caused by radon (deaths per million people) was 14.93.

Keywords: Majnoon oil field, deaths per million people, Rn concentrations

"Determining the specific activity of radioactive isotopes of, ^{226}Ra,^{228}A, ^{40}K, ^{137}Cs in the soils of selected areas of Najaf city - central Iraq"

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Abstract. This study dealt with the determination of the specific activity of radioactive isotopes, 226Ra,228A, 40K, 137Cs in soil samples from selected areas in the city of Najaf - central Iraq, 20 samples were collected from different areas of Najaf governorate - central Iraq during the month of December 2021. An effective short-term measurement method using High Purity Germanium (HPGe) detector was used. The results showed that the values of the specific activity of natural radioactive isotopes in the soils of the study area, were the lowest value of the specific effectiveness of radium 226Ra Bk.kg-1 22.95 in sample No. S16 (Abbassi) and the highest value of 186.74Bk.kg-1 in sample No. S17 aldasam area with an average of 39.05 Bk.kg-1 and for actinium 228Ac, the lowest value for activity was 17.73 Bk.kg-1 in sample (S16) and the highest value was 45.15 Bk.kg-1 in sample (S10) in the wahat alruhban with an average of 29.32 Bk.kg-1 For potassium 40K, the lowest value for the activity was 208.19 Bk.kg-1 for sample No. S16 and the highest value for 530.18 Bk.kg-1 for sample (S10) with an average of 349.86 Bk.kg-1, and for synthetic cesium 137Cs, the highest value for the activity was 5.10 Bk.kg-1 for sample No. (S13) and the lowest value of Bk.kg-1 was 0.34 for sample S5 with an average of 2.33Bk.kg-1 S5. The radium equivalent was calculated and found that its value ranged between (63.46-158.53) Bk.kg-1 ((S16-S10) and an average of 105.34Bk.kg-1 4917. The values of the absorbed dose in the air were calculated and found to range between nGy.h-1 (29.64-74.05) and an average Bk.kg-1 of 48.90, the external and internal risks resulting from the level of specific efficacy in those models and it was found that the internal risks Hin ranged between 0.27) S16)) to (and (0.53 .) With a rate of 0.39, and for Hex external hazards, it ranged between (0.22) (S16) to (S10) (0.44) (S10) and a rate of 0.32. In general, the study found that the values of the specific effectiveness of the radioactive isotopes, 226Ra,228A, 40K, 137Cs , for the studied models fall within The internationally permissible limits are 32Bq/Kg,33Bq/Kg,412Bq/Kg,14.8Bq/Kg), with the exception of some study areas, especially the wahat alruhban, which recorded a noticeable increase in the values of specific activity.

Key words: specific activity, high purity germanium detector, radium equivalent,

Synthesis and Characterization study of CuO Thin Film and CuO-CeO_2 nanostructured composite using Chemical Spray Pyrolysis

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Abstract. In this work, thin films of copper oxide (CuO) and copper-cerium metal oxide composite (CuO-CeO2) have been deposited on glass substrates at 400°C using spray pyrolysis. The structural, optical, topographical, and morphological properties of the prepared films were investigated using XRD, UV-visible spectrum, photoluminescence, AFM, and FESEM. The structural properties revealed a polycrystalline structure of a monoclinic phase with a sharp peak orientated at (111) for the CuO sample, whereas a mixed phase of monoclinic and cubic was developed for the CuO- CeO2 composite sample. Optical measurements demonstrated the thin film bandgap between 2.2 and 2,65 eV respectively for CuO and CuO-CeO2. An emission peak at 554 nm is found in the PL spectrum conforming to the copper oxide film, while it was shifted at 502 nm for the metal oxide composite sample. The AFM investigations indicate that the deposited films are homogeneous and that the particles distribute over a whole surface with an average particle diameter ranging from about 35 to 93 nm. FESEM micrograph images revealed a random grain distribution on the surface of the CuO film with primarily trapezium grain structure-like. Meanwhile, the CuO-CeO2 film revealed a porous surface with the non-uniform distribution.

Keywords: CuO, CeO2, thin film, PL, structural properties, FESEM, morphology

Hazard Indices and Cancer Risks Estimations Due to Inhalation of Lead in Air of Some Baghdad Cities

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Abstract. The concentration of toxic lead (Pb) have been measured in more than seventy indoor air samples that collected from several areas in Baghdad districts frequented by a large number of people. Samples will be collected from the aircraft conditioning systems at some of these places and washed with the use of pure water. Pb concentration was obtained using Atomic Absorption Spectroscopy (AAS). The study found that Pb concentrations are generally greater than permitted global levels. The lowest, highest, and overall average lead amounts (mg m-3) for the examined locations; 0.001102*10-3, 1.587302*10-3, and 1.56851*10-4, respectively. Finally, the harmful impacts of cancer and non-cancer toxic risks were calculated, and the results were significant and cannot be neglected.

Impact of Molarity on the Structural, Morphological and Optical Properties of Ceo_2 Thin Films Prepared By Spray Pyrolysis Technique

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Abstract. CeO_2 thin films are deposited on glass substrate by spray pyrolysis technique (SPT) at 623 K using different molar concentration of cerium chloride precursor solution. The structural, morphological and optical properties of films were investigated by a set of characterization techniques such as X-ray diffraction(XRD), scanning electron microscopy(SEM),UV-VIS-IR. The estimation of crystallite size is 80-120 nm, which is confirmed by Scherrer formulae from XRD pattern. XRD analysis shows that the film has cubic fluorite phase with orientation along (111) for all molarity. The optical energy gap decreased with the increase of crystallite size (98-120 nm) due to the size effect.

Keywords: Molar concentration, CeO_2 films, morphology, structure, Optical properties, crystal size.

Impact of Annealing Temperature on Optical Properties of CeO_2 Thin Films Deposition by Spin Coating Technique

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Abstract . Cerium oxide (CeO_2) bulk and thin films, it has been one of the most important oxide materials. CeO_2 films deposited by spin coating technique on a glass substrate. The films were annealed with different annealing temperatures. XRD diffraction used to reveal patterns of CeO_2 thin films, it shows FCC cubic structure with preferred orientation (220) plane. Scanning electronic microscopy (SEM) exhibited a smooth uniformed surface. The films were had a good adhesion with the substrate with no cracks or holes were observed. Because of the intense near bandgap emission and a broad luminescence in the PL spectra caused by Ce and O vacancies, as well as structural defects, deep level impurities, and amorphous phases. The relative intensity between the distinct peaks of the bands associated with flaws or contaminants was investigated as a technique for film quality control.

Keywords: CeO_2 films, PL spectra, annealing temperatures, spin coating

Study Effect of Nitro group on Some Properties Polycyclic Aromatic Hydrocarbons (Anthracene; Phenanthrene).

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Abstract: In this study, the amount of change in the bond length between atoms, and the energy gap range was calculated for the Anthracene and Phenanthrene mixing with nitro molecules. It were investigated depending on the density functional theory. The best geometry for the structures of the studied molecules was investigated by using a 6-31G* basis set. The optimized structures, total energies, electronic states, energy gaps were calculated for the positional variation of the Nitro subgroup in the Anthracene and Phenanthrene. As a result, the total energy for Polycyclic Aromatic Hydrocarbons (PAHs) was increasing linearly with the change in the positions effective when added nitro molecule. Energy gap markedly reduced within change the positions effective when added nitro molecule locations first, second and ninth, where it gradually diminished, and then go up again for Nitro-Anthracene Compounds, and also Nitro-Phenanthrene Compounds at position 1, 2, 3, 4, 9 Nitro Phenanthrene. The forbidden energy gap was reduced and the 2-Nitroanthracene; 2-NitroPhenanthrene molecule has the smallest value so the results showed a decrease in gap energies and the presence of the nitro group is likewise actively electron-withdrawing, via C−H bonds alpha to the nitro group can be acidic.

Keywords: Anthracene, Phenanthrene, Nitro group, Nitro-Anthracene Compounds, Nitro-Phenanthrene Compounds, Density functional theory, Electronic Properties.

The Indoor Air Radioactivity Content Determination in Districts of Baghdad Governorate

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Abstract.The inhalation is the most probable channel of the radioactivity intake that has 75% from all bath ways, which are the ingestion and contaminated by skin. Therefore, in this work the indoor natural radioactivity occurring materials (NORM) in Baghdad districts have been measured and the annual annihilation radiation effective dose (Eff) for workers and publics, also, have been calculated for two particle sizes; 1 and 2 µm. The overall average results of NORM were 9.19, 5.75, and 69.31 Bq/L for U-238, Th-232, and K-40, respectively. In general, the results of Eff for particle size 1µm were larger than 2 µm results, the workers suffered more than others, and the fifteen years old people group was affected more than others groups (1y and adults).

The Nuclear Stopping Power of Some Ions Incident on Elements With Different Atomic Numbers

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Abstract. In this research, the nuclear stopping power were studied using NIST program, then calculate it by effect the form factor (exponential) in account for some ions (C, Li, Al) that incident on atomic targets (C, Na, Si, Ca Fe, Mo, Sn, Sm, Au, Pd and U). The nuclear stopping power estimations for all projectiles have been calculated within energy range 0.01 keV -1000 MeV.

The results indicated a great dependence on the form factor of the nucleus, but this dependence begins at a specific energy for each studied isotope and this energy changes with the incident elements change. The results of the nuclear stopping power containing the exponential form factor are decreased by increasing the energies. Also, the nuclear stopping power increases with the increase in the mass number of the incident ion. Finally, the behavior of the nuclear stopping powers as a function of the incident ion energy of the studied elements behaved like what is expected and known.

Keywords: Electronic Stopping Power; Nuclear Form Factor.

Adsorption of Methylene Blue by Nanoferrites Synthesized Using Sol Gel Method

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Abstract. The CoFe2O4, NiFe2O4 and MgFe2O4 powder were prepared using wet method. XRD, AFM, and UV-Vis spectrophotometer were used to determine the structure and morphology of the samples, as well as photocatalytic activity to degrade the methylene blue (MB) dye. The samples were exposed to a 2 hours heat treatment at 700°C. CoFe2O4, NiFe2O4 and MgFe2O4 had average crystalline sizes of 32.5 nm, 34.7 nm, and 35.3 nm, respectively, while magnetic saturation magnetizations of 84.4 emu/g, 84.1 emu/g, and 26.06 emu/g, respectively. CoFe2O4, NiFe2O4 and MgFe2O4 have coercivity (Hc) values of 428.7 Oe, 182 Oe, and 93.075 Oe, respectively and degradation percentage of methylene blue (MB) through four hours by these materials were 70.1 %, 66.7% and 58.81 %, respectively.

Keywords: Adsorption of methylene blue, Nanoferrites, sol- gel, CoFe2O4, NiFe2O4 and MgFe2O4

Estimating the Longitudinal Development of Atmospheric Cascades at High Energies

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Abstract. The effect of extensive air showers (EAS) was described by estimating the longitudinal development of atmospheric cascades at high energies of different cosmic-ray particles. The longitudinal development was performed using the air shower simulation (AIRES) program (version 19.04.00) at high energies (10^{17},10^{18},10^{19} and 10^{20}) eV for created particles such as an electron, muon, and pion for various primary particles (carbon, iron, proton, and silicon) with zenith angles (0 and 30^{o}). New parameters were obtained by fitting the longitudinal development curves of Extensive air shower using a polynomial function for created particles, initiated by primary particles at the energy 10^{20} eV. Good agreement was obtained by comparing the present results with results simulated by Sciutto as well as the results using CORSIKA simulation for primary proton at the energy 10^{20} eV.

Keywords: EAS, longitudinal profile, AIRES, created particles.

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Health and Medical Paper Papers

Synthesis and application of new electrochemical sensor based on molecularly imprinted for environmental monitoring of cupper (ll)

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Abstract: To determine the cupper ion, a new technique was devised with great sensitivity, cheap cost, and excellent stability. This method utilizes a molecularly imprinted polymer (MIP) with a functional monomer of acryl amide and styrene to construct a monolithic solid-phase micro extraction (SPME) fiber, a fitting cross-linker, and an EGDMA mold. A new technique was devised with great sensitivity, cheap cost, and excellent stability. This method utilizes a molecularly imprinted polymer (MIP) with afunctional monomer of acryl amide and styrene to construct a monolithic solid-phase micro extraction (SPME) fiber, pre-concentration and selective determination of cupper ion (Cu). The stability, stability and durability of the manufactured fibers gives its essential and indispensable role in SPME, where samples were collected blood of those suffering from kidney diseases and industrial water samples (waste batteries discarded to the sewer network), and the monitoring of analyzes was performed using (AAS) and the use of electron

Comparative Study of Cholesterol and Triglycerides Values in Blood of Nasirya Inhabitants

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Abstract: The study aims at comparing results of blood triglycerides and cholesterol in samples taken from various age and gender groups among inhabitants of Nasirya City. Samples were also taken from pregnant and non-pregnant women for comparison. Both aims are essential in evaluating the health risk of these vital blood parameters. Results of the present research pointed out that the average cholesterol and triglyceride levels were higher in old persons than the younger ones. It reached 185 180 mg/dl and 225 180 mg/dl respectively in people of more than 50 years compared with 142 mg/dl and 114 mg/dl in persons of 29 years old and younger. The other comparison was according to gender. It appeared that cholesterol levels of 37 males averaged 169 mg/dl which is lower than that recorded in females (182 mg/dl), triglycerides elevated from 182 mg.dl-1 in males to 197 mg.dl-1 in females. In both cases, differences were not significant according to LSD test. Risk for developing high cholesterol in young women seemed to be lower than that in young men due to the estrogen protective effect. It was also found that levels of cholesterol in non-pregnant women (averaged 180 mg/dl) exceed those in pregnant women (averaged 148 mg/dl). Differences were significant according to LSD Test. This might also be due to the protective action of the estrogens against high cholesterol as most of the pregnant women in Nasirya City were young (22-38 years old).

Key words: Cholesterol, Triglycerides, Gender, non-pregnant women.

The correlation of BMI and age to some hormonal indices in Iraqi women with the polycystic ovarian syndrome

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Abstract: Only a few researches have looked at the link between age and the occurrence of Polycystic Ovary Syndrome (PCOS). The goal of this study was to see if there was a link between age and BMI and the prevalence of PCOS, as well as to compare the levels of certain endocrine profiles in PCOS and healthy females. In this study, seventy-five random females participate in this study, twenty-five healthy females and fifty are patients in PCOS. Age has no significant difference among females with PCOS as compared with females with normal ovaries. Otherwise, thirty cases of PCOS group occurred in high percentage (64%) at (18-26) years. Also, high significant differences in BMI of PCOS group as compared with control group, in which 30 cases (60%) from total study cases 50 (100%) of females diagnosed with PCOS were obese and their BMI over 30, on the other hand, the results of the control group (healthy females) were categorized mostly under normal weight 24 (96.0%) from total study count 25 (100%). Finally, high significant differences in serum levels of LH and Testosterone of PCOS group as compared with control group and non-significant differences of FSH serum levels of PCOS group as compared with control group. In summary, we observed that women with PCOS with signs and symptoms of PCOS represented mainly in obesity, menstrual irregularity, and hirsutism had higher body mass index, LH levels and testosterone compared to women with normal ovaries.

Keywords: Body Mass Index, Age, Hormones, Polycystic, Ovaries, Obesity.

Burnout among nursing workers who provide nursing care for people infected with COVED-19

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Abstract: Background: The unpredictable nature of the new COVID-19 pandemic and what is already troubling incidents of affecting nursing workers can have a significant impact on their psychological well-being. Objective: To describe the prevalence of burnout among nursing personnel caring for patients with COVID-19 and associated factors. Study Design: cross-sectional study. Setting: Alhossien Teaching Hospitals designated to isolate patients with COVID-19 in Thi Qar Governorate. Participants: A sample of 50 nurses practitioners in the study sites who were caring for COVID- 19 patients. Measurements: age, gender, marital status, job title, certificate, job category, number of years of service, working period, hospitalization, and work load, as well as burnout level in each subscale consist (12)items. Results: Nurses working in isolation hospitals suffer from high levels of burnout, emotional exhaustion, depersonalization, and personal underachievement. Limitations: There was no control group and therefore we cannot claim a causal relationship between COVID-19 and the level of fatigue observed. Not all confounders may have been accounted for. Conclusions: Burnout is prevalent among nurses caring for COVID-19 patients. Age, gender, job category, and location of practice contribute to the level of burnout experienced by nurses. Recommendations: Psychologically rehabilitate nursing workers under the supervision of specialists and give them financial and moral rewards to compensate for the harm they have suffered.

A 90-day repeated oral dose toxicity study of mixed extract of fenugreek seeds and Ashwagandha root in rats

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Abstract: This study was aimed at assessing the safety of a mixed extract of fenugreek seeds (Trigonella Foenum-graecum) and Withania Somnifera root (TFWS), which effectively relieves male menopausal symptoms. To this end, male and female Sprague-Dawley rats were divided into the following groups and repeatedly administered TFWS orally for 90 days: control, low-dose (500 mg/kg/day), intermediate-dose (1,000 mg/kg/day), and high-dose (2,000 mg/kg/day) groups. The animals were monitored for general symptoms; their body weights and electrolyte levels were measured; and urinalysis, blood chemistry and biochemistry tests, and histopathological tests were performed to assess the toxicity of TFWS. The no-observed-adverse-effect level of TFWS was 2,000 mg/kg/day for all male and female rats. While in the TFWS -administered and control groups, most parameters were within the normal range; some rats in the high-dose group showed changes not induced by the test substance but which may be specific to an individual animal or may occur naturally. Thus, on the basis of our findings, we consider that TFWS may be a safe, non-toxic substance for alleviating male menopausal symptoms.

Keywords: good laboratory practice, male menopausal symptoms, toxicity experiment, TFWS

The relationship between acetylcholinesterase activity and Gene polymorphism in patient's diabetic mellitus with neuropathy in Babylon province

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Abstract: The study was designed to understand the relationship between enzyme Acetylcholinesterase activity (AChE) in patients type 2 diabetes mellitus with neuropathy and related it with gene polymorphism of AchE in the same sample. The study had involved 97 Pearson, 74 had Diabetes Mellitus type 2 all of them had a history of the disease for one year. 23 of them were healthy (control group) the age that considered in the study was (50-60) years the samples were taken from Marjan teaching hospital \ Diabetes center \ Hillah\ Babylon\ Iraq the period between September 2019 to January 2020. The study included three groups: Group one: 42patients diabetes mellitus type 2 with neuropathy. Group two: 32patients diabetes mellitus type 2 without neuropathy. Group three: 23 healthy people. Results of this study was obtained as following: Genetic variation in the Acetylcholinesterase gene occurring in the Sequencing of nitrogen bases after comparing it with sequences in the NCBI by using NCBI blastn. The alignment results revealed only one mutation in some of the samples analyzed compared to the reference DNA sequences by the G21T transformation (Guanine to thymine) in the 3,4 samples. The chromatogram of this sequence was shown according to its position in the PCR amplicon., this SNP was detected in heterozygous (G / T) states in both S1 and S2. , A homozygous pattern (T/ T) in both S4 and S5, and another homozygous (G / G) pattern in both S5 and S6.Three patterns of the genetic heterogeneity (Signal Nucleotide Polymorphism) (SNP) (rs3757869) in the Arab community the Iraqi in Babylon Governorate(G / T).

Keywords: acetylcholinesterase, polymorphism, acetylcholinesterase gene.

Correlation of Polyomaviruses (PyV)infection with the incidence of breast cancer in Iraqi women

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Abstract: Breast cancer is the most prevalent kind of malignancy among females all over the world, accounting for around one in every eight cases. Breast cancer is the second most prevalent malignancy in women under the age of 35, after lung cancer. Breast cancer is a type of cancer that arises from breast tissue. It is characterized by the uncontrolled development of abnormal cells in the milk-producing glands of the breast or in the passageways that transport milk to the nipples of the breast. Polyomavirus (PyV) infections were accidentally exposed in the 1950s when characterizing a infectious agent causing manifold tumors within rodents. The purpose of this study was to detect the prevalence of (PyV) in breast cancer. A total 100 breast tissue samples of female patients were included in this study, 80 samples with breast cancer and 20 samples of normal breast tissue were considered as control group involved in this study. Ages of patients ranges from 20 to 69 years, Real-Time PCR was performed to detect (PyV) DNA among breast tissue, and Immunohistochemistry was performed for detection of (ER, PR and Her2). The Real-Time PCR detection rate of (PyV) was reported in 13 out of 80 cases of breast carcinoma represented (16%) with no significant difference among tissue types ($P < 0.05$). The immunohistochemistry detection rate of ER, PR and Her2 was reported in 32 (40%), 29(36.25) and 12 (15%) out of 80 cases of breast carcinoma, ER show a significant the (p.v) less than (0.05) and PR, HER2 show no significant. All normal control cases showed no specific signals forPyV DNA and (ER, PR and Her2). In conclusion, we found that PyV over expression plays a significant role in the etiology of breast cancer based on the findings above.

Keywords: Polyomavirus (PyV), Breast carcinoma, Real-Time PCR, Immunohistochemistry.

Role of Nitric Oxide and some Antioxidants in women with Pregnancy-induced Hypertension

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Abstract: Background: Pregnancy-induced hypertension is a primary factor to mother and fetal morbidity and mortality (PIH). Until now, the treatment has been symptomatic. Early detection and monitoring of illness development may help to avoid negative consequences. The study's goal was to determine the impact of nitric oxide and some antioxidants in women with high blood pressure caused by pregnancy. The study included 40 cases, 20 patients and 20 controls, and was conducted on a group of pregnant women with high blood pressure at Shatra General Hospital in Thi Qar Governorate between 5/10/2018 and 10/1/2019. Method: About 40 blood samples were taken from pregnant women., and these samples were divided into two groups: There were 20 pregnant women and 20 non-pregnant women in the study. 4 Results: The results were higher concentrations of MDA, Cp in patients compared to control, but in NO, V.E, V.C, the concentrations in patients were lower compared to control. Conclusion: There is a mismatch the relationship between antioxidant vitamin levels and nitric oxide production. High oxidative stress may be a cause of hypertension, however supplementing with vitamins C and E later in pregnancy, following placentation, may be "too little, too late" to avoid clinical trials manifestations of the predicament. We also can't rule out the possibility that an insufficient amount of vitamins C and E is having an impact, or that other antioxidants are more powerful. Antioxidants that target oxidative stress with a "wide brush" may be unsuitable during pregnancy.

Keywords: hypertension, nitri oxide, antioxidants and vitamin E, C.

Interleukin_4 gene polymorphisms and connect with asthma patients province of Thi-Qar /Iraq

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Abstract: Asthma disease is a most common chronic inflammatory(lung) disease, may be “prompts a variable or even persistent airflow limitation”. The primary manifestations are shortness of breath, also wheezing, chest tightness and persistent hack. The current study aimed to investigate connect between (IL-4) polymorphisms and asthma. A total of one hundred blood samples were collected from age range between (10 to 70) years from both sex sixty of them suffering from asthma and forty without asthma as a healthy control both groups, genotyped for’ Interleukin (IL-4) Single Nucleotide polymorphism “C-589T” (rs2243250)’ using RFLP-PCR. In this study the SNP associate with asthma was significantly.

Case control study on socio-demographic, behavior factors associated with HIV among women in Indonesia

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Abstract: This study an unmatched case control study which determines the factors associated with HIV/AIDS among women in Sambas Regency, West Kalimantan, Indonesia. The study was conducted among 90 women who were tested positive for HIV/AIDS (cases) and 90 women tested negative for HIV/AIDS (controls). Data collection was done by using questionnaires from June 2019 to August 2019, at three community health centres in Sambas Regency. Data was analysed by using IBM Statistical Package Social Science (SPSS) 19. Descriptive analyses and Multivariate logistic regression analysis were used to examine the factors associated with HIV/AIDS. This study has found a significant association between some crucial factors such as marital status, occupation, knowledge about HIV/AIDS, HIV treatment and VCT service program with cases of HIV/AIDS. There was a significant association between marital statuses with HIV/AIDS suggesting that divorced/widowed have higher risk having HIV/AIDS followed by the married group. Women with good education background were more likely to know about the measures to prevent HIV infection and to take preventive measures to protect themselves. Thus, the fulfilment of the need to educate women about sex could potentially decrease the number of HIV/AIDS cases.

Keywords: Case control study, HIV, Aids

Properties of Certain Analytic Multivalent Function Defined by Ruschewey's Type

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Abstract: By means of certain extended derivative operator of Ruscheweyh's type, we introduce and investigate subclasses $K_{n,m}^{p}(\lambda, \alpha, \beta)$ of p-valent analytic function of complex order. The various result obtained here for each of the subclasses included coefficient estimate, distortion theorem, radius of starlikeness and convexity, close- to- convex, extreme point, $\delta -$ neighborhood, partial sums, integral operator and closure theorem.

Keywords: Multivalent functions, Ruscheweyh derivative, distortion theorem, starlike

Diagnostic role of Dynamic Contrast-Enhanced Magnetic Resonance Imaging in differentiating Breast Lesions

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Abstract: Objective: this study aimed to assess the Diagnostic role of dynamic contrast-enhanced Perfusion weighted image (DCE-PWI) in the differentiation of benign from malignant breast lesions. Patients and methods: The study comprised 32 women who had mammography and/or breast ultrasonography findings that were clinically questionable. All patients were fasting during the MRI test to avoid nausea or vomiting from the contrast medium. Result: in our, study we observed the form of the dynamic curve (time and signal intensity curve) type I (persistent curve) was noted in 12 lesions (37.5%): 10 lesions were benign and 2 lesions were malignant; while type II (plateau curve) was noted in 8 lesions (25%): 3 lesions were benign and 5 lesions were malignant, and type III (washout curve) noted in 12 lesions (37.5%): 1 lesion was benign and 11 lesions were malignant. Conclusion: the dynamic contrast-enhanced (DCE) magnetic resonance imaging perfusion technique play important role in Differentiate between benign and malignant tumours in breast cancer.

Keywords: DCE, MRI, breast cancer, differentiation, benign and malignant.

Effect of homocystein and vitamin D in ploycystic ovary syndrome with Iraqi women

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Abstract: This research has been carried out on effect of some biochemical parameters on woman with polycystic ovaries. The goal of the presented work is to determine the levels regarding a few biochemical parameters in females with polycystic ovaries syndrome (PCOS) attending the Biotechnology department of the University of Baghdad's College of Science. The study comprised 35 women between the ages of 18 and 35 who had PCOS based upon complete Rotterdam criteria. The control group comprised of 35 healthy females of one age who had a regular menstrual cycle. The results indicated that females with PCOS have been obese or overweight when their Body Mass Index (BMI) was more than 30. Insulin, Fasting blood sugar (FBS), glycated hemoglobin (HbA1c %), and homeostatic model assessment for insulin resistance (HOMA-IR), have all been higher (≤0.05) in females with PCOS in comparison with control group, showing that Insulin resistance (IR) has been present. Total cholesterol (TC) and Low-density lipoprotein (LDL) levels have been higher (≤0.05), but very low-density lipoprotein (VLDL) and triglycerides (TG) levels were within normal reference range without considerable differences when put to comparison with the control group. High density lipoprotein (HDL) has been lower than control group. The majority of females with PCOS had a high BMI, according to this work. Those patients showed signs of IR. It was discovered that the patient had dyslipidemia. Those results vary from previous studies that found no evidence of IR. The primary goal of this work is assessing the effects of homocysteine and vitamin D in females who have PCOS, and the findings revealed a large increase in the homocysteine levels and a considerable drop or deficiency in vitamin D in Iraqi females who have PCOS.

Keywords: Polycystic ovary syndrome, lipid profile, HbA1c, HOMA-IR, VITD, homocysteine

blood Hemolytic activity and acute toxicity of Saponins extract from Lepudium aucheri boiss

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Abstract: The hemolytic activity process was applied to erythrocytes by an analyst, as well as the lysis o f erythrocytes resulted in a positive test result. The L. aucheri boiss extracts are high in triterpenoids sap onins, according to the findings. Both extracts were used in an acute toxicity in vivo research on four groups of rats (6 rats in each group). After 72 hours of treatment with various concentrations of terpenoids saponins extracts (25,50, and 100 mg/kg B.W), no mortality was detected in the rats of the trials. This demonstrated that both extracts are harmless when taken orally.

Keywords: Extraction, L.aucheri boiss, Acute toxicity, blood Hemolytic

Adsorption of Remove Methyl Green Dye from Wastewater by Using Fava Bean Peel Waste: Kinetic and Thermodynamic Studies

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Abstract: Adsorption of Methyl Green dye using Fava Bean Peel Waste was investigated in detail by conducting batch kinetic, thermodynamic and desorption experiments. Experimental data found appear that adsorption method was highly dependent on equilibrium time, adsorbent amount, initial concentration of dye and pH solution. The sorption equilibrium for Methyl Green dye via Fava Bean Peel Waste was reached within 30 minutes and removal percentage of up to 82%. The result appear isotherm Freundlich gave the better fit comparative with Langmuir isotherm., Thermodynamic quantities including Gibbs free energy, enthalpy, entropy was evaluated, the negative values for each (ΔG^o and ΔH^o) obtained indicated the spontaneous and exothermic process and negative value of ΔS^o is indicate decreased randomness during the process of adsorption.

Keywords: Adsorption, Methyl green dye, Langmuir model, Freundlich model, Thermodynamic function, fava bean peel waste.

L-Carnitine Role in Fertility and Health

A Review Article

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Abstract: The benefits of metabolic supplements on infertility have been extensively described thanks to the modern-day reproductive biology breakthrough. Thousands of supplements have been introduced thus far. L-Carnitine is a small water-soluble protein that is generated when Lysin is methylated. It regulates the oxidative and metabolic integrity of both the female and male reproductive systems, among other things. However, because of these systems' susceptibility to the impacts of free radicals, sophisticated anti-radical medicines are required. Furthermore, L-Carnitine is widely recognized as one of the most effective techniques for increasing endurance, losing fat, and reducing post-workout recovery time, all of which help maintain healthy body weight. Our understanding of L-Carnitine biochemical, physiological and medicinal applications is addressed. This review aims to present the most up-to-date information and recommendations for L-Carnitine prescription and use.

Keywords: L-Carnitine, PCOS, male infertility, obesity

Relation between Acetyl CoA Carboxylase with some Biochemical Variables in Iraqi Men with Acute Myocardial Infarction and Diabetes

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Abstract: Background: Acute Myocardial Infarction (AMI) is widespread cause of death in numerous parts of the world. Many factors rise the risk of Myocardial Infarction (MI), one of the most of it, is Atherosclerosis cause by many factors such as Hyperlipidemia. Acetyl CoA Carboxylase (ACC) is the key regulatory enzyme in fatty acid synthesis. The disorder of lipid metabolism is one of the characteristics of diabetes, which is considered a risk factor for MI, therefore, the activity ACC was estimated in patients with AMI and Diabetes. Method: The study included estimation of ACC activity and correlated with other biochemical variables such as Troponin T(cTnT) , C-Reactive Protein (CRP) , Glucose, Lipid profile, Electrolytes [Sodium (Na^+), Potassium(K^+), Chloride(Cl^-)] , Urea and Creatinine (Crea.), and evaluation of body mass index (BMI) effect in serum of 60 patients with AMI and Diabetes compared with 30 serum from apparently healthy individuals as control group, both groups are of males with an average age (25-60 years). Results and Conclusions: Results showed a significant increase in levels of ACC, cTnT, CRP, Glucose, Lipid profile except High Density Lipoprotein – Cholesterol (HDL-C) and Urea while a significant decrease with $Na^+$and K^+also a non-significant variation was observed with Cl^- and crea in AMI and Diabetes patients compared to control group.

Key words: Acute myocardial infarction, Acetyl CoA carboxylase, Troponin T, Diabetes.

Molecular Identification of Cystoisospora Belli In Patients Infected With The Virus Human Immunodeficiency

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Abstract: Infection with Cystoisospora belli causes severe diarrhea, bile duct involvement, and Extra-intestinal spread in patients with acquired immunodeficiency syndrome (AIDS). This study included eight adult patients with AIDS and chronic diarrhea diagnosed stool cystosisporosis (oocysts) and / or duodenal biopsies (asexual and sexual stages in epithelium). Identification was carried out at the molecular level using a nested-PCR technique that amplifies a fragment of the ribosomal RNA small subunit gene, using DNA extracted from feces and biopsies. This work allowed us to make the diagnosis of cystoisosporosis through analysis coproparasitological, optimize the DNA extraction protocol from samples fecal and implement the nested -PCR technique for the diagnosis of Cystoisospora belli in biological samples from infected patients.

Keywords: Cystoisospora belli, PCR, AIDS, oocyst.

Application Of The Evans Blue Dye For The Study Of Permeability Of The Blood Brain Barrier In Rodents

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Abstract: Background: The data of spectrofluorimetric analysis showed that 1 hour after exposure to music / sound (100 dB), the concentration of EBAC in the brain tissues of all mice (100%) was increased 17.3 times (music) p <0.001 and 18.6 times (sound) p <0.001 compared with the control group. Similar results were found in mice exposed to music / sound (90 dB). After 4 and 24 hours, the permeability of Evans Blue returned to normal. The data indicate the effectiveness of the method for quantifying the BBB permeability for high molecular weight substances. The method of fluorimetric determination of the extravasation of the Evans Blue dye from cerebral vessels into brain tissue is effective for assessing the state of the BBB in real time and can be useful for studying the functions and pathology of the barrier function of the brain in animal experiments.

Keywords: The blood-brain barrier (BBB) Evans Blue (EB) ،fluorescence microscopy ، male white mongrel mice ،Audacity ®. Sound speakers were used to create loud music

The study of the investigate of Ser447Ter lipoprotein lipase gene polymorphism and obesity in children and adolescents

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Abstract: Objectives: Obesity raises the risk for many chronic illnesses. Clinically, obesity is determined using the Body Mass Index (BMI). The lipoprotein lipase (LPL) gene was linked to the metabolism and obesity of lipoproteins. This study aimed to study the investigate the Ser447ter (C-G) polymorphisms of the LPL gene and rs9939609 of the FTO gene and obesity in children and young Rostov people from Russia. Methods: In the research investigated the relationship between the Ser447Ter in the LPL gene with obesity in 870 participants of both sexes aged (3 – 17) years: the major group consisted of 540 obese, and the control group - 330 participants without obesity. Genotyping of the gene LPL Ser447Ter polymorphisms rs328 was performed using PCR- allele-specific primers. Polymorphisms (rs328) of the LPL gene in donor DNA samples were typed by the electrophoretic method using commercial test systems from the Litekh research and production company (Russia). Results: The relationship between the LPL Ser447Ter gene obesity (P > 0.05) was not significant established between the main and control groups in the frequency of occurrence of the genotype SerSer (P = 0.381) and allele Ser447 (P = 0.404; OR 1.17; 95% CI 0.82 – 1.67) of the rs328 polymorphism of the LPL gene. Even though recessive and dominant models are constructed, for LPL gene was statistically not significant TerTer vs SerTer + SerSer (P = 1.000 OR 1.84; 95% CI 0.07– 45.05). Conclusions: An observed the absence of an association between the gene Ser447Ter of the LPL gene with the obesity. However, more studies are needed to confirm these findings.

Keywords: Obesity; Lipoprotein Lipase; Ser447Ter polymorphism; children and adolescents.

Genetic diagnosis of Entamoeba histolytica in patients with acute diarrhea in AL-Rifai city/Thi-Qar province.

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Abstract: Entamoeba histolytica is one of the Entamoeba histolytica .is one of the most prevalent parasitic .infections. in humans, causing amoebiasis and liver abscess, most prevalent parasitic infections in humans, causing amoebiasis and liver abscess, with diarrhoea being one of the most common symptoms. Diarrhea is a symptom of a digestive disorder that can be caused by pathogens or be the result of an imbalance in the digestive process. Diarrhea is a condition in which you defecate three or more times a day and your .stool is watery and liquid. In Thi –Qar Province / AlRifea city, this study focused on identifying and diagnosing Entamoeba histolytica from samples of patients with diarrhoea cases, a combination of microscopic and genomic methods. From October 2017 to January 2018, stool samples were. collected from patients with infectious diarrhoea at Al-Rifai General Hospital for an extended length of time. (603) stool samples were. collected from patients of various ages and genders for the detection of Entamoeba histolytica. The percentage of positive samples was (27.9%), while the percentage of negative samples was determined by. microscopy (72.1%).Males had (28.2 %) favourable outcomes, while females had (27.3 %) positive .results. In terms of housing, rural areas had the .highest infection. rate (38.1 %). Considering the low infection prevalence in urban areas (27.9%). In terms of age, the lowest infection rate (21.1%) was discovered in the .age group. (21-30) years, while the greatest infection rate (37.8%) was identified in the age group .fewer than ten years. While .the results by PCR examination show. that .percentage of positive samples are was (19), with percentage of (19.8) %, while negative samples were (77), with a percentage of (77.8%) Males had the highest infected patients. (20.3%), while females had the lowest (19.0%) Infected patients in rural areas were (38.1 %) and in urban areas were (27.9 %), respectively. In terms of age, infected patients were discovered (31.2 %) in the age group under 10 years and (6.2 %) in the age group between (11 – 20) years.

Keyword: E. histolytica ,polymerase chain reaction (PCR) ,protozoa, amebiasis.

The role of Healing gardens in improving public health in presence of Corona pandemic

(Medical City Complex in Baghdad as a case study)

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Abstract: The current Corona pandemic has become a present reality and considered as the pandemic era. Many recent studies had presented the role of the landscape designed according to the design principles of healing gardens in supporting the public health, but the study of the healing gardens benefits in improving the public health in in presence of Corona pandemic not submitted previously, which represented the research problem. As for the research hypothesis, the healing gardens during the Corona pandemic era would support the public health and improve the quality of life of users. To verify the hypothesis of the research, a practical study was conducted for one of the Baghdad city garden in the medicine city by studying the design of the gardens and analyzing its components and, research indicating the most prominent weaknesses in it and the possibilities of developing it to be compatible with healing gardens with the aim of promoting public health.

Title of article: The rationale behind serum markers for preterm labor prediction

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Abstract: Preterm labor is considered a significant cause of perinatal morbidity and mortality; the rate is increasing in developed countries despite the current advances in management. Although several risk factors are present, the ability of preterm labor prediction is still elusive now. Therefore, finding novel biomarkers to identify pregnant women who will subsequently have preterm labor could enable targeted treatments and timely medical intervention for maternal and fetal outcomes improvement. Furthermore, different biochemical markers of a protein source have been found in Various body fluids; Saliva, urine, amniotic fluid, blood (serum/plasma), and cervicovaginal fluid; these could reflect different pathophysiological pathways disorders during pregnancy, such as preterm labor. This review highlighted recent advances in the discovery of these current biomarkers.

Keywords: Preterm labor, Amyloid A, calponin, alfa-1 antitrypsin, pregnancy.

Visible Spectrophotometry Method for Quantification of Atenolol Using Cerium IV-Rodamin6G Complex

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Abstract: Atenolol is a very important drug that is used for treating chest pain (angina), and high blood pressure, due to this medical importance, a spectrophotometric method has been proposed for the determination of Atenolol in its pure form as well as in some of its pharmaceutical preparations. The proposed method relies on two important steps, the first is the oxidation-reduction reaction between Atenolol and an excess amount of cerium (IV) as an oxidizing agent in presence of acidic medium, then the second step that occurs between unreacted cerium (IV) that was deceased rhodamine 6G absorption intensity. This is an indirect method for estimating Atenolol as it relies on decreased color intensity of a dye Rhodamine 6G, which is proportional to the increase in the amount of the cerium (IV) in the acid medium at the wavelength of 525 nm. The proposed method follows Beer's law within the range (50-800) µg/25 mL, with good sensitivity relative to the molar absorption coefficient value 2.53×104 l.mol-1.cm-1 and the Sandell value equal to 0.0105 µg.cm-2 . The proposed method has been successfully applied to quantify Atenolol in pure form and its pharmaceutical preparations.

Keywords: Atenolol, Rhodamine 6G, Cerium Ion, Pharmaceutical Preparations.

Clinical study of Serum Gamma- Glutamyl levels in cigarette smokers with nonalcoholic fatty liver disease, Governorate – Iraq

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Abstract: Serum gamma-glutamyltransferase (GGT) is a marker higher oxidative stress, linked with multiplied cardiovascular (CV) danger. The influence of smoke on oxidative stress can also keep the increase in persons together with non-alcoholic fatty liver disease (NAFLD). We aimed to conform to verifying the community over smoke over GGT degrees within the arrival yet penurity of NAFLD. Methods 200 subjects (men) chronic forty years or older contribute within a public-based land scan between the Thi-Qar government. Information about people who smoke was once amassed through the usage of a certified application. NAFLD was identified by using belly B-mode ultrasound checking out. A multivariate longitudinal throwback about the cross-sectional affiliation of smoking or GGT used to be performed primarily based on NAFLD status. We focused according to ascertain the affiliation about smoking on GGT ranges among the availability and non-appearance over NAFLD. Results There have been 200 subjects analyzed: 102 (51%) not smoke cigarettes and not non-alcoholic fatty liver disease, 72 (36%) not smoke cigarettes and had non-alcoholic fatty liver disease, 14 (7%) people who smoke except NAFLD then 12 (6%) smokers including NAFLD. Smokers had extensively greater GGT stages within the attendance about NAFLD ($P < 0.001$). After multivariable modification , modern smoke was related with 4.60 IU/L greater GGT level, $P < 0.001$, the contrast in control of non-smokers. When stratified via NAFLD, the measurement of the affiliation was once more important among topics including NAFLD (β-coefficient: 11.12; 95% self belief inside (CI): 5.76 - 16.48; $P < 0.001$); however, no certain kinship was notice in these except NAFLD (β: -0.02; 95% CI: -3.59, 3.56; $P = 0.992$). Overall the interplay on NAFLD yet smoking along GGT stages as indications of os was once statistically sizeable. Conclusions: Smoking is severally related including significantly improved oxidative emphasis as estimated via GGT level. The affiliation explains impact amendment by using NAFLD status, suggesting so smoking may additionally increase CV gamble within individuals with NAFLD.

Culture-Based Techniques and Automated Methods Were Used to Detect Staphylococcus Aureus Among Other Bacteria in Tonsilitis And Burn Patients in Thi-Qar

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Abstract: Staphylococcus aureus is mostly obtained from clinic contaminations and exhibited the capacity to foster protection from numerous anti-infection agents. This study planned to research S .aureus in some clinical samples by culture-based procedures and automated techniques like PCR.. All swabs were streaked on MacConkey agar, 5% human blood agar, Mannitol salt agar, and DNase agar and incubated at 37 C for 24 h DNA fragments were amplified from isolated DNA. PCR was used to amplify the sequences of 16S rRNA. The detection of PCR products were by agarose gel electrophoresis. Depending on the cultural, morphological, and biochemical characteristics, the Prevalence of S. aureus were 18.75% (n=30), 14.29% (n=20), and 6.33% (n=19) to Burn patients, tonsillitis patients and healthy human. The highest percentage of S. aureus had been recognized in burn patients. Most S. aureus isolations can able to generate virulence factors such as hemolysins, urease, and protease. The DNase test and (MSA) may be an essential indicator of Staph. aureus. The results of phenotypic diagnostic were confirmed by polymerase chain reaction (PCR) technique employing 16SrRNA gene that showed only 48\50 certain bacterial isolations of this microbe from patients while in healthy humans were in line with phenotypic diagnostic (19\19). This study showed that culture based techniques and the PCR is a specific and powerful strategy for classifying and identifying isolations of S. aureus.

Keywords: S. aureus; Polymerase Chain Reaction (PCR); MSA media; DNase test; 16S rRNA gene

Detection of Antibiotic Susceptibility for Staph. Aureus in Tonsilitis And Burn Patients by Used 12 Antibiotics

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Abstract: Staph. aureus is a member of the normal flora and an opportunistic pathogen. It is particularly prevalent in skin and soft tissue. The CLSI-recommended modified Kirby-Bauer disc diffusion technique was used to evaluate antibiotic susceptibility. The disc diffusion technique was used to screen all isolates against 12 antibiotics.The findings indicated that Staph. aureus isolates were subjected to Penicillin-G 100% in tonsillitis and healthy human isolates, but 90% in burn isolates. Vancomycin resistance was 15% in tonsillar isolates, 3.3 percent in burn isolates, and 0% in healthy people. According to the study's findings, Staph. aureus resistance to Ciprofloxacin was 23.3 percent and 20 percent in burn and tonsillitis patients, respectively, but 15.78 percent in healthy individuals Sequential proportions of Azithromycin were identified in this investigation.These were 50% for burn patients and 60% for tonsillitis patients, but only 42.10% for healthy individuals. Clindamycin resistance was 73.3 % in burns and tonsillitis, but only 5.26 % in healthy individuals.Levofloxacin indicated the same levels of resistance (13.3 % and 10%, respectively) at both clinical sites, but when compared to healthy individuals, it was zero percent and 10.52 % to Levofloxacin and Nitrofurantoin, respectively.. The current investigation revealed a significant increase in Erythromycin resistance, which reached 80 percent and 57 % for tonsillitis and burn isolates, respectively, but 42.10 % in healthy individuals.The antibiotic resistance values for tonsillitis isolates of Ofloxacin and Gentamycin were the same at 15%, while both antibiotics were reported at 13% and 10% for burn isolates, respectively, and the levels of Ofloxacin and Gentamycin in healthy individuals were 10.52 %.It was discovered in the study that the rate of antibiotic resistance to tetracycline was 30% and 23.3 % for tonsillitis and burn isolates, respectively, but 36.84 % in healthy individuals. Doxycycline resistance was set to 20 % and 16.7 % in tonsillitis and burn isolates, respectively, but 21.05 % in healthy individuals.

Keywords: Staphylococcus aureus; MHA; MSA; Vancomycin; Levofloxacin

A cross-sectional survey of knowledge, attitude and practice (KAP) towards COVID-19 pandemic among the Iraqi population

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Abstract: In December 2019, a novel coronavirus emerged in China. On 11 February 2020 this newly emerged virus was named Severe Acute Respiratory Syndrome Coronavirus -2 (SARS-CoV-2). On 11 March, the World Health Organization declared that SARS-CoV-2 to be a pandemic. Iraq adopted different measures to mitigate the transmission of the virus by imposing a lockdown and increasing the level of awareness of the public to Coronavirus disease 2019 (COVID-19). This study aims to assess the effect of knowledge, attitude, and practice of the Iraqi society towards COVID-19. A cross-sectional study of 3514 Iraqi residents was conducted from 28 May 2020 to 13 June 2020 using data collected via an online questionnaire. The results showed that men participated more than the women (60.1%). 64.6% of the responders were married. The majority of the responders held a higher degree (89.19%). More than 91% of the responders thought the cause of the pandemic was not a virus. Most of the participants thought that sick people don't spread the virus (82.47%). 72.48% of the participants had received public health authorities' messages and had heard about COVID-19. 95.87% of the participants were taking precautions such as not touching their faces, and washing their hands. The results suggest that the overall knowledge level of the Iraqi population was acceptable. However, the practice towards SARS-CoV-2 in Iraqi society during the pandemic was mostly inadequate. These findings intensify the significance of consistent messaging from Iraqi health authorities and the need to design effective health education plans to manage and mitigate the pandemic.

Keywords: COVID-19; Knowledge; attitudes; practices; coronaviruses; Iraq.

Ultrasound- Assisted & Guided Neuraxial Anesthesia for Obstetric patients; a Narrative Study

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Abstract: Background: Ultrasound neuraxial anesthesia refers to use ultrasound technology to assist in identification of anatomical structures that represent the landmarks for spinal and epidural anesthesia or to real-time guidance of needle insertion and catheter placement. Methods: All relevant and published data were searched in MEDLINE and EMBASE bibliographic databases, the Cochrane Central Register of Controlled Trials (CENTRAL) and by manual search for relative titles or abstracts. Results: reviewed RCTs for both ultrasound- assisted and ultrasound-guided neuraxial blocks indicate, that neuraxial ultrasound can show the intended lumbar intervertebral space more correctly than by a formal landmark palpation, improves the rate of effective puncture at the first puncture site and reduce the times of puncture attempts. It facilitates CSE puncture in obese parturient. Ultrasound neuraxial anesthesia can correctly predict the needle insertion depth intended to reach the epidural or intrathecal space and improve the efficacy and safety of spinal and epidural anesthesia. Authors' conclusions: regarding to reviewed studies, authors concluded that neuraxial ultrasound assisted or guided anesthesia increases the efficacy of epidural, spinal, and combined spinal and epidural anesthesia for obstetric patients.

Keywords: ultrasound, neuraxial anesthesia, spinal anesthesia, epidural anesthesia, obstetric and cesarean section.

The Role of premedication melatonin for patients undergoing general anesthesia

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Abstract: Background: Premedication has some important goals during general anesthesia such as relief of anxiety, induce sedation, offer proper analgesia and decrease the need for anesthetic drugs. Purpose of study: The purpose of this study is to evaluate the effectiveness of Melatonin as a premedication agent for patients undergoing surgery to reduce anxiety, induce sedation and analgesia. Methods: We searched all relevant and published data using PUBMED, MEDLINE and EMBASE bibliographic databases, Cochrane Central Register of Controlled Trials (CENTRAL). We also searched manually by using the appropriate search terms.
Results The reviewed articles showed that melatonin has an appropriate effect as a premedication agent by, reducing anxiety before surgery as well as reducing the need for postoperative analgesics when orally used before surgery.

Keywords: melatonin, general anesthesia, anxiety, analgesia, sedation, pre-operative, postoperative, Premedication.

Thyroid disorders and their relationship to age and body weight of patients in Dhi Qar governorate

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Abstract: A total of 276 samples of hypothyroid blood were collected, then five milliliters of blood were drawn and wine tubes were placed free of anticoagulant for 15 minutes, then the blood was separated using a centrifuge (3000 cycles/min) for 10 minutes, then the blood serum was drawn by Micropipette for the purpose of measuring thyroid hormones and thyroid stimulating hormone by the Mini VIDAS System. The hormonal measurement of T3, T4, TSH, was measured using the System VIDAS-Mini system by means of the immunoassay analyzes Immunoassay Enzyme and using the analysis technique ELFA (Assay Fluorescent Linked Enzyme), which is one of the most accurate and modern methods known to measure the concentrations of many hormones, including thyroid hormones T3, T4, and TSH. And the measurement kit (KIT) used to measure thyroid concentrations in humans was used to measure the level of these hormones. And the method of work was followed in the information booklet attached with the measurement kit for the Mini System VIDAS to measure hormone concentrations and for a period of time that ranged between (30-40 minutes) inside the device, depending on the type of hormone measured, whether it was T3, T4 or TSH.

Keywords: Thyroid gland, goiter, Adam's apple.

Human Lipidogram In Diabetes

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Abstract: Diabetes mellitus is the most highly prevalent disease that affects people all over the world. Diabetes mellitus is typically connected with lipid dysregulation and cardiovascular complexities. This study is intended to assess the lipemic changes in diabetes mellitus patients. Total Cholesterol (TC), Triglycerides (TG), Low density lipoprotein Cholesterol (LDL-C), High density lipoprotein Cholesterol (HDL-C) levels have been studied in serum of diabetes patients. the case control study is involving 100 people with diabetes as case and 70 of people who healthy controls is similar in gender and age. The people who took the samples all abstained from food for 12 hours before taking the blood samples from them. The manual process was used to measure parameters using spectrophotometer by liquid chemistry. In both IDDM and NIDDM, total cholesterol, triglycerides, and, Low density lipoprotein cholesterol were higher in cases compared to controls. HDL-C was decreased in NIDDM patients on sulfonylureas or iguanids, but not substantially different in IDDM patients taking insulin. TG,TC, Low density lipoprotein cholesterol showed significant correlation in IDDM subjects.

Keywords: (DM), LDL Cholesterol(LDL-C), Total Cholesterol (TC), Triglycerides (TG), HDL Cholesterol (HDL-C).

Relationship between gene polymorphism of vitamin D receptor with Coronary Heart Disease (CHD) in Baghdad province /Iraq

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Abstract: Current study targeted 80 patientshave Coronary Heart Disease (CHD)Their ages range from 50 to 80 years, They were diagnosed in Ibn Al-Nafees Teaching Hospital consultant by doctor's consultants in the specialty of cardiologyin Baghdad governorate from period November 2018 – April 2019.The number of men with CHD was 70 percent Compared to women that was 30 percent of overall patients.For 80 patients, the analysis of vitamin D3 levels revealed that about 15% of them had extreme D3 deficiency at a minimum value of 7.6 ng/ml, but the lack of vitamin D represents 50% at rate of condensation 14.2 ng/ml. Among autistic individuals, the percentage of mild-moderate deficiency (insufficient) was 25% when measured at a condensation rate of 23 ng/ml, while the appropriate quantity of D3 (sufficient) was 10% when measured at an accumulation rate of 32.6 ng/ml. Results of nitrogen base sequence vitamin D receptor mutation in 10 CHD patients with serious vitamin D deficiency and two-sample stable control patients.Results revealed no mutations in 8 specimens other than 2 reference samples, whereas one case (A1) had 10 alternative mutations grouped into 8 replacement mutations divided into 8 Transition mutations at locations 475, 395, 292, 287, 249, 211, 206, 179 and 2 Transvertion mutations at locations 314, 259; two replacement mutations existed inside Intron and six registered nonsense mutations and 2 missense mutations at locations 314.Nucleotide G>T Modification of the nucleotide CTA>ATA Modification of the amino acid Leucine> Isoleucine and position 249 Nucleotide G>A Modification of the nucleotide ACG>ATG Modification of the amino acid Threonine> Methionine When patient (A2) 6 substitute mutations were registered separated into 5 Transitions at location 475, 292, 157, 154, 138, and 1 Transvertions at site 492.5 mutations existed inside Intron and one mutation was known as the position of both the nonsense mutation 292 Nucleotide G>A Nucleotide.

Keyword: VDR, CHD, vitamin D,Baghdad.

Changes in the Level of Some Trace Elements in Blood Serum of Patients with TypeI Diabetes

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Abstract: Type 2 diabetes constitutes a major threat to public health; non-ideal control leads to chronic hyperglycemia. This kind occurs due to the resistance to the body's cells to the action of insulin hormone / or maybe due to the lack of production of a sufficient quantity of insulin by the pancreas and it is caused by multiple factors, most notably the overweight and lack of physical activity. Metabolic syndrome is a complex set of disorders that significantly increases the risk of heart disease. The present study is designed to determine the levels of HbA1c and some trace elements (copper, chromium, zinc, and selenium) in type 2 diabetic patients. The measured parameters were studied based on two variables: general comparison, Age. Patients and controls were divided, in the general comparison, into two groups: Control group: included 50 supposed healthy subjects aged (40-60 years) DM group: included 50 type 2 patients diabetes aged (40-60 years)
Patients and controls were divided according to their ages, into two age groups: A1 (40-50 years) and A2 (50-60 years) The results also noted that there was statistically significant differences in levels of Zn, Cu, Se and Cr between all groups of the patient compared with corresponding groups of health control ($P \leq 0.0001$). Aging has a positive effect on the studied parameters in diabetic patients.

Keywords: Diabetes mellitus, HbA1c , Trace elements (copper,zinc,chromium and selenium).

The occurrence of recurrent aphthous ulcers for primary schools students in Nasiriya city south Iraq

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Abstract: Recurrent aphthous ulcers address an exceptionally normal yet ineffectively comprehended mucosal problem. (Scully, C. 2006). They happen in people, everything being equal, races and geographic districts. It is assessed that no less than 1 of every 5 people has to some degree whenever been burdened with aphthous ulcers.(Scully, C., & Porter, S. 2008).. Aphthous ulcers were found in 2% of an aggregate of 4.562 students matured between 6-12 years or more inspected in primary schools understudies of Nasiriya city south of Iraq. At the point when a background marked by two years was thought of, the pervasiveness was 12.7%. A little power was found for females. The more youthful bunches appear the most elevated prevalences of idiomatic expressions, which then, at that point, diminished consistently with age. Meetings were led with a negligible portion of the populace involving 300 understudies as to their encounters of RAU. Hence, instance, the normal number of scenes each year was a few and the most predominant time for recuperating, 3-7 days. between the elements thought by students to recurrence the condition, contracting a bug was accounted for as the fundamental one, trailed by GIT issues and shedding of essential teeth At times, genital mucosa portrayed by the rehashed improvement of one to numerous discrete, . (Rivera, C. 2019).

Intermittent aphthous ulcers (RAU) are depicted by the presence of only one or numerous agonizing, repeating ulcerations of the oral mucosa. The sickness has arranged in 3 diverse clinical structures: minor, major, and herpetiform (Buonavoglia ; et al.2019). Clinical experience shows impressive variety for various patients. Some of them allude to single scenes with mending seasons of under multi weeks, though another have ulcer continually & recuperating stages that are accounted for to surpass multi month (Cui ;et al .2016). Many articles have been distributed on the predominance of RAU, a couple of examinations have been done on elementary school understudies populaces. Also, the primary article of RAU in Nasiriya south of Iraq

Identification of Candida krusei by 18S rRNA gene and investigation of SAP1 gene in samples isolated from female genital tract infection

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Abstract: The current study is aimed to identify Candida krusie by 18SrRNA and also to detect virulence gene (SAP1), This study was conducted in Maternity and Children Hospital in Nasiriyah, Thi-Qar province for the period from 9/11/2020 to 30/6/2021. Randomly, 150 samples were collected from women infected with vulvovaginal candidiasis (VVC) who their ages ranged from 17 to 50 years. C.krusie isolates were obtained from patients with Vulvuvaginal. The most predominant Candida species isolated was Candia albicans (68.57%) followed by C. krusie (11.43%), C. glabrata (8.57%), C. parapsilosis (5.71 %) and C. tropicalis (5.71 %).18S rRNA gene was detected in all isolates. A sequencing and phylogenetic analysis was showed a genetic variation between the local isolates and global strains. Only 7 isolates were positive for SAP1(87.5%). However, the presence of this virulence gene may be an essential role in occurrence of the infection, 18S rRNA gene has a perfect reliability in the identification of C. krusie.

Keywords: C. krusie, SAP1, vulvuvaginal candidiasis, sequencing, phylogenetic analysis

Effect Of Gamma Radiation And Borax On Mechanical Properties Of Polyvinyl Alcohol And Chitosan Blend Film

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Abstract: The creation and characterisation of biodegradable blend films based on chitosan and polyvinyl alcohol for application in a range of packaging is described. The compatibility between the chitosan and PVA polymers was good. Composite films had a compact and homogeneous structure, according to the morphology analysis. The mechanical test result of PVA/CH at concentrations 5% showed, that The higher values of TS recorded in sample (p1, with 40 MPa) while the lower values appeared in sample (p9, with 22.09 MPa), the TS decreased gradually as the amount of PVA increased in blend film. While the blend film of pure Chitosan exhibits a poor mechanical strength which makes it a poor candidate for packaging but Blending CH with PVA together improved tensile strength. PVA/CH at concentrations 10%. Showed the higher TS values appeared in sample (C1 with 36.64MPa) while the lower values of TS appeared in sample (C9 with 24.4 MPa). In comparison with pure PVA have the lower TS than all blend film. The result of mechanical properties after addition of borax solution revealed that the Borax improves the E at max and TS of blend films. Mechanical properties results of CH/PVA/Tio2, Showed that the TS and E at max were increased after introducing of Tio2 into the polymer matrix. The P1 sample have been chosen according to their possess acceptable TS, E at max to be subjected to gamma radiation at different doses 2.3, 3.5, 4.5, 6, 7.5 kGy . The results demonstrated, that the increasing the radiation doses lead to increasing in TS of blend film, following increasing in E at max, the highest TS of the irradiated films is observed at 7.5.kGy dose.

Bacterial Profile and Anti-microbial Resistance of Bacteria Isolates From Septicemia Patients A metaanalysis Report / Iraq

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Abstract: Infections of the bloodstream are frequent in people of all ages. To design and implement effective therapies, scientists are currently studying patterns of "bacterial profile and its antibiotic resistance". It was decided to carry out this research to see how common septicemia is and how much of an antibiotic resistance problem it has become. Septicemia patients had comparatively high rates of positive blood culture results. Additionally, a high number of isolates were found to be resistant to routinely prescribed antibiotics. Data on culture-confirmed septicemia patients and antibiotic resistance trends are scarce, which may contribute to the problem

Detection Of Extend Spectrum B–Lactmase Genes Tem,Shv And Oxa In Enterobactriacea Bacteria Isolated From Uti Of Pregnant Women In Al-Nassyriah City

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Abstract: This study was performed to detect the presence of TEM,SHV and OXA genes in urinary tract infections caused by Enterobactriacea in pregnant women in Al- Nassyriah town , during the period from March(2020) to June(2020).Six hundred and thirty (n= 630) urine samples contains bacteria were collected and cultured on macConky media for initial isolation.Morphological, conventional biochemical tests and the API 20 system were performed to identify the causative agents.Ninety samples showed positive culture, most common isolates were E. coli 57 (63.3%) followed by Klebsiella pneumonia 21(23.3%), Klebsiella oxytoca 4(4.4%) , , serrtia marcesence, Proteus mirabilis were 2(2.2%), Citrobacter freuendii and Enterobacter clocae were 1(1.1%) . Among enterobactriacea bacteria isolates, ESBLs were detected in 26 isolates (28.9%) of these ; Escherchia coli 17/57(29.8%), Klebsiella pneumoniae accounted 5/21 (23.8 %) , Klebsiella oxytoca 1/4(25%), Proteus mirabilis, serrtia marcesence were 1/2(50%) and Enterobacter clocae is 1/1(100%). DNA band had volume TEM(800 bp), SHV(713 bp) and OXA(564 bp).

Keyword: ESBLs, Enterobactriacea,Pregnant Women,UTI.

The Significant Cardiovascular Changes during Isoflurane and Sevoflurane Anesthesia: A Narrative Study

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Abstract: Background and goals: The volatile halogenated agents are essential to induce smooth anaesthesia during induction and maintenance period, however they do have historic effects on the physiology of the cardiovascular system and these effects are considerable during anaesthesia to avoid or decrease the unwanted effects or morbidity. So this narrative study attempts to evaluate the effects of each anaesthetic agent and to give a gist comparison between them.

Keywords: sevoflurane; isoflurane; cardiovascular system; volatile anesthetic agents; cardiac index; heart; contractility; rhythm, heart rate; baroreceptor reflex; systemic vascular resistance.

Immunological and Biochemical changes in women with recurrent miscarriage

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Abstract: In this research was studied Cytomegalovirus, Toxoplasma, Rubella , Antiphospholipid , and Anticardiolipin are tested to distinguish between women with explained and unexplained of recurrent miscarriage, where the study was conducted in Thi-Qar province in the south of Iraq. The results revealed that concentration of MDA & CP levels showed a significant increase ($p \leq 0.05$) in the patient group in comparison with the control group, and no significant ($p \leq 0.05$) between explained and unexplained groups. Whereas, IFN-γ level showed no significant ($p \leq 0.05$) in the patient group in comparison with the control group, and no significant ($p \leq 0.05$) between explained and unexplained groups.

Keywords: Recurrent Miscarriage (RM) , Interferon gamma , MDA , Ceruloplasmin

Detection of Diarrhoeagenic Escherichia Coli Among Other Bacterial Species Isolated from Children Patients by Automated Methods and Culture based Techniques

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Abstract: Diarrhea is one of the most widespread medical problems, and it can be caused by a variety of microorganisms, including parasites, viruses, and bacteria. Intestinal bacteria (Diarrheagenic E.coli) is one of the most important, since infection with it results in hospitalization and, in some cases, death, particularly in youngsters. The goal of the investigation was to see if (Diarrheagenic E.coli) was spreading in Thi Qar after it was isolated from children with diarrheal infections. From Bint Al-Huda Maternity and Children Hospitals and Mohammed Al-Mousawi Hospital for Children, 430 diarrhea samples were obtained from children under the age of five, both gender, as well as 40 samples from healthy children as control samples. Laboratory and molecular techniques were used to diagnose all of the isolates. Statistical analysis of the samples indicated an infection rate of 180 (41.86%) with bacteria, while other microbial causes showed an infection rate of (58,14%). Escherichia coli was prevalent with a percentage of 180/100 (55,56 %). In this study, we used control strains to detect DEC in pure cultures and spiked stool samples. DEC has a detection limit using multiplex PCR methods. In comparison to conventional lab procedures, we may consider PCR to be a very sensitive and specific molecular biology approach for the identification of virulence gene in different clinical specimens based on this and other research.

Keywords: Diarrheagenic E. coli; Polymerase Chain Reaction (PCR); 16srRNA gene; API 20 E and VITIK-2 system.

Physicochemical And Heavy Metal Properties Of Soil Samples In Waste Disposal Site, Suq Al- Shyokh, Iraq

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Abstract: Discharging of untreated municipal solid wastes (MSW) onto land is very common in developing countries. One of the serious problems is the enrichment of heavy metals in the nearest environment and various hazardous effects of toxic compounds contained in MSW have been reported on the humans. An assessment was conducted to evaluate the effect of discharged solid wastes on soil quality in two different seasons (summer and winter) within the landfill of Suq al-shyokh city, Iraq. In the study, different soil physicochemical parameters such as electrical conductivity, pH, and organic matter content including heavy metal content were considered. Sampling locations were selected by transect sampling method and soil samples were taken at distance of 10m, 30m and 60m from the periphery of the disposal sites at a depth of 0-20cm. The soils collected at different point in the Suq al-shyokh disposal sites are silty loam in texture, low in organic matter with a high salinity content. There was seasonal variation in the level of chemical properties measured in the soil due to the effect of temperature increase on the soil capilliary force. The average soil pH recorded in the two seasons were slightly above neutral 7.26 and 7.18, respectively. The average EC recorded in the two seasons showed elevated salt level (4.80 and 5.4). Result of the soil physiochemical analysis indicates that vertical distribution of Pb, Cr, Cu and Cd increased in Al-Nasiriyah disposal site, which is a clear indication of the level of pollution in the area. The study demonstrated contamination of the soil by heavy metals that will cause environmental and human risk through the food chain and possibly leaching into groundwater sources.

Keyword: waste management, physicochemical, heavy metal properties, soil samples, waste disposal site.

Rational Use of Antibiotics for Community Acquired Pneumonia in Dhi-qar's Hospitals

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Abstract: The hospital and laboratory findings of all adult patients who was hospitalized in Dhi-Qar hospitals were reviewed during the period (1 November 2020 to 30 August 2021) with a clinical features of community acquired pneumonia. Potential cases were identified, aged 23 to 75 years at the time of admission. The hospitals findings were requested and reviewed for eligibility. All data were collected by the Case Information Sheet (CIS) project, a general practice research database containing data from hospital patient records of about 42 patients in the Dhi-qar's hospitals and the details of the database have been described. The Case Information Sheet contains coded and anonymous data on patient demographics, Symptom, and treatment including their indications and dosage regimen. The evaluation was based on differentiation of community acquired pneumonia from other types, location of therapy, treatment strategy, and duration of therapy.

Keywords: Antibiotics, community acquired Pneumonia, Hospital acquired pneumonia.

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Sports Papers

Psychological fluency and its relationship to psychological flow among students of the College of Physical Education and Sports Sciences

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Abstract: Psychological fluency and psychological flow among students of the fourth stage of the Faculty of Physical Education and Sports Sciences at the University of Babylon. The relationship between psychological fluency and psychological flow among the fourth stage students of the College of Physical Education and Sports Sciences at the University of Babylon. In this study, the two researchers used the descriptive approach with its survey and correlational methods, and the work began by preparing the two measures of psychological fluency and psychological flow, and then applying them to a sample of the fourth stage students in the College of Physical Education and Sports Sciences of the University of Babylon, and after processing the statistically extracted results, the two researchers reached several conclusions: The fourth-year students of the College of Physical Education and Sports Sciences enjoy a high level of psychological fluency. The fourth-year students of the College of Physical Education and Sports Sciences enjoy a high level of psychological flow. Psychological fluency has a positive relationship with the psychological flow of fourth-stage students in the College of Physical Education and Sports Sciences with a high level of psychological fluency.

Keywords.psychological fluency; psychological flow.

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Physical-kinetic intelligence and its relationship to the accuracy of the performance of the handling and scoring skills in the game of futsal football extract

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Abstract: The study aims to identify the relationship between physical kinetic intelligence and the extent of its contribution and impact on the performance of technical skills in futsal, where the researcher used the descriptive approach to suit the nature and achievement of the objectives of the research. Their number is (14) players, and the simple correlation law (Pearson) was used to obtain the results of the correlation between the variables. The researcher concluded that there is a statistically significant relationship for the physical kinetic intelligence and the accuracy of the performance of the handling and scoring skills in the game of futsal football, and the researcher recommended the need to alert the coaches to Using intelligence measures to know the level of players, especially during selection, and conducting other similar studies in the light of psychological, physical and physiological aspects to contribute to the progress and development of research and studies. Physical motor intelligence and its relationship to the accuracy of the performance of the skills of handling and scoring in the game of football for the lounges.

The effect of dynamic lactic exercises in the maximum oxygen consumption (VO2max) and lay-up shooting endure of basketball under 20 years old

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Abstract. The importance of research is to prepare dynamic lactic exercises and identify its effect of the maximum oxygen consumption and lay-up shooting endure of basketball under 20 years old. Research problem, Through the experience of researchers being interested in the game of basketball and by watching most of the matches of the youth premier league in general and Al-Tadhamun sports club matches in particular, they noticed that there is a noticeable decrease in skill performance when the level of technical performance is very high or whenever the time in the game progresses, Thus, this negatively affects the team and the inability to score goals that may be crucial to the match, the researcher believes that the reason may be a weakness in the functional and physical ability of the players, which has an effect in the level of performance, also the lack of use of modern training methods, including the method (dynamic lactic), which is one of the training methods that give the player the ability to enduring changes in the players' tactics in the competition, as the researcher believes that it will develop the functional side of the player. Research objectives, preparing of dynamic lactic exercises in basketball, as well as identify its effect of the maximum oxygen consumption and lay-up shooting endure of basketball players under 20 years old. Research hypotheses, there is an effect of dynamic lactic exercises of the maximum oxygen consumption and lay-up shooting endure of basketball players under 20 years old. As for the research methodology and its field procedures, researchers used the experimental method to solve the problem of research.

The research Society was determined by Al-Tadhamun sports club of basketball, the number (16) players, the researchers chose a sample of them in a simple random manner (lots) and their number (12) players, they were divided into two groups (experimental and control) in the simple random way (Lottery). The most important conclusions, the duration of the dynamic lactic exercises, represented by the number of training units, it was suitable to development the experimental research group for the maximum oxygen consumption variable, as well the development of the maximum oxygen consumption has a positive impact on the development of and lay-up shooting endure for members of the experimental research group.The most important recommendations, researchers recommend to use the exercises according to the training rules for the dynamic lactic method to raise the aerobic and anaerobic efficiency for basketball players during matches and competitions, Also, the necessity rationing the training load for dynamic lactic exercises to suit the players in terms of gender, biological and training age, as it have a high impact on the body during performance.

Keywords. Dynamic lactic, Exercises, Maximum oxygen consumption, Lay-up shooting endure.

Suggested physical exercises to develop endurance for speed and power that moves with speed for the legs and pulse after effort, and performing two-point correction for basketball for youth

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Abstract- The science of athlete training and physiology has an important role in developing athlete levels in basketball, especially for teenagers. As we know, training causes a lot of changes whether it was physical or internal which happens because of athlete training. After the researcher consideration on the scientific resources that belong to the physiology of athlete training as well as proceeding meetings and interviews with experts and specialists in the physiology of the athlete training, the researcher chose the Functional variable to heartbeats rate after giving an effort to proceed the whole work on it and discovering the real reasons behind its weakness by the observation of the researcher to a group of young players in training units in addition to watching basketball games, the researcher observed weakness in aiming jump with two points skill inside the forbidden area especially at the third or fourth period of the game, this is a clear indicator to the existing of weakness in training on developing this skill and from here the importance of the research comes in recognizing the effect of proposed exercises on heartbeats rate after doing an effort, physical ability and doing an aiming jump with two points in basketball for teenagers، The problems of research is that any weakness suffered by any basketball team is an important problem, so work must be done to overcome this weakness, whether it is physical, skill, or related to the internal organs of the player's body and turn it into a point of strength and benefit from it, and since the researcher is one of the Iraqi Premier League basketball players as well On his follow-up to

youth championships inside Iraq, the researcher noticed that most of the young players' physical and skill performance declines during the third and fourth period of the official match, and this indicates a problem in physical and skill abilities in particular (bearing speed, strength distinguished by speed, shooting by jumping with two points) Hence the research problem through the use of suggested exercises to develop physical abilities and the skill of shooting by jumping with two selected points in the research as well as developing the heart rate after the effort and obtaining the best results for it in order to provide an easy service to the beloved basketball ، As for the most important aims of the research, it was in preparing proposed exercises to develop some physical abilities and the functional variable and shooting with two-point jumping with basketball for youth, as well as identifying the effect of the proposed exercises on some physical abilities and the functional variable and correcting the two-point jumping with basketball for youth. The research hypotheses are the existence of Significant differences with statistical significance in pre and post tests for some physical and functional abilities and shooting by jumping with two points with basketball for youth, and the presence of statistically significant differences between the experimental and control group in the post-tests and in favor of the experimental group ، As for the limits of research, the researcher chose his human limits represented by the young players of the Nasiriyah Sports Club in basketball for the season (2019/2020) and between the ages of 16 and 18 years. As for the spatial limits, it was in the martyr Haider Kamel Burhan Closed Sports Hall in Dhi Qar Governorate, Time limits from 1/9/2019 to 31/10/2019.

The effect of using E-learning technology in learning the skill of clean and jerk for students of the Faculty of Physical Education and Sports Sciences

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Abstract. The purpose of this paper is to identifying the effect of using the e-learning technology method and the method used by the teacher in teaching clean and jerk skill to students in the College of Physical Education and Sports Sciences / University of Kufa, as well as identifying the difference in the effect between using the e-learning technology method and the method used by the teacher in teaching clean and jerk for students of the College of Physical Education and Sports Sciences / University of Kufa. In terms of research methodology, the researchers used the experimental method in the two groups equivalents.The research community has identified 40 students in the first stage of the Faculty of Physical Education and Sports Sciences, University of Kufa for the academic year 2020-2021, and this was done after collecting data for the research, where the researcher performed the statistical treatment in order to be able to reach and achieve the objectives and hypotheses of the research.The researchers reached several conclusions, including: there is a development in the level of performance of students with the skill of raising the net and for both groups (control and experimental), as well as the emergence of differences in the effect of the e-learning method and the method followed by the teacher in developing the level of performance of students with the skill of raising the net and in favor of the experimental group (E-Learning).As for the most important recommendations: the application of the method of e-learning technology in teaching skills and activities because of its importance in the attic of teaching and learning to achieve the required goals, as well as conducting similar studies on other activities and age groups.

The effect of qualitative exercises in developing motor compatibility and learning the skill of the jump set volleyball for the players of the specialized school

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Abstract. The aim of this study is to preparing specific exercises in developing motor compatibility and learning the skill of jump set in volleyball for the players of the Specific School, identifying the effect of qualitative exercises in developing the motor compatibility of the players of the Specialized School, identifying the effect of qualitative exercises on learning the skill of jump set in volleyball for the players of the Specialized School. As for the research methodology and playing field events, the researchers used the experimental method to solve the problematic. As for the community, it was determined the players of Specialized School in Al-Qadisiyah Governorate, and the number of them was (28) players, and they were distributed equally to two groups by the simple random method (raffle). As for important conclusions: that the qualitative exercises helped to develop the motor coordination of the legs and arms of the experimental group, that the qualitative exercises helped in learning the technical performance of the jump set skill in volleyball for the experimental group.The researchers recommend paying attention to using qualitative exercises according to the level of learners in learning the jump set skill in volleyball, the researchers recommend adopting the qualitative exercises ready by them as simple data when learning the jump set skill in volleyball.

The effect of TPS strategy in teaching some defensive skills in basketball for female students

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Abstract: Through the researchers' follow-up to the basketball lessons and his interest in this game, he noticed that there is a fluctuation in the skill level of students, especially defensive skills, as well as that most of the lessons run at the same pace and that the burdens are on the teacher's shoulders only without relying on self-strategies in teaching, and the research aimed to Recognizing the effect of the TPS strategy in teaching some defensive skills in basketball for female students, The research community was identified, represented by the second-level students of the faculty of Physical Education and Sports Sciences, Dhi Qar University, for the academic year, which numbered (49) students. To two control and experimental groups with (16) students per group, the control group used the teacher's curriculum, while the experimental group used an educational curriculum according to the TPS (Think - Pair - Share) strategy, and the TPS strategy (Think - Pair - Share) which the researchers adopted had The significant effect on improving the level of skill performance of the skill (defensive movement and defensive follow-up) in basketball among the experimental group members.

The effect of (S.W.O.M) strategy on kinetic flexibility and accuracy of the volleyball block skill for students

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Abstract The aims of this study is to identify the effect of the strategy of the stomach and the strategy followed by the subject teacher in developing the flexibility and skill of the volleyball block for students. The experimental method was also adopted in the manner of two equal groups to implement the vocabulary of the prepared strategy, and the research community was determined by the third stage students, (28) students, and the sample was divided equally into two groups. The conclusions are (S.W.O.M) strategy prepared by aid greatly in evolving the flexibility of the sample, and the time period during which the strategy was applied aid in evolving the precision of the volleyball block. As for recommendations, they are the necessity of employ the (S.W.O.M) strategy in evolving kinetic abilities, conducting similar studies on different age groups and activities.

The effect of (Tabata) style exercises for the performance stages in power characteristic of speed and the achievement of 200 meters for runners under 20 years

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Abstract. The purpose of this paper is to preparing Tabata-style exercises for the performance stages of 200 m, in addition to identifying the affect of Tabata-style exercises for performance stages in the power characteristic of speed and the achievement of 200 m for runners under 20 years. The researchers used the experimental method in a one-group style to solve the research problem, and for the research community, the research community was identify by the runners o f the 200-meter race in the Najaf Governorate for the 2020-2021 sports season, numbering (6) players, and then processing the data using appropriate statistical methods. The greatest important conclusions were the exercises that were useful in the Tabata style helped to develop the Featured Speed Power of the two legs for the research sample. The duration of the independent variable was appropriate to create adjustments that express the extent of the development of the research sample individuals to achieve 200 m.. As for the greatest important recommendations, they are attention to the use of exercises in the manner of (Tabata) as said by scientific training bases to raise the efficiency of short sprint runners during training and competitions, adopting exercises prepared by researchers as basic data when training 200m runners.The necessity of rationing the training load for exercises in a manner (Tabata) to suit the type of practitioners in terms of gender, biological and training age, because they have a high impact on the body during performance.

Keywords.

The effect of functional exercises on the explosive ability and accuracy of shooting from outside the arc three-point basketball for advanced players

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Abstract. The objective of this paper is to initial-testparing practical exercises in basketball, knowing the affect of practical exercises on the sensitive ability and initial-testcision of shooting from outside the three-point arc of basketball for advanced tester.The researchers applied the experimental system in determining the research problem, and for the research community, the research community was identified with Al-Tadamun Sports Club first basketball players for the 2020-2021 sports season, numbering (14) players, and they were divided into two groups similarly by random method (lottery). Then the experimental group was subjected to training that included the use of functional exercises, while the control group remained using the normal training method of the trainer, and after 8 weeks, final-tests were conducted, after which the data was processed using the suitable statistical means. The conclusion is that the duration of the sovereign variable, denoted by the number of units, was appropriate in creating adaptations that exinitial-testss the extent of the development of the experimental research group for sensitive ability. Basketball for advanced players, the evolution of explosive ability was positively reflected on the development of shooting accuracy from outside the three-point arc of basketball for advanced players. The most important recommendations included that the researchers recommend the espousal of functional exercises as basilar data when training basketball tester, the need to legalize the training load for functional exercises to suit the quality of practitioners in terms of gender, biological and training age because they have a high impact on the body during a performance.

The influence of dynamic work trainings according to the auxotonic contraction on values of some biomechanical variables of the high spike in volleyball for youth

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Abstract. The aims of the study was to identify the effect of dynamic trainings on values of some biomechanical variables for the high spike in volleyball for youth, and also to identify differences in values of some biomechanical variables of the high spike of the research group in the pre and the post tests. The study was conducted in the gymnasium of the Faculty of Physical Education and Sports Sciences, Thi Qar University on 6 players representing Al-Furat Sports Club class A, the duration of the practice of playing for 7-9 years. Tasks in the study required analysis of scientific and methodological sources, the use of observational and experimental methods, methods of mathematical statistics and pre – post tests. The laboratory experiment was carried out using measurement methods and equipments: a power measuring platform, two cameras integrated into a measuring system, a Kinovea, LockerPro and SPSS kinetic analysis programs connected to a computer. The experiment was photographed with two side cameras in zone 4, and the power platform was also placed in the same place. Much attention was devoted to the question of development of the ability of working muscles to apply a high level of force with such speed that helps to increase the speed of the body during run-up, because increase the speed of run-up depends on the anatomical biomechanical characteristics of the body.

The obvious development in the level of technique of the high spike is revealed due to the development of dynamic work and some biomechanical variables, as well as run-up and take off speed is improved, as a result of the development of mechanical regimes caused by use of dynamic trainings. In addition, the trainings of dynamic work and according to auxotonic contraction helped the development of takeoff angle in connection with the development of the moment of muscle force in accordance with absolute angles of technique.

Key words; spike, dynamic work, auxtonic contraction, extension, variables, eccentric force.

Designing an innovative method to determine the degree and level of sprained wrist ligament injury in athletes with wrist injuries

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Abstract. Diagnosing sports injuries and knowing their percentage and locations using modern medical devices (such as a measuring device for the wrist joint injury level) is very important as we can reach the direct ability to develop appropriate solutions to rehabilitate those injuries and because researchers are interested in the field of sports injuries noticed the large number of ligaments of the wrist joint Especially among athletes and for various games for young people in particular at very early times that players can be exposed to in sudden times during and after playing. As for the research objectives, it is to design a special means to measure the degree and level of sprained ligaments of the wrist joint of the injured athletes. Determining the degree and level of pain for athletes with sprained wrist ligaments in athletes.

KEYWORDS: sprained wrist; ligament injury; athletes; wrist injuries.

Morale and its relationship to the kinetic social cohesion of young football players

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Abstract. Football is one of the sports that has a distinct competitive nature, which we may not find in other games, and there is no doubt that the psychological conditions in the game of football are among the cases that deserve attention and study. The research problem crystallized through the researcher's field experience as a coach for age groups. Studying some psychological variables that will have a big and important role in developing the skillful performance of the players and achieving high results, which led the researcher to direct him to pay attention to them in the training process, believing that they will bring positive results through studying the morale and social cohesion of the sports team.The research aims to: - Identifying the morale and kinetic social cohesion of young football players - and identifying the relationship between morale and kinetic social cohesion in football. The researchers used: for young football players - the descriptive approach with survey methods and correlational relationships, in order to suit it with the requirements of the research. The research community included (25) players. The research sample amounted to (18) players were chosen randomly - the most important conclusions - the research sample possesses high morale There is a positive moral relationship between the morale and the psychomotor cohesion of the research sample.

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As for the recommendations, the coach pays attention to the psychological preparation of the player in order to control the methods and strategies of the morale and social cohesion of his and make it at a good level that achieves the high levels of the players - Take advantage of previous posts For the player to improve and raise his morale and not be affected by failures that affect the cohesion of the player.

Keywords: morale, social cohesion, movement, football

The effect of varying resistance exercises on the characteristics of the force-time curve of the skill of smashing serve in volleyball

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Abstract. The game of volleyball contains many basic skills, both defensive and offensive, that lead the team to victory if the team performs it well and quickly. The transmission is one of the decisive offensive skills, as through it a direct point can be obtained, and as a result of the development in the skill performance in this game, experts and trainers have sought to find ways and training methods to develop this skill. Hence the importance of the research is that the various resistance exercises help the player to perform Movements under variable and different conditions, so that the player is able to face the various conditions and situations that he is exposed to during the game runs well, as well as developing the values of the force-time curve for the player, to reach the best biomechanical conditions and thus develop the ace, The problem of the research was that raising the level of skill performance of volleyball players, as well as taking into account the mechanical factors accompanying performance in the field of sports training, constitutes one of the scientific foundations that increase the development of achievement and performance for most volleyball skills, and through the researchers' observation of the kinetic analysis of the skill of smashing transmission for some teams And the specialized centers for youth that there is a weakness in the performance of the sent player during the skill stages, specifically the payment stage, and this is due to the lack of the correct position of the fulcrum.

Which causes a loss of balance and increases the amount of effort expended during the approaching stage, and this may be the result of a weakness in the internal strength represented by strong The torque of the body parts involved in the performance of the two fulcrum moments ،And pushing causes mechanically undesirable flexion at the relative angles of the knee joint, so the researchers decided to study this problem through biomechanical analysis of the crushing transmission and to develop different resistance exercises that would raise the level of muscle strength and skill level towards the best, while the objectives of the research are to prepare resistance exercises The disparity for developing the force-time curve for developing the skill of smashing serve in volleyball, and identifying the statistical differences and the percentage of development between the pre and post tests for the control and experimental groups for the force-time curve of the skill of smashing serve in volleyball, and identifying the statistical differences between the control and experimental groups in the post test of the strength curve. - Time for the skill of the ace of volleyball,Where the research hypotheses are there is a percentage of development and statistical differences with significant significance between the two tests, the pre-test for the control and experimental groups in the power-time curve for the skill of the smashing serve in volleyball and in favor of the post-test, and there are statistically significant differences between the control and experimental groups in the post-test in the curve Strength - time for the skill of the volleyball ace and for the benefit of the experimental group. As for the research method, the researchers adopted the experimental method by designing the two equal groups (experimental and control). The research community included young players in the specialized center for volleyball in Shatrah district, whose ages ranged from 16-18 years for the season. (2020-2021) who represent the youth category and number (20) players, (6) players were selected for the exploratory sample, and (14) players were selected representing the research sample with a percentage of (70%) from the original community, and the sample was divided into the two groups, the control and experimental in a deliberate way (to ensure the distribution of players to the two groups according to lengths and playing centers) and each group It contains (7) players, and one of the most important conclusions is that the use of differential resistance exercises gave a clear picture of its preference over the traditional program through the results shown by the experimental group and its preference over the control group. Effective in developing a power-time curve of the crushing serve.

Ministry of Higher Education and Scientific Research

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About the university

Al-Ayen University is a solid scientific institution that aims to create a promising era on the academic prospective. The university was established in accordance with the Private University Education Law No. 25 of 2016.

It is located in Thi-Qar governorate, near MIGA Mall. The University has five colleges including Dentistry, Pharmacy, Health and Medical Technology, Engineering of Oil and Gas, Physical Education and Sport Sciences. It is distinguished by the modern laboratories, foreign and Iraqi teaching staff as well as distinctive classrooms that will help students in consolidating their scientific level.

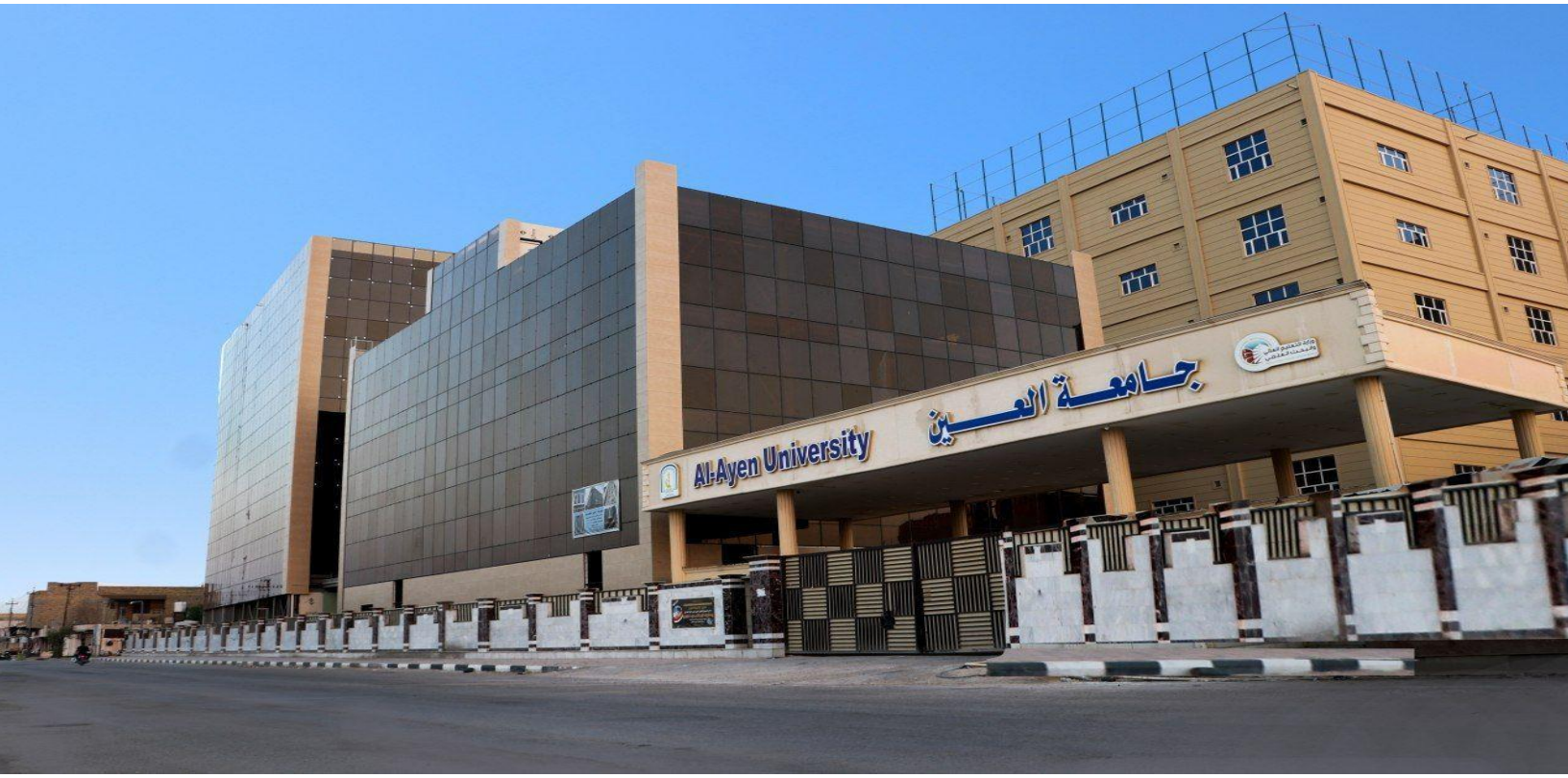
Although the university established recently; however, it has achieved world class quality in the educational programs and services provided within the University, assigning scientific research to serve national development issues by relying on advanced technology, especially information technology, developing competitiveness in the field of education and research between Iraqi and international Universities.

حـول الجامــعة

جامعـة العـين مؤسسـة علميـة رصـينة تهـدف لخلـق جيـل واعـد تأسسـت وفقـاً لقـانون التعلـيم الجـامعي الأهلي رقم 25 لسنة 2016.تقع في محافظة ذي قار قرب ميكا مول.

إن الجامعـة تضـم خمـس كليـات وهـي: كليـة طـب الأسـنان و كليـة الصـيدلة و وكليـة هندسـة الـنفط والغـازو كليـة التقنيـات الصـحية والطبيـة وكليـة التربيـة البدنيـة وعلـوم الرياضـة. كمـا أنهـا تمتـاز بـالمختبرات الحديثـة والكـادر التدريسـي الأجنبـي والعراقـي بالإضـافة إلـى قاعـات دراسـية مميـزة ستساعد الطلبة في ترصين مستواهم العلمي.

تسـعى جامعـة العـين علـى ان تكـون واحـدة مـن الجامعـات المحليـة والاقليميـة الرائـدة فـي التعلـيم الجـامعي والبحـث العلمـي وذلـك مـن خـلال تطبيـق المعـايير العالميـة فـي المعرفـة والتعلـيم والابحـاث العلمية وخدمة المجتمع



About

Under the Auspices of the Minister of Higher Education & Scientific Research Prof. Dr. Nabeel Kadim Abdul Al-Sahib and under the supervision of the president of Al-Ayen University Prof. Dr. Shafik S. Shafik. The Al-Ayen University held scientific conference entitle "3rd International Scientific Conference of Al-Ayen University" in the period 4- Nov 2021

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عن المؤتمر

برعاية معالي وزير التعليم العالي والبحث العلمي الاستاذ الدكتور نبيل كاظم عبد الصاحب المحترم وبأشراف السيد رئيس جامعة العين الاستاذ الدكتور شفيق شاكر شفيق المحترم. اقامت جامعة العين مؤتمرها العلمي بعنوان " المؤتمر العلمي الدولي الثالث لجامعة العين" يوم الخميس الموافق من 4 تشرين الاول 2021 .

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كلمة رئيس الجامعة

بعد مضي اكثر من عام نلتقي في مؤتمرنا الثالث. نلتقي في محفل علمي وعرس بحثي مهم يحوي على بحوث جمعت بين طياتها مواضيع مهمة وملفته للنظر في اختصاصات علمية مختلفة. ولكن قبل التطرق الى تفاصيل مؤتمرنا العلمي الثالث اسمحولي ان اتطرق الى موضوع اؤمن بأهميته وخاصة لمحافظتنا العزيزة ذي قار. ان اهم عنصرين لتطور اي حضارة هما الانسان وبيئته، فبناء الانسان يتطلب تغذيته بالمعرفة المطلوبة وخلق روح التفكر والتفكير داخله وهذا يحتاج إلى جهد جبار يبدأ مع التعلم في مراحله الاولى ويستمر، ولابد من ان يتابع بشكل دائم كي لا ينحرف هذا الفكر عن ما اريد له ان يكون. أؤكد لكم امتلاك مجتمعنا كم هائل من القيم والأخلاق التي تؤهله ليكون في المقدمة ولكن هناك عبئ كبير يقع على عاتق التربويون من معلمي ومعلمات الروضة الى اساتيذ الجامعات في زرع هذه القيم في نفوس طلبتنا واعادة احيائها في مجتمعنا عن طريق التواصل المباشر وفي جامعة العين اتبعنا هذا الأسلوب وهو محاورة الطلبة مباشرة والاستماع إليهم واعطائهم دور في طرح أفكارهم وتفعيل دور الارشاد التربوي وكانت النتائج إيجابية وكانت القاعدة الأساس في التعامل هي اؤمر المعروف بمعروف وأنهى عن المنكر بمعروف .اما القسم الثاني المهم جدا في تطور اي حضارة هو البيئة وكما هو معلوم فأن البيئة تحتم على الفرد تصرفاته، لذلك على المختصين وخاصة الباحثين في الجامعات والمراكز البحثية وضع ستراتيجية واضحة المعالم لكيفية تطوير بيئة ذي قار من المدن الجاذبة ومع الاسف ما نشاهده الان هو العكس تماما فبيئة هذه المحافظة طاردة لناسها بكل اصنافهم من مستثمرين وأصحاب شهادات وغيرهم ويحزنني جدا ما لمسته من بعض اهالي هذه المحافظة(وتأكيدا ليس الجميع) هو عدم محبتهم لها وتغليب المصلحة الفردية على مصلحة المجتمع. ولذلك ادعو الى عقد مؤتمر حقيقي يشترك فيه كل من يجد في نفسه القدرة على العطاء من أعضاء مجلس النواب الفائزين بالانتخابات في ذي قار وبكل اطيافهم ومن حكومة ذي قار متمثلة بالسيد المحافظ المحترم وقيادة العمليات ورؤساء الجامعات ومدراء الدوائر كافة والشخصيات الذي قارية من شيوخ عشائر وناشطين وغيرهم، يكون هدف المؤتمر وضع رؤية موحدة ومتفق عليها من الجميع عن ما تريده ذي قار من بنى تحتية وخدمات وغيرها وفق برنامج زمني محدد وبملف واحد يتبناه الجميع ويسعون لتنفيذه. ومن اجل ذي قار نحن في جامعة العين حاضرين لأستضافة هذا المؤتمر والتكفل بكل متطلباته. وبالعودة الى مؤتمرنا العلمي الدولي الثالث فقد تم استلام اكثر من ١٨٥ بحث علمي بأختصاصات مختلفة، ولكن فقط ١٣٤ بحث استوفت شروط المشاركة في المؤتمر والتقييم العلمي. ايضا من ما يميز مؤتمرنا تعاقده مع اربع مجلات مختلفة لنشر البحوث المشاركة وكلها ضمن المستوعبات العالمية المعتمدة من قبل وزارة التعليم العالي والبحث العلمي. وساهمت الجامعة بالقسط الأكبر من اجور النشر لكل المشتركين في المؤتمر وكان الدعم الاكبر لطلبة الدراسات العليا. وفي الختام احب ان أوجه شكري وتقديري واعتزازي الى أللجان العلمية والتحضيرية ولجنة الاستقبال على جهودهم الجبارة في إنجاح هذا المحفل العلمي الرائع .كما وأقدم شكري وتقديري الكبيرين الى باحثينا الكرام الذين قدمو بحوث نوعية مهمة واشكر الاساتيذ الافاضل الذين ساهموا في تقييم هذه البحوث. ايضا لا يفوتني ان اشكر رئاسة واقسام جهاز الاشراف والتقويم العلمي ومدير دائرة التعليم الجامعي الاهلي وكل اقسامهم للدعم المتواصل والاهتمام العالي بجامعتنا على الخصوص وبكل الجامعات والكليات الاهلية. والشكر بكل معانيه موصول للفريق الوزاري للتعلم الالكتروني لدورهم الفاعل وتفانيهم في دعم واسناد الجامعات والكليات الاهلية والحكومية .

3rd International Scientific Conference of Al-Ayen University (ISCAU-2021)

Computer and Communication Papers

Design and Analysis of 50 channel by 40 Gbps DWDM RoF system for 5G Communication based on Fronthsul Scenario

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Abstract. The establishment of 5G networks launched before few years and is projected to bring about significant changes in people's daily lives, which connect nodes using optical transceiver modules and optical fibers. The connection between the Central and Base Stations is the most intriguing part of the 5G network, and many academics have examined it extensively in order to improve and maximize network efficiency and achieving the highest data rate with less complexity, and cost-effectiveness. As a result, this paper has been used the Optisystem program and a Dense Wavelength Division Multiplexing (DWDM) Radio over Fiber (RoF) approach to demonstrate, plan, and execute in this article. For higher-speed transmission systems targeted toward Tbps connectivity, a 50 by 40 Gbps data transmission system is proposed. Channels 1, 4, 8, …, 48, and 50 were chosen as samples for the investigation. The output analysis was based on the eye-opening parameters, Quality Factor (QF), and Min Bit Error Rate (MBER) for the distances ranging between (60 - 180) Km.

The results showed a higher data rate performance for the proposed system to reach 2 Tbps for future applications. Furthermore, QF parameters showed encourage results as the averaged obtained values were above the threshold by ranging between (0.22- 13) dBm.

KEYWORD: DWDM, RoF, 5G, optisystem, data rate

A HYBRID AUTHENTICATION AND SECURITY APPROACH IN IOT HEALTHCARE APPLICATIONS USING FOG COMPUTING BASED DATA MINING

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Internet of Things (IoT) is currently considered to be among the most recent technologies that enable a large number of physical objects to be linked across the Internet to exchange and transfer information among them. Within the scope of healthcare applications, such delay would form a dangerous risk in case the system does not meet the compatibility requirements of health monitoring, in addition to the several security and privacy threats that are encountered. One of the solutions suggested to reduce the service latency and network congestion is the application of Fog computing with Cloud services. To ensure the safe transmission of data between IoT devices and the cloud, while keeping the possible network latency and response time to a minimum, the proposed work based on a three-layered IoT-Fog computing model is implemented. It deploys an authentication, encryption and data mining cluster analysis stages with cloud computing in real environment. The proposed work aimed to address the issues of security and accuracy in IoT-fog computing systems through authentication phase between the sensors in the end-device layer and the fog layer, in addition to the encryption of the communication between the fog and the cloud layer to ensure its security. The proposed system based on several medical data sensors, such as the temperature sensor, the heart echo, and the sensor of oxygen level in the blood with a heart rate. The fog server computed the digest between the sensor layer and fog layer for the authentication process to send the sensors data. As for the encryption process between the fog and cloud servers, it was implemented using AES and shared key generated by ECDiffieHellmanCng. Data mining cluster analysis using k-means is implemented to cluster the data in the cloud server. The obtained results indicate that the model succeeded in decreasing the network latency while increasing the security of connection and accuracy of performance when implemented in healthcare applications, as time of encryption between fog and cloud computing was between 1.1 milliseconds and 1.3 milliseconds, and the latency is calculated based on the used test bed as 1ms, 2.5ms, 5ms, 8, 10.5 according to the distance range. The knowledge discovery for healthcare data analysis using k-means in the cloud with the evaluation metrics were cohesion 98.195 and silhouette index 0.769

Big Data Processing with Hadoop and Data Mining

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Abstract

A stroke occurs as a result of intense blood flow, causing confusion in the brain as a result of the brain cells not getting enough oxygen and nutrients, and these cells begin to die. It is very important that the cases of stroke are diagnosed early and very accurate, as it contributes to treating the condition or reducing the risks associated with it if it is predicted early. In this paper, we propose early prediction of stroke diseases using different data mining-machine learning approaches. The six different classifiers have been trained, namely: Naïve Bays (NB) Neural Network(NN), Support Vector Machine(SVM), Random Forest (RF), Decision Tree (DT), k-nearest Neighbor(KNN). Results of the base classifiers have been aggregated using the data mining processes (attribute filters) approach to reach the highest accuracy. Also, here this study has achieved an accuracy about 98.5499 %, where the Hadoop count / Hadoop–Weight performs better than the base classifiers. This model gives the best accuracy for the prediction of stroke. The false-positive rate and false-negative rate of the Hadoop count / Hadoop–Weight are the lowest compared with others.

Keywords: Big data, Hadoop, Data Mining, Mapreduce, Stroke.

Attribute Selection For Stroke Prediction Based On Hadoop and Machine Learning

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Abstract

A stroke occurs as a result of intense blood flow, causing confusion in the brain as a result of the brain cells not getting enough oxygen and nutrients, and these cells begin to die. It is very important that the cases of stroke are diagnosed early and very accurate, as it contributes to treating the condition or reducing the risks associated with it if it is predicted early. There are many research trends that are based on the databases that are provided to health centers, and some of them rely on databases for research purposes. Where the research is based on a big healthcare dataset. This paper presents a prototype to classify big healthcare dataset stroke attributes that combine Hadoop and machine learning algorithms. Machine learning can be portrayed as a significant tracker in area s like surveillance, medicine, data management with the aid of suitably trained machine learning algorithms. The results showed that the proposed system contributes to predicting the occurrence of stroke with an accuracy of about 98% for both systems that are based on Hadoop (Count-Weight).

Keywords: Stroke, Data pre-processing, Classification, Machine learning, Weight.

Hybrid Spectrum Technique for Independent Fine Adjustment of Either/Both Bandpass Edge in Spectrum Sensing Applications

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Abstract:

In wireless communication technology, efficient use of the spectrum in cognitive radio requires sensing the current spectrum, dynamic adjustment of their operation, and transmission characteristics. Spectrum sensing is a crucial issue of cognitive radio. Reconfigurability, multi-resolution pass-band characteristics, spectrum detection, and frequency band allocation policy lead to an efficient communication system with proper integration of the radio spectrum. This paper presents a new multi-resolution hybrid spectrum method for fine independent adjustment of either/both edges of a band-pass filter suitable for spectrum sensing applications. Independent adjustment of either edge of a band-pass filter is not applicable by the use of CDM, MCDM, or VDF methods. The method is based on incorporating the wrapped filter of the VDF method for the low-pass prototype spectrum edge, fine-tuning, and MCDM-I technique for the final desired hybrid band-pass spectrum. The response of the MCDM-I technique is driven by complex-valued impulse response obtained by the inverse Fourier transform of a hybrid combination of low-pass prototype spectrum within the Nyquist band combined with the image of the VDF modified spectrum. This method shows an efficient technique with a complete variety of controlling positions of pass-band edges within the spectrum. The implementation filter complexity depends mainly on the use of N-point 2x FFT, where N is the low-pass prototype filter length and VDF update coefficient.

Keywords: Spectrum sensing, Frequency response, VDF technique, MCDM technique, Complex FIR filte.

Data Mining Techniques for Extraction and Analysis of Covid-19 Data using Techniqus K-Means Clustering

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Abstract: the aim of this survey is to deeply analyze the Corona-Virus Diseases (Covid-19) using the data mining based K-Means Clustering technique. Researcher's prediction will not only allow detection and pipeline to predict how much money their detection method for COVID-19 will make, but it will also allow them to justify their characteristics, such as type of infection and choice of vaccine in order to reach a certain detection using data mining based model. In this way, it overcomes the challenge of new COVID-19 forecasting: the lack of historical data. With the data mining algorithm, researchers provide prediction at 15 to 20 different methods with an accuracy above 80% after training. The training is performed on 80% of data while the testing is done on remaining 20% of data. Such prediction will also allow other interested third parties to predict the success of a COVID-19 detection before it is released on open source community. In the process of prediction, some researchers found the variables most associated with COVID-19 detection, and to see how the various prediction models are affected by them. Nevertheless, those data mining based methods can greatly benefit from modern artificial intelligence techniques for this purpose that can handle complex features and give out great prediction results. Therefore, employing historical COVID-19 data and using them in data mining algorithms to predict disease could save companies millions of dollars on rather unsuccessful detection. The results were adopted by quantitative prediction identical to the classification of COVID-19 using artificial intelligence. The results achieved by the SMV model with ML sentiment analysis have a very high accuracy in predicting behavior (87.71%). Correcting many types of behavior for different people and its ability to perform is much better than predicting all COVID-19 with a decrease in loss.

Keywords: Data Mining, Covid-19, K-Means, Population, Disease, Clustering

Homomorphic Encryption between Client and Cloud Server

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Abstract

A cloud server is a service that can be accessed over the Internet. The problem with the cloud server is the lack of security and privacy, and to solve the problem, a more secure method must be provided. In this paper, the encryption between the client and the cloud server has been clarified and the accounts request processing on encrypted data without the need for a secret key using this system. This type of encryption is called partial type, as are schemes (Paillier and RSA). These schemes allow a person to double or add to the performance, provided that this depends on knowledge of the encrypted data and information related to the encrypted work. The other type is the full encryption of the data, but it is difficult for the programmer to do this alone, but it requires a team of specialists.

Keywords: Cloud Server, RSA, Fully Encryption.

Big Data Analysis for Healthcare Application using Minhash and Machine Learning in Apache Spark Framework

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Abstract

Analysing data on a large scale is becoming important and engages in convincing many researchers to use new platforms and tools that can handle large amounts of data. In this article, we present new evaluation sentiment analysis for large-scale datasets of COVID-19 Vaccine Stance tweets and COVID-19 Tweets IEEE data port datasets in the Apache Spark data system. The Apache Spark Scalable Machine Learning Library (ML) is used. We designed hybrid minhash models from the library with four classification methods: Logistic Regression (LR), Naive Bayes, Support Vector Machine and Random Forest classifiers in a parallel and distributed manner. In addition, Minhash with locality Sensitive hashing (Minhash-LSH) is compared to Minhash-ML. Performance parameters such as user, system and real time, time consumed, and accuracy have been applied in the comparative analysis to analyse the behaviour of the classifiers in the AWS spark Cluster, Local Spark cluster and in conventional system. Results have indicated that the models in spark environment was extremely effective for processing large-dimension data, which cannot be processed with conventional implementation or take much time related to some algorithms. The proposed model achieves accuracy above 99% in case of Vaccine tweet dataset when classified with Minhash-RF and Minhash-LR classifiers. Also, 100% in case of COVID-19 Tweets Provided by IEEE data port when using Minhash-SVM, Minhash-RF and Minhash-LR classifiers.

Keywords:
Big data, Apache spark, Sentiment, Machine Learning, Minhash-LSH, COVID-19 Tweets, Healthcare.

New Design and Analysis Microstrip Triple Band-Notched UWB of Monopole Antenna

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Abstract

This article discusses the design, analysis, and fabrication of an optimal (20 x25 x1.6) mm3 Ultra-Wideband (UWB) antenna for wireless communication applications with a frequency range of (3.1-10.6) GHz. The antenna is composed of two distinct sections. The first step is to construct an antenna with a frequency range of (3.1 to 10.6) GHz. The second step involves manipulating the antenna to reject interference from the (WiMAX) band at (3.1–3.7) GHz, the (WLAN) band at (5.1–5.8) GHz, and the X-band at (7.1–7.8) GHz. By altering the routes taken by surface current, desirable frequency bands can be gated. Additionally, it demonstrates that by altering the characteristics of the etched holes, the frequency band may be tailored to the application needs. The suggested antenna meets the design requirements for a fair gain, a suitable Voltage Standing Wave Ratio (VSWR) less than two, a small size, a high data rate, an optimal radiation pattern, and linear operating phase ranges. To strengthen the proposed antenna's immunity to interference, several upgrade processes are performed in conjunction with extensive parametric evaluations.

Keywords: UWB, WLAN, VSWR, *FCC, WiMAX.*

Extraction and Classification of Semantic Relations from News Recommendation

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Abstract

The classification of semantic relation between terms or objects within text is required for a variety of semantic interpreting tasks, such as textual entailment and inquiry answering. In most circumstances, though, attributing a linear semantic relationship between entities/terms is difficult. This work presents a method for categorizing composite semantic relations based on one or more relationships between entities/terms. In contrast to earlier techniques, the proposed model combines a vast commonsense knowledge and understanding of triple connections with machine learning techniques based on lexical and redistributive word embedding properties . To solve the compound semantic relation classification task, we used a distribution of income navigation technique and sequences classification.

Keywords: Semantic Relationship, News Recommendation, and Classification are some of the terms used in this paper.

BRAIN TUMOR DETECTION AND CLASSIFICATION USING CONVOLUTIONAL NEURAL NETWORK (CNN)

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ABSTRACT

Brain tumor, according to the W.H.O. is one of the significant causes of death worldwide. Due to its complexity and silent nature, early detection of this disease makes it hard to detect. The associated danger of clinical occurrences, which makes it a severe public health condition globally, is affiliated with chronic brain tumor disease. Even though it is widely accepted that chronic brain tumor disease has significant interactions with magnified hazards of end-stage excretory organ disease, vessel occurrences and all-cause mortality, there is still a lack of comfortable information on individual patients. The research will apply the deep learning-based Convolutional Neural Network (CNN) technique for this brain tumor prediction problem , especially on the Image Dataset. The CNN has been a popular method and highly sought after the meaning of model classification in today's society. The CNN based expert system works like the human brain with input, neurons, hidden layers and output. For this research, chronic brain images of healthy and unhealthy images are collected with good lighting conditions to identify all hidden features. The image samples are then passed through different image processing methods such as Grayscale, B&W, Complement, Robert, Resize and power Transform. The chronic is then passed through a texture feature extraction algorithm know as Convolutional Neural Network (CNN). The features that have gotten are Contrast, Correlation, energy, Homogeneity, Entropy, Mean, Standard deviation, Variance, skewness and Kurtosis. After the feature extraction, the data are arranged on a spreadsheet that serves as a record. Lastly, a convolutional neural network has one hidden layer, 16 input neurons, and two healthy or not outputs. The data are split into train and test datasets with 70% for training, 10% validation and 20% for testing. The detection accuracy was 92.78%, with the execution time of 5.33s only depending on the number of iterations or epochs. For the confusion matrix of brain tumor detection and classification, an accuracy of 97.9% was recorded, the precision of 98.3% was accounted for with the recall of 98.5%, and the end an A.U.C. of 99.7% was calculated for this dedicated research work.

Keywords: Chronic, CNN, brain tumor, deep learning, detection, classification, prediction, segmentation.

Study the Effect of Dielectric Permittivity and Changing Substrates Material on Microstrip Patch Antenna

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ABSTRACT

In this paper, three different cases of analysis were investigated. The first case is study the effect of varying the dielectric permittivity on the Microstrip Patch Antenna (MPA). While the second case is to inspect the impact of modifying the thickness of the substrate with the insertion of an air gap between the patch and the substrate. Investigating the effect of changing the type of the conductive material in the third case (copper, aluminum, gold, platinum, and graphene were used). It is found that the bandwidth depends on the substrate type. The use of graphene patch give a relative gain of 15dB. It is also found that the increase in dielectric constant (ε_r) causes the bandwidth downsizing as well as decreasing the gain. Using a wooden substrate increases the antenna bandwidth. Utilizing the air gap, between the patch and the substrate, to enhance electrical insulation. It is found that reducing the air gap caused a noticeable bandwidth reduction.

Keywords: Microstrip Patch, Antenna, Dielectric, Bandwidth, Permittivity, SWR, Resonant Frequency.

Probability of false peaks circular and concentric array antennas direction

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Abstract*:* Evaluation of angular coordinates of radio sources has attracted a great interest in areas such as radar, sonar and wireless telecommunications systems. The problem of estimate the radar angular coordinates of radio sources is the key to improve productivity,. however, in the wireless telecommunications systems information, the coordinates are enables the spatial separation to increase operating members in this paper, the functioning of the radio direction-finding techniques in the system ring and concentric array antennas is investigated. we focus on the issue of false peaks in the DF relief ring and concentric array antennas. A radio direction-finding method MUSIC with super resolution are considered and discussed.

Keywords: superresolution, antenna array, DOA estimation, circular arrays, concentric circular arrays.

Self-Test and Calibration Methods for Micro Electro-Mechanical Systems

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ABSTRACT

For the testing of micro electro-mechanical systems, we propose a taxonomy of built-in self-testing methods. these solutions that are non-intrusive, cost-effective and are typically non-intrusive during the testing process are being actively sought after as the cost of MEMS testing can account for 50 percent of the total cost of the end product. The selection of testing methods is analyzed extensively, and a classification table for such methods is presented according to three performance metrics: ease of application, test application, usefulness. Performance table also provides a field test domain for the method. While BIST methods do depend on the application at hand, utilizing the inherent multimodal sensing capability of most sensors could be a promising approach for effective built-in self-test.

Keywords: Micro-Electro-Mechanical Systems (MEMS), Self- Test Self-Calibration, Built-In-Self-Test (BIST).

Recognition and Classification of Facial expressions using Artificial Neural Networks

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Abstract

This paper addresses the problems of recognition and the classification of the facial expressionsfrom videos. Currently there are excellent results focusing on the control environments, where artificial facial expressions are found. It is by far the largest database of facial expression, valence, and arousal in the wild enabling research in automated facial expression recognition in two different emotion models. On the other hand, much remains to be improved when it comes to the uncontrolled environments, in which variations in lighting, camera angle, face framing, make the small amount of labelled data available in impediment when the training models of automated learning. In order to attack this difficulty, the Reproductive Confrontational Networks technique was used in an innovative way, which allows a large number of unlabelled images to be used with a semi-supervised training style.In this paper; nearly half of the retrieved images were manually annotated for the presence of seven discrete facial expressions and the intensity of valence and arousal. From facial expressions, as well as the primary theoretical frameworks that have been offered to explain these patterns, we propose that this is an area of inquiry that would benefit from an ecological approach in which contextual elements are more explicitly considered and reflected in experimental methods and may suggest heretofore unexplored underlying mechanisms.

***Keywords*:** Facial Expression, Biometric System, Artificial Neural Networks, GANS, SFEW.

Fast Fourier Transform Coupled with Machine learning Algorithm For K-Complexes Detection

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Abstract

This paper proposes a novel K-complexes (KCs) detection approach using sleep Electroencephalogram (EEG) recordings. A segmentation technique is used to partition an EEG signal into intervals. Then, Fast Fourier Transform (FFT) is applied to each EEG segment. To find out the most effective input features to represent the EEG signal, the FFT coefficients were investigated. The extracted features are then utilised as the input to an ensemble classifier which is designed using three classifiers: *K*-means, the Naïve Bayes algorithm and least square support vector machines (LS-SVM). A comparison with existing studies is made and the results showed that the proposed model outperformed state of the art. The proposed approach can be developed as a online system to detect KCs in EEG signals. in addition, it can be applied to other EEG data such as detect sleep apnea.

Keywords Electroencephalogram. *K*-complexes. Fast Fourier Transform. Ensemble classifier.

Big data visualization: A survey

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Abstract

Due to the rapid development in our world today, multiple data sources from various sources such as sensors, the internet of things, healthcare data, etc., have been increased. So, it is necessary to analyze these data to obtain valuable data and visualize it with visualization tools. Big data visualization plays an essential role in today's world for decision-makers. This paper surveys big data concepts, big data visualization concepts, and big data visualization tools and techniques. Moreover, this paper presents an up-to-date comprehensive comparison among numerous big data visualization tools based on the characteristics and criteria of each visualization tool.

Keywords: Big Data, Big Data Visualization, Big Data Visualization Tools and Techniques.

Building a Smart System for Preservation of Government Records in Digital Form

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ABSTRACT

In this research paper, we concentrated on the development of a smart system for the preservation of Government of Iraq records in digital format. In literature, many existing preservation techniques and models have been discussed and presented with their detailed comparison as preservation rate of digital data growth has increased. Many western countries have already upgraded their paper-based systems to the smart system for preservation of government records including Turkey. In methodology, we used python language for the implementation of smart system application with OAIS framework to preserve archived paper-based records, it also provides a roadmap for the new digital ecosystem. It offers a framework that can be used to identify roles and responsibilities within a bounded system. Major ministries of Iraq (i.e. finance, electricity, science and technology) are developing specific guidance for preserving digital artifacts and records. Records accession, normalization and transformation have also been performed on the records during the process of preservation to clean the records and format conversion. In results, we achieved good preservation of most of the records from 2015 to 2019, the goal is to preserve which most of the records it belongs to digital format. The distribution of records preservation for major ministries of Iraq government in term of paper based and digitally preserved records from year 2015 to 2019. The preservation of digital records was recorded very low in 2015 as much of the record archival were paper-based in all major ministries of the government. However, year-by-year the smart system tends preserve the records in digital format from old paper-based format and till 2019 large amount of records are being converted to the digital format. To have such smart system can be very helpful for preserving the records of the government, and useful for understanding how records are being preserved and their functionality.

Keywords: Smart system, preservation, records, modelling, digitalization, government, Iraq

HAND GESTURE RECOGNITION USING ADVANCE DATA MINING

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ABSTRACT

Using data mining approaches, we investigated the use of hand motion recognition. I discovered that employing data mining for hand gesture detection has numerous advantages in gesture recognition applications. For starters, we use data mining to recognize hand gestures using channel bandwidth. Second, we provide great resolution on the time axis, which makes them ideal for data mining applications. In general, we need a short-duration sent signal that is closer to an impulse. For hand gesture recognition, data mining has the same frequency components as an impulse but distinct phase components. Our imaging techniques must be strong enough to distinguish a hand from a distance of items that are far away. In these articles under evaluation, data mining equals the recognition of hand gestures of the pulse divided by the duration. Having high energy with a short duration will cause the power to be very high, and the transmitter may not be able to manage it.

Keyword: Hand, Data Mining, Classification, Clustering, Gestures, Detection.

PREFIX METHOD OF PARALLEL PATTERN SEARCH AND HOMOGENEOUS COMPUTING MATRIX

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Abstract: This article focused on the development of matrix methods of pattern search with hardware implementation based on associative memory. The objective is to reduce the search time by forming a set of prefixes and their parallel processing with a set of associative computational matrices. The method uses dynamic reconfiguration of text character relationships so that the text as a char is alternately represented by matrix-string data structures. The method is based on parallel comparisons of a pattern and specially prepared prefixes with a matrix representation of the test. The comparison matrices obtained in the search steps allow us to calculate the amount of text shift by more than 1 character, which leads to a reduction in the search time. As a result, the original pattern is represented by a triangular matrix consisting of prefixes shifted to the right. The extreme prefix has a length of one character. The text for this method has a two-dimensional representation with the number of columns being equal to the length of a pattern. The representation of a pattern as a set of prefixes makes it possible to reduce the total number of steps by analyzing a variety of options for the initial search positions. The constructed computing matrix is based on combining the results of a parallel search and highlighting the priority position of a partial occurrence, excluding unproductive (blank) steps.

Keywords: Characteristic matrix, Comparison matrix, Substring, Reconfiguration, Bit slice.

ECG -signal Classification Using efficient Machine Learning Approach

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ABSTRACT

The heartbeat is a collection of waveforms of impulse produced by various cardio tissues of the heart. The ECG classification is represented basic challenge is to deals with the irregular in the signals of ECG that is important to diagnose the patient condition. The heartbeats classification have been developed by automatic algorithms from electrocardiogram (ECG) registers. The waveform of ECG has many deviation so heartbeats classification from ECG records is a complex problem, in addition many edges and that, Although many developed works have manipulated that problem, but it is not got good results. There are inconsistencies at the comparison between the results, the compare have be between the similar patterns (intra-patient, inter-patient or patient-specific) to be justly compare. A computer is often assisted in analyze and interpreting the signal of ECG using signal processing and paradigms assessment techniques. This article supplies a theoretical survey of ECG classification depend on machine learning.

Keywords: Machine Learning, Database, classification, decision tree, SVM, Naïve Bayes, Deep Learning, ESN

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PROPERTIES OF CERTAIN ANALYTIC MULTIVALENT FUNCTION DEFINED BY RUSCHEWEY'S TYPE

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ABSTRACT. By means of certain extended derivative operator of Ruscheweyh's type, we introduce and investigate subclasses $K_{n,m}^{p}(\lambda, \alpha, \beta)$ of p-valent analytic function of complex order. The various result obtained here for each of the subclasses included coefficient estimate, distortion theorem, radius of starlikeness and convexity ,close- to- convex ,extreme point, □ − neighborhood ,partial sums, integral operator and closure theorem.

Keywords: Multivalent functions, Ruscheweyh derivative, distortion theorem, starlike functions, convex functions, close- to- convex functions, extreme point. Mathematics subject classification: 30C45, 30C50.

Study of the behaver of the A(z) analytic functions on the Theorems Cauchy-Gursat & Morera.

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Abstract. During this paper, are going to prove analogs of the Cauchy-Gursat & Morera theorems for A- analytic functions.

Keyword: A −analytic function, $A-Rectifiable$.

Representation In Contemporary Architecture

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Abstract. "Reality" can only be known or given meaning through systems of signs organized in forms through "representation" which is the embodiment of a previous thing, ideas and beliefs, values or content, images, notes, events, or effects ... etc, according to philosophical and ideological orientations (Zeitgeist). Representation is the main pillar of design to embody the architectural values with the aim of constructing subject (the text of architecture) and communicating with reality, history, the future and with the other. Architecture is representative of its time and represented in it, representing its ideas, orientations and philosophy, and this shows the importance of representation in architecture and determines the field of research, and given the absence of a comprehensive concept of representation in architecture, the research problem is determined in the absence of a comprehensive and clear concept of representation in contemporary architecture, so that the goal of the research is to achieve this perception, through an approach that includes two parts, the first focuses on the general theoretical presentation of the concept of representation, and the second part includes constructing a theoretical framework for it, and applying it to an architectural model to reach the results of the application and discuss them in order to reach the final results of the research. Representation is a form of imitation and embodiment of something previous by copying or simulation, and this determines two main levels of the theoretical framework of representation, namely the origin of representation (its content) and its embodiment (representation). Therefore, representation has three meanings, the origin of representation, representation, and the act of representation. Representation is present in all architectural directions, and two main directions of representation can be identified in architecture, the first (representational, classical) is objective and semantic that expresses an ideology or thought, in which architecture is a means of expression truly and clearly. The second (non-classical) depends on an arbitrary beginning that represents events, traces, notations, or abstractions that are empty and devoid of meaning, and the recipient drops the representation on it according to his cultural background, so that architecture is a place for the production of thought, not technic to transfer it.

Key words: Representation, modern architecture, postmodern architecture

Experimental Investigation on Compressive Behavior of Reinforced Concrete Columns Confined by Geopolymer Adhesive Jacket

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Abstract. The strengthening and rehabilitation of reinforced concrete structures is an important issue all over the world. Fiber reinforced composites are mainly used for the strengthen and rehabilitation of concrete members. However, its use is limited due to its high price and environmental effects and its adoption of epoxy as an adhesive, where epoxy is considered inefficient at high temperatures and loses most of its properties. The solution of this problem leads to the use of low-cost locally available geopolymer adhesive paste. This paper presents the experimental results of testing seven reinforced concrete columns confined by fiber reinforced geopolymer adhesive jacket. Variable include jacket materials used (carbon fiber, jute fiber, steel wire mesh, window mesh fabric, (3x3) mm polyethylene mesh, and (4x4) mm polyethylene mesh). The results were it was found that the geopolymer paste is an efficient adhesive with the various types of materials used in the formation of the confinement jackets. Carbon fiber jackets are considered the most efficient in terms of performance compared to other types, but the most expensive at 34$ per square meter. Where the improvement in the (load improvement ratio and deformation capacity) by (3.146 and 3.68), respectively, and the confinement jackets consisting of (jute fiber and steel wire mesh) are considered the most efficient in terms of cost and performance compared to other specimens, with load enhancement by (1.79 and 1.7) and deformation capacity by (2.43 and 16.2), respectively compared with unconfined RC columns. Finally, confinement by fiber reinforced geopolymer adhesive is more suitable for use in strengthening and rehabilitation of RC columns in areas with a hot climate.

Keywords: RC columns, Confinement, Geopolymer adhesive, and jacketing.

Bearing Capacity of Pile Foundation Using Different Methods based on SPT measurements for a Soil in Nasiriyah

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Abstract. Pile foundation is an essential issue in most geotechnical projects, which can support different structures such as buildings, storage tanks, and bridges. The bearing capacity of pile foundations can be estimated by using field tests results such as the Standard Penetration Test (SPT) that is performed as part of site investigation because the static load pile test method is expensive, and no analytical solution is available to accurately estimate the bearing capacity of pile foundation in addition to the complex nature of piles embedded in the soil. Many methods are used to estimate the bearing capacity of pile foundations based on SPT; however, the results obtained through performing the bearing capacity based on SPT may give different results depending on the design method. This research used seven empirical equations based on SPT to estimate pile foundation bearing capacity and evaluate the results. The research methodology ruminates the data obtained as part of a site investigation of the water intake project in Nasseriyah, which includes the results of SPT at six boreholes. The types of soil are estimated based on the results of the SPT, where disturbed samples were obtained through performing the test and the soil classification based on the undisturbed samples from the boreholes. The number of blows was corrected before being used in the calculation. The research showed that the method of Shioi and Fukui, for all the six SPTs, gave the maximum bearing capacity. At the same time, the minimum value was obtained by the method proposed by Bazaraa and Kurkur. The bearing capacity estimated by other methods such as Schmeretmann, Decourt, and Meyerhof's equations indicated moderate values located between these computed based on the Shioi and Fukui and Bazaraa and Kurkur's methods. The last method can be considered a conservative method.

Keywords: Piles; SPT; Nassriyah soil; Bearing capacity

Climate change effect on the South Iraq stormwater network

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Abstract. The important issue that municipalities face is the process of urban flood control and monitoring due to the damage these floods cause to infrastructure. To reduce potential climate change risks, this study aimed to develop a decision to determine the efficiency of stormwater networks in Basra, Iraq. Based on the data obtained from 1979 to 2018, the Storm Water Management Model (SWMM) program was used to simulate the stormwater network in Basra and use this data to predict the annual precipitation in the future until 2099 using the Statistical downscaling Model (SDSM). The results indicate a future rise of (0.14 to 1.07) °C as a maximum temperature. As a result of climate change, the intensity of rain is expected to increase beyond the network capacity to reach 21.5 mm/hr. The network's design capacity is 11.5 mm/hr., leading to 34% of manholes overflow.

Keywords: SWMM, SDSM, Climate change, Stormwater network.

Reviewing the Effects of Noise Pollution on Students (College and University)

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Abstract. This paper reviews research, studies and questionnaires on issues relating to the effects of noise on students at colleges and universities. Issues covered include factors affecting; colleges and universities campuses noise sources, outdoor and indoor classroom, and educational labs noise sources; health effects of noise on students; and acoustic environment of the classrooms.

An optimal solution to the unit commitment problem for a hybrid power system

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Abstract. This paper address the unit commitment problem for a power system consisted of conventional fossil power plants and wind energy farms. The main objective function to be reduced is the cost of fuel while meeting the technical and environmental restrictions such as limitation of power generation for each unit, startup cost, shut-down cost, spinning reserve, CO2 emission, wind speed limit. The artificial technique adopted to search for the optimal solution is Salp Swarm Algorithm. The suggested algorithm is utilized in a typical hybrid power system. Two cases studies are tested. The first one is for a power system free of renewable sources. The second case is for an integrated power system with a wind farm consisted 20 turbines. The obtained results are discussed.

Keywords: Unit Commitment, wind farm, load demand, constraints, Salp swarm algorithm, Total operation cost.

Spatial Analysis Based Method to Determine the Optimal Locations for Asphaltic Concrete Plants: Case Study in Karbala Governorate of Iraq

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Abstract. The construction of a new capital improvement facility is a significant and long-term investment. Site selection is a crucial decision made by that has an impact on a wide variety of activities, from land use planning to industrial facility siting. The location of facilities is crucial to the success or failure of such investments. The location of an asphaltic concrete plant is determined by a complicated set of elements that include economic, social, technological, and environmental considerations. The process of selecting locations that fulfill the selection criteria's desired parameters is known as site selection. Handling of geographical data and fulfilment of various criteria are critical to the effectiveness of decision-making in such a process. Geographic information systems and cost breakdown methodologies are incorporated systematically in solving asphalt concrete plant site selection challenges in this study, which was carried out in Karbala governorate of Iraq. Finally, combining a GIS model with a cost breakdown technique allowed for the discovery of optimal asphaltic concrete plant locations that balanced economic, environmental, and social factors. According to the study, there are around 120 potential asphaltic concrete plant locations, each with a minimum area of 40,000 square meters.

An integrated framework for measuring construction project performance success

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Abstract: The construction sector is plagued by an inability to assess project performance., as there is no agreement between researchers on a comprehensive measure of project performance and the main reason is that each project has different priorities and goals, so there is a permanent need to understand and define areas of performance that affect the project's success positively, in this study an integrated framework is developed to assess the performance of the project's success. The literature review summarized 17 main factors and 130 sub-factors that affect the performance. Delphi was used in this research in two rounds, Round I questionnaire field survey of experts and engineers are undertaken to assign weights to each factor on a five Likert scale. Round II the analytic hierarchy process (AHP) was used to analyze the results using an expert choice program. The resulting framework consists of 9 main factors and 20 sub-factors. The resulting framework was applied to a case study consisting of 50 accomplished school buildings. The performance coefficient for each school was measured . Measuring performance in building projects is difficult. Only a few of the-ranking indicators can use to assess the project's performance.

Investigating and Evaluating the Application of Green Building Principles in the Iraqi Construction Legislation

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Abstract. The environment is considered a basic element of life. It affects the living system of all organisms directly and indirectly. The proliferation of energy problems and environmental degradation supports the urgent need to implement green building principles. The study aims at investigating and evaluating the application of green building principles in the Iraqi construction legislation through conducting a comparative analysis of Iraqi environment and construction legislation with green building principles. In addition, it aims at developing a questionnaire designed to study the extent of Iraqi engineers' understanding of green building principles in the Iraqi legislation, and how these principles are employed in the legislation from engineers' perspective. Based on the analysis results, the principles of indoor environmental quality followed by materials and resources and water efficiency were partially applied; whereas the other four principles were not applied. From engineers' perspective, the results indicated the failure to apply all principles of green building. The results of the study have identified the deficiency found in the legislation and developed a set of recommendations and solutions that contribute to the application of green building principles, the most important of which include the inclusion of green building principles in the syllabus of engineering colleges.

Cementitious materials of waste used in the production of geopolymer concrete: an overview

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Abstract: The need for concrete is steadily rising to satisfy the growing demand for infrastructure development. It is well knowledge that the manufacturing of OPCs uses a significant amount of natural resources and energy, as well as emits a significant quantity of carbon dioxide into the environment. As a result, solutions must be found to make concrete more environmentally friendly. Geopolymer is a cementitious inorganic alumina silicate compound produced from cementitious ingredients. To produce concrete that is more ecologically friendly, efforts must be made to utilize this kind of concrete locally. This research looks at materials having cementitious characteristics that may be generated locally as industrial by-products or waste materials and are utilized to make geopolymer concrete. Having the use of various materials with cement characteristics, many research materials demonstrating the properties of geopolymer were evaluated.

Keywords: Geopolymer, Cementitious materials, Fly ash, Silica fume.

COMPUTER MATHEMATICS IN THE STUDY OF PRIME NUMBERS

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Abstract: From the beginning of human history, prime numbers aroused human curiosity. What are they? Why are the questions related to them so hard? One of the most interesting things about prime numbers is their distribution among the natural numbers. On a small scale, the appearance of prime numbers seems random, but on a large scale there appears to be a pattern, which is still not fully understood.In this paper we use the Maple software to bring the romantic world of prime numbers closer. We discuss the most important results and their application in the Maple system.

Keywords: computer mathematics , prime numbers , number sequences

Study of Swelling Potential Soil in Diwaniya City Based on Previous Empirical Equations.

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Abstract. Al-Diwaniya city is within the Mesopotamia plain lands with clay and silt character, the high shallow groundwater level about (0.60-1.55) m from the ground level is one of its features. Revealed the properties of soil and groundwater serious problems that occur to buildings and roads in the city, as a result of soil expansion and contraction. To understand the problem, ten boreholes were drilled, field information was recorded and the examination was conducted. The results showed that the clay percentage (11% -67 %), Plasticity Index (15 %-35 %), and Soil activity (Ac %) is low to moderately active. Four empirical equations from previous works were used to estimate the potential soil swelling, and evaluate the relationship of the physical properties of the soil with the swelling potential. All samples collected from Diwaniya city showed that the soil had low to medium swelling potential, it's possible that it'll be risky for lightweight structures at medium swelling potential. Also, the relationship between swelling potential (Sp %) and plasticity index (PI %) is strong and acceptable, converse the relationship between swelling potential (Sp %) and clay content (Cc %) was weak. This indicates that swelling soil depends on the quality of the mineral present in clay and does not depend on clay percentage, as the type of mineral that appeared in this study is Kaolinites, and Illites according to the plasticity chart of Diwaniya soil samples. Groundwater level is effective in deformations. For this, it is necessary to plan the construction according to groundwater level of the city, as it affects the swell and shrinkage soil.

Keywords: Diwaniya City, Empirical Equation, Plasticity Index, Swelling Potential

Petrographic study of Injana Formation in selected areas in Iraq

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Abstract. Injana Formation is extensively exposed in Iraq. Three sections have been chosen from Zawita, Tikrit and Tar Al-Najaf areas. Systematic sampling has been performed and 32 samples for petrographic investigation were collected from the outcrops of selected areas. The megascopic description in precise details is also attained.Petrographic investigation using polarized transmitted light microscopy reveals an intense effect of the Zagros-Taurus provenance on Injana sediments. Zawita and Tikrit sections are closer to the source area from the Tar Al-Najaf section. The mineralogical component, size and shape of sand grains confirmed this result. Injana sediments in Tar Al-Najaf subjected to long transportation because the source rock is far away and long distance from this area.

Keywords: Sediments; Zawita; Minerals; Injana; investigation

A GIS-based Network Analysis for Truck Vehicles in Baghdad's City Road Network

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Abstract: Most applications use distance as a weight to solve the shortest path problem. We employed a variety of parameters in this paper, including (Route Distance, Speed, and Capacity of the Road, and the time it takes each trip to the road). The major goal of this study is to determine the most effective approach for communicating this essential spatial information to end-users using GIS software. To discover the best route, most algorithm for best route (Dijkstra's shortest path algorithm, Euler's algorithm, etc.) are utilized. The proposed upgraded approach was applied to the Baghdad city road network as a case study. Baghdad has a problem in Processes for urban transportation planning are being implemented, particularly in terms of selecting appropriate transportation policies to address mobility issues. The Origin – Destination Matrix is a crucial component of the transportation planning process. One of the necessary aims of transportation studies in Baghdad city is the O-D matrix, which is the travel demand between (central Baghdad city and the commercial centers). The findings of this study can help local transportation authority's choose the best transportation policy, maximize income, and better manage resources.

Keywords: Geographic Information System (GIS), O-D matrix, Best Route, HV (Heavy Vehicle) and Traffic Vol.

Total Petroleum System Study Of Nahr Umr Oil field Southern Iraq

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Abstract. The Nahr Umar field is located in the Basrah Governorate in the southeastern part of Iraq, about 30 km north to northwest of the city of Basrah. The Shatt al-Arab passes through it and divides it into two parts.The research included studying the oil-producing formations and knowing their chemical properties, as well as the source rocks and linking the relationship of the oil system to this field. Rock samples were collected by 41 rock samples (including 19 reservoir samples and 22 source rock samples from Yamama Formation and Sulaiy Formation). In addition to collecting 39 oil samples from wells NR-7,NR-9, NR-18 &NR-23. They represent four crude oil samples and 35 oil samples extracted from Lower Fars Zubair and Yamama reservoirs. These samples were subjected to analyzes using different techniques that included the Gas-chromatography,SRA technique,Liqiud chromotography (HPLC) , Gas Chromatography- Mass spectrometry GC Mass , Method of isolating asphalt from oils. The study showed that the total organic matter TOC in the formations of Zubair, Yamamah and Sulaiy in varying proportions, but the Sulaiy Formation recorded the highest percentage, reaching 4.9%, so this formation is very rich in organic matter and is considered an excellent source rock of the type II & III .And it has a high ability to generate hydrocarbons. As for the maturation of the organic matter, depending on the maximum temperature T max, which ranges between (442-446), and the reflectivity of Vetrenite R0 % ranging from(0.8-0.86) , it is considered mature rocks and has the ability to generate oil only.The reservoir oils under study were classified into two groups depending on the geochemical characteristics. The first group includes the Mishrif and The lower Fars reservoirs, while the second group includes Nahr Umar, Yamamah and Zubair reservoirs. The study indicated that the sulfur content of the first group ranges from (2.2 - 2.3), where these oils have a high sulfur content. These percentages of sulfur decrease with increasing API. We note the low maturity in the reservoirs of the first group, and also, the data of the study, which included the sulfur content Pr/Ph, CPI, showed that the oils of the first group originated from limestone rocks. The study also showed that the oils of the second group contain a lower percentage of asphalt than the first group, and this is evidence that the oils of the second group are sourced from muddy carbonate rocks, deeper than the carbonate rocks generating the oils of the first group. The results also indicated that the sections of asphalt and resins do not exceed 26% in the oils of the second group. While it reached 39.64% in the first group, and this is evidence that the second group has greater mobility and migration than the first group.**Key words** : Geochemical Analysis ,Nahr Umar , API, Sulfur content .

Effect of core heterogeneity on core-flooding experiments: a simulation study

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Abstract. Reservoir simulation became a basic tool to predict behavior of oil reservoirs under a certain production scenario. Core-flooding is a key source of data for the reservoir simulation. In cases of old oil fields with no new well-drilling, there is always a limitation in number of cores that can be used for core-flooding experiments. This makes use of heterogeneous cores a vital option. Homogeneity or heterogeneity state of the cores can be revealed by the X-ray computer tomography scanning technology. Most of core-flooding equipment use a conventional core-holder with only inlet-outlet pressure transducer. This paper presents a simulation study for effects of heterogeneity on core-flooding experiments. The implicit finite differences approach was used to solve the diffusivity equation for 1D-linear flow of a slightly compressible fluid. The core sample has been discretized to grid-blocks with 4 different configurations for the permeability. The study shows that although for the same average permeability, the pressure gradients along the core sample is a function of heterogeneity. Thus, core-flooding of heterogenous cores by a conventional core-holder will show misleading results. A core-holder with taps or pressure sensors to measure pressure gradients at sections along the core sample is a crucial issue to obtain meaningful results.

Keywords: Core-flooding, heterogeneity, simulation.

Superconvergence of conforming and nonconforming finite element approximation for elliptic problems by L^2-projection

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Abstract. Finite element superconvergence method focuses on approximating the element with an exact solution with a percentage greater than the estimated value of the optimum order error. It is considered as one a great interest due to its very rapid convergence. In this paper, we review the superconvergence in the method of finite elements conforming and nonconforming of elliptical problems of the second degree through arithmetic experiments to show the merits of each of them and using the L^2- projection. The results of the presented examples, which were arithmetically solved and represented using Matlab, indicate a great accuracy in the superconvergence of NCFEM and CFEM projections using L^2.

Keywords: Superconvergence, CFEM, NCFEM, Second Order Elliptic Equation, L^2 –Projection.

Improvement of mechanical properties of AA5052 by using different nanoparticles with constant weight percentage of Al_2O_3 , TiO_2 and ZrO_2.

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Abstract: The present work is to study the effect of adding nanoparticles to aluminum alloy on mechanical properties. The AA5052 was using as based material with constant weight percentage 7%wt. of different nanoparticles such as alumina (Al2O3), titanium dioxide (TiO2) and zirconia (ZrO2) with an average grain diameter 25-35 nm. The stir-casting method has been successfully used to fabricate composite specimens. The results of this study showed that the mechanical properties strength and hardness for the AA5052 reinforced with nanoparticle Al2O3, TiO2 or ZrO2 with 7% weight percentage was improved. The best percentage improvement of mechanical properties of AA5052 was with 7% wt. of ZrO2 about 54% for ultimate tensile stress UTS, 33.8% for yield stress YS and 20.5% for V. hardness than the based material AA5052, well for other adding of titanium dioxide TiO2 and alumina Al2O3 with the same weight percentage 7% the improvement were 35.8% and 13% for ultimate tensile stress UTS, 15.4% and 6.3% for yield stress YS and 10% and 5.8% for V. hardness respectively.

Structural health monitoring of oil pipeline using wireless sensor networks

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Abstract. Due to the rapid developments in electronics and computing, wireless monitoring of devices and equipment is becoming a suitable option, and wireless sensors are receiving much attention compared to other traditional monitoring systems. This research presents the design of a wireless system to monitor the health of the structure of oil pipelines on the basis of vibration monitoring to detect the harmful events that may be exposed to the pipelines such as drilling or breakage, etc. and diagnose them early to avoid the damages that result from them, which often lead to serious consequences and great economic losses, and may lead To massive loss of life and bad social impact. The monitoring system was designed and implemented using a three-node wireless sensor network (WSN). Each node consists of an accelerometer that measures vibration and a 32-bit ARM microcontroller that sends data to the coordinator node (base station) for data collection and analysis. The received pipe vibration signal is analyzed for several different states. Normal state(no event), knocking state by hand hammer, and drilling state by an electric drill. The results obtained showed the ability of the proposed system to accurately detect harmful events that may be exposed to pipelines.

Keywords: Wireless Sensor Network, Acceleration, Vibration, oil pipeline

Effect of Nanoparticles on Fatigue Life of Aluminum Alloy as Composite Materials under Constant and Variable Loading.

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Abstract: This present work is to study the effect of adding nanoparticle on the fatigue life of aluminum alloy under constant and variable loading. The AA5052 was using as a base material with different nanoparticles such as alumina (Al_2O_3), titanium dioxide (TiO_2) and zirconia (ZrO_2) with an average grain diameter (25-35 nm) at constant weight percentage such as 7%wt. The stir-casting method was used to fabricate composite specimens. The results of this study showed that the fatigue strength under constant loading of AA5052 with 7 w % Al_2O_3, 7%TiO_2 and 7%ZrO_2, nanoparticles was higher than that of as cast AA5052 as well as fatigue life factor (FLIF %) at different amplitude stresses were improved. The best Improvement of fatigue strength at 10^7 cycles was for AA5052 with 7%wt ZrO_2 nanoparticles was 23.7% as well as the fatigue life factor (FLIF %) at different amplitude stresses (60, 50 and 45MPa) was improved with (40.6, 76.7 and 54.8%) respectively, while the improvement in fatigue life (FLIF%) under variable amplitude loading for high-low and low-high sequence loading of AA5052 with 7wt% ZrO_2 nanocomposite were enhanced by 44% and 37.7% respectively compared with fatigue life of AA5052.
Keywords: Al5052; metal matrix composite; variable loading.

Quality assessment of heavy metals presented in crude oil by identification spectral lines by the LIPS - technique

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Abstract. Petroleum is a complex mixture containing on the major and minor elements from organic and inorganic compounds and amounts of inorganic elements and metals. Compositional determination of crude oil is one of the most important topics for its identification and subsequent processing. In this study we identified the analytic lines of heavy metals (HMs) found in crude oil extracted from Iraq south field that are unique spectral by using the laser-assisted plasma (laser material processing) that led to the ionization of the sample in the hot plasma, the plasma emission spectrum was recorded by the spectrometer connected to the fiber optic and resolved spectra were used for identification of detected metals based on the principle the finger print. We are selection and determine the result optimum of the global reference line properties (highest signal intensity I, induce temperature T_e) and lower skew value of analytic lines intensity when use the limited laser parameters and lower pretreatment time (drying time). After five pretreatment stages, the treatments by drying the sample at different time (1-9) day with constant temperature at 30 C^o were executed. Found results are designated and compared in all cases and the atomic parameters of selected lines were taken by assisted NIST database. For control the challenge presented by the properties of the crude oil samples, as organic liquid case (crude oil). The optimum results obtained indicate that the LIBS - technique is effective and rapid technique to identify the heavy metals (HMs) presented in the crude oil. The major elements such as C, H, N, O and minor (trace) Fe, V, Ni, Cr, Cu, Co, Ce, Mn, Mo, Ti, Ta. Sc, U, W, Hg, Pb, Sm, Y, Tm, Er, Eu, Re, Zr, Dy, La, Rh, Ru, Th, Gd ,Nb and Nd metals have been identified and their parameters calculated based on analysis of the spectrum that contain all information needed to derive the elemental analysis in the crude oil.

Keywords: - Crude oil -heavy metals (HMs) - Nd: YAG laser -laser-induced plasma

Study the effect of axial heat conduction in microchannel heat exchanger with different channels geometries

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Abstract: In this paper numerical investigation has been made to study the effect of axial heat conduction in microchannel heat exchanger with different geometries of channels (square, circle, iso- triangle, trapezoidal). The flow is studied with varying Reynolds number (100-900) as laminar, incompressible, 3D, single phase, steady state are solved numerically. The behiaver of axial heat conduction under different thickness of wall is investigated in this article. The results showed that, existing axial heat conduction reduction the effectiveness of heat exchanger and rate of heat transfer also with increasing Reynold number axial heat conduction increased. The paper study the effect of channel shape and explained the triangle channel has maximum axial heat conduction followed by trapezoidal channel. The factors which affect on axial heat conduction are Reynold number, thickness of separating wall, direction of flow and channel shape Worked in this paper comparison between the results of parallel flow and counter flow of microchannel heat exchanger with considering axial heat conduction. Three types of working fluids (air, water, ethylene-glycol) used in this work, also to simplifying efforts and reduce time for researchers in this field predict correlations describe the effect of axial heat conduction

Key words: axial heat conduction, Microchannel heat exchanger, Laminar flow, Numerical investigation, Thermal performance .

Investigation from the laser- parameters effect on improvement the signal of spectral analysis lines of metals in the crude oil by using LIPS-technique

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Abstract. In this work, we study effect a laser–parameters on the properties of spectral lines generated from crude oil-plasma by using laser induced plasma spectroscopy. LIPS-Technique is a novel technique for elemental analysis based on the unique spectral signature by laser generated plasma. In this technique, laser pulses are applied for generating of the crude oil-plasma in air through focusing a Nd : YAG laser at wavelength 1064 nm and pulse duration 10 ns on test sample to study the capability of (LIPS) as a rapid tool for metals analysis presented in Iraqi crude oil extracted from south field. Optimal laser – parameters of laser-energy (E) and pulse prepetition rate (P.P.R) were evaluated for improving the properties of reference analytic lines (I, T) of GRL and the internal reference lines of iron, nickel and vanadium analytic lines. The analytic lines properties have also been studied for the 606.09 nm wavelength as global reference line for all plasma spectrum (all analytic lines) and the 689.87, 662.4 and 607.31 nm wavelengths as reference line for each Fe, Ni and V metal responsibility. The measured values of the global reference and internal reference lines properties (signal intensity I and Stimulation temperature T) were enhanced values. The optimum obtained results indicate that the LIPS performance is rapid and active method to control on the spectral analytic lines properties and identify the all metals presented in the crude oil.

Keywords: -Crude oil -heavy metals -laser-parameters -laser-assisted plasma (LIPS)

A

nalysis of Earth to Air Heat Exchanger system for the heating applications with different channel shapes

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Abstract: This paper studies numerically the effect of channel shape on the overall performance of (EAHE) through winter season. Five shapes cross section of (EAHE) channel (circular; square; elliptical; triangle and rectangle) are studied numerically according to the climate conditions for Nasiriyah city in southern of Iraq. First the built numerical model was validated against experimental model and the results of comparison showed good consensus. After the validation and by using CFD modeling the overall performance of EAHE system with all shapes of channel was analyzed with ranges of air velocity, inlet air temperature and by assuming that the volume and the cross-section area for all shape of EAHE channel are constant. The results illustrated that, the system of EAHE is suitable for using in heating applications, also the results proved that, the circular cross section channel has the best performance.

Key word: channel shape, (EAHE) , CFD

An experimental study to enhance the heat transfer by the flow disturbing

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Abstract. Heat transfer is an important area of industrial and daily applications, and technological improvement is required while reducing project cost and is a fundamental working principle of air conditioning systems. The main idea of the research is to increase the turbulence of the flow. By generating vortices using obstructions placed at different locations from the heat source. To create a helical path for particles due to obstacles and to change their velocity and kinetic energy. Three grids made of cylindrical iron rods with a diameter of 3 mm with regular spacing between the bars (1,2,4) cm were used in the channel from the heat source (20,40,60) cm, and three speeds (1425, 2140, 2850) RPM from the air drawn to the end of the channel and the best thermal performance in the type of mesh, and in the location of effect, and the speed of air intake, 1cm, 60cm,1425 rpm, respectively

Keywords: Heat transfer, Enhancement, Vortices, Turbulence

Laser-produced Aluminum nanoparticles: Synthesis and Analysis

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Abstract. The liquid laser ablation technique is used to create aluminum nanoparticles using Nd:YAG laser nanosecond pulses. Nd:YAG pulse lengths of 6 and 10 nanoseconds are used in both systems, with variable energy in the range of (700-760 mJ). Using a TEM with a same size distribution, the creation of aluminum nanoparticles was eliminated. Additionally, it has been discovered as soon as the same parameters of the laser are applied, the typical nanoparticle sizes for cupper are 80 and 120 nm. Furthermore, the theoretical Mie-Gans model was employed to approximate both aluminum nanoparticles' temperature distributions. The maximum temperature of aluminum nanoparticles has also been determined to be between (800 K) and (1200 K), particularly when nanoparticles are prepared with 10 ns Nd:YAG.

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Physics Papers

Effect of Electrode Type on Non-Thermal Plasma Production

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Abstract: The atmospheric pressure plasma jet (APPJ) is a promising technique because its robustness of applying in many fields, due to its advantages such as high efficiency, safety, no toxic residue, and low cost. Therefore, in this paper, a simple yet approach has been implemented to optimize the better electrode types in the system of the plasma jet. A low-cost homemade plasma jet system is being utilized for the experiment. The plasma jet system is worked by a home-made high voltage AC power supply device, this device provides high voltages (peak-to-peak values) from 0 to 20 kV with variable frequencies between 0 to 12 kHz. Three electrode types are used, Aluminum Al, Copper Cu, and Silver-Ag. The discharge voltage is fixed at 9 kV during the experiment and the frequency at 7 kHz. In addition, working gas is Argon with 4 standard liter per minute as a fixed flow rate to show the effect of electrode type on plasma production. Optical emission spectrometer is used to analyze the spectra of the argon plasma with three electrodes types of the system. This study shows that the produced atmospheric plasma jet with Al electrode is more efficient than of those with Cu,and Ag electrodes due to electron temperature and reactive species production.

Keywords. Reactive Species; Non-thermal Plasma Jet; Op- tical Emission Spectroscopy; Electrode Type.

Effects of AuNPs capped gelatin and photodynamic of laser on evaluation of response in superficial skin tumors in laboratory mice.

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Abstract: Prepared gold nanoparticles and covered with gelatin were synthesized with little difference in gelatin concentration by reducing the volume of a chloric acid stock solution with a fixed volume of sodium citrate dihydrate (34 mm) solution. The nanoparticles exhibited excellent colloidal stability and transmission electron microscopy (TEM) revealed the formation of well-spherical gold nanoparticles (AuNPs) of different sizes. The methodology yields particles with a size of 10-20 nm Depending on the concentration of gelatin used, the gelatin AuNPs exhibit size-dependent surface Plasmon resonance behavior as measured by UV visible spectroscopy, and it was SPR ranged from 518 to 543 nm. The aim of this study is to evaluate dynamic therapy using a 532 nm wavelength laser with gelatin-coated gold nanoparticles as photosensitizers in vivo.According to the findings of the study, the green diode laser has the best photodynamic therapy effect on cancer cells in vivo after cells photosensitization with gold nanoparticles covered with gelatin at a concentration of 1% and an exposure time of 60 seconds.

Keywords: AuNPs capped gelatin, photodynamic, 532nm laser, laboratory mice, HAuCl4.

A Theoretical Study on the Optical and Electronic Properties of the PVA-TiO_2-Ag Structure

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Abstract. This study aims to clarify the effect of adding nanomaterials on the structural, optical, and electronic properties when added it to a pure polymer. In this research, a poly vinyl alcohol (PVA) polymer (75 atoms) was used. We calculated the Optimized geometry, IR spectrum, the distribution of HOMO and LUMO, and some of electronic properties like (Cohesive energy, Chemical hardness, Chemical softness, Electronegativity, Electron affinity, and Ionization potential) by using density function theory (DFT) and Gauss View program at B3LYP level with bases set SDD, after which we added the nanomaterials TiO2 (titanium oxide) (74 atoms) and Ag (Silver) (74 atoms) to the PVA polymer chain to obtain the nanocomposite and recalculated Characteristics Once again, and we note the effect of adding nanomaterials on the pure polymer, and to make a comparison between those properties for each of the PVA polymer nanocomposites.

Keywords. Polyvinyl Alcohol, DFT, SDD, TiO_2, nanocomposite.

Phase-Coupled Synchronization with Optoelectronic Feedback

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Abstract- In this research work, a phase-coupled scheme containing two chaotic lasers was evaluated using the theoretical dimensionless model. It is possible to significantly increase the perturbation in laser behaviour with the incorporation of optoelectronic feedback. The study presented a novel impact study pertaining to synchronization of the phase of sustained chaotic oscillators with weakly coupled. For coupled chaotic lasers, especially in mix-mode case of synchronous system, the phases remain safe. Even though the amplitudes vary untidily and are almost without correlated. In the study, the authors identified a novel synchronization model when coupled with a chaotic oscillator. This occurred in the presence of entraining the frequencies whereas the phase difference remained unbounded.

Keywords. optoelectronic feedback, phase-coupled, phase-looking.

Effect of the Three Dimensional Conformal Radiotherapy (3DCRT) peripheral dose on the nipple region of the Opposite breast of the obese cancer patients.

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Abstract. Background: Obesity is one of the important risk factors for breast cancer and may lead to increased exposure to the opposite breast as well as alter dosage distribution during treatment. The dosage distribution on the opposite breast might be evaluated using point dose measurements. This study looked at how body mass index affected the amount of dispersed dosage that reached the opposite breast.

Study of Inelastic Coulomb Form Factors in ^{18}O using the Radial Wave functions of Transformed Harmonic-Oscillator

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Abstract. The Inelastic Coulomb form factors for 18O for the transitions with the multipolarities J = 2 and J = 4(four different states for each of them) are studied using the bound state radial wave functions of transformed harmonic-oscillator(THO) in the framework of local scale transformation (LST). The parameters of such THO are adjusted so as to regenerate the size radii (rms proton, neutron and matter radii)for18O. The effect of the core-polarization to the calculated charge form factors are accounted using Bohr-Mottelson and Tassie models. Finally, the quadruole moment for 18O is calculated.PACS number(s): 21.*1*0.Ft, 21.60.Cs, 25.30.Bf.

Keywords: inelastic Coulomb form factors,charge density distribution, size radii, root-mean square radius,transformed harmonic-oscillator, local scale transformation, 18O

Dispersion Parameters of PVA-PAAm-Sb_2O_3 Nanocomposites Prepared by Casting Solution Method

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Abstract: In this study, the influence of Antimony Trioxide Sb_2O_3 addition on several optical and structural characteristics of polymers was investigated. For this purpose, many films have been made by adding Sb_2O_3 to polymers with various weight percentages of (Sb_2O_3) with polymer utilizing the casting method. The absorbance and transmittance spectrum in the wavelength range (200-1100) nm, were measured. The indirect allowed transition's absorption coefficient, extinction coefficient, refractive index, real and imaginary dielectric constants, and energy gap have all been determined. The experimental results showed that the absorption coefficient was less than 10^4 cm^{-1} this is indicated to allowed indirect electronic transitions. The refractive index and extinction coefficient were increased with increasing of the addition of Sb_2O_3 wt.% content. The energy gap was comparable to Tauc and Wemple–DiDomenico models.

Radioactivity levels in Sediment Samples of Tigris River in Baghdad governorate, Iraq

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Abstract: The specific activity of the radionuclides (238U, 232Th, 40K, and 137Cs) for thirty different sediment samples from Tigris River within Baghdad city, Iraq were measured using gamma-ray spectrometer, employing a NaI (Tl) scintillation detector. The results show that the average value of the specific activity for 238U, 232Th, 40K, and 137Cs were (38.42, 21.08, 606.97, and 28.92) Bq/kg, respectively. The average values of the radium equivalent (Raeq), absorbed dose rate in air (D), external and internal hazard index (Hex, Hin), annual effective dose equivalent indoor and outdoor (AEDEin, AEDEout) and the risk idex (Iγ) were calculated for the investigated area, were (115.31 Bq/kg, 55.97 nGy/h, 0.31Bq/kg, 0.42 Bq/kg, 0.07 mSv/y, 0.27 mSv/y, 0.87 Bq/kg) respectively. The rates of specific activity and radiological hazard index in sediment samples were all lower than the global limit, according to the results of this study. The study's findings may be useful as baseline radiometric data for future epidemiological studies and monitoring efforts in the study area.

Key words: specific activity, radionuclides, gamma-ray spectrometer, radiological hazard index, River sediment, γ-Spectrometry, Gamma dose rate, Radiation hazard indices

Spectral examination of Erbium dissolved in distilled water at different pH and concentrations

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Abstract. The present work coal to investigate the spectral properties of Erbium dissolved in distilled water and prepared in different concentration and acidic function (pH). Distilled water is the suitable solvent of Erbium. The produced solution was soluble depend on molecular weight of Er. The spectral properties completed by using UV-visible spectroscopy in order to study the effect of concentration and pH on the absorption spectrum, besides the structural properties was exanimated by spectroscopy of Field Emission Scanning Electron Microscopy (FESEM), as well as the crystallinity analysis of samples through X-Ray Diffraction (XRD) examination. Results refer to, in the same concentration, the absorption spectrum not affected by changing the pH, while at different concentrations the absorption spectrum was varying with it and different peaks were appear specially in case of high concentration (10-2) gm/cm3. FESEM spectroscopy refer at concentration 10-2 gm/cm3 with pH5 clear not homogeny's structure and the range of particle size was (316-594) nm, while at the same concentration but in the acidic medium with pH10 appear more homogeneous structure and smaller than in case of pH5 they ranged between (31- 83) nm. From XRD analysis found with increasing the concentration the crystal structure appeared, while at low concentrations (10-6) gm/cm3 the structure was amorphous. In addition, at the same concentration at pH10 the structure was amorphous, while at pH3, the structure was polycrystalline.

Keywords. Erbium, UV-visible, acidic function, spectroscopy, structural properties.

Image Classification Schemes Based on Statistical Moments of Wavelet and Gradient Matrix

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Abstract. Texture classification is used in various pattern recognition applications that possess feature liked appearance. This paper aims to improve the classification accuracy of texture based two methods first one extracting a directional based texture features using gradient matrix. Two different types of features are proposed: (i) first order gradient feature vector, (ii) max-min gradient feature vector, second methods was discrete wavelet transform, the statistical distribution of various relative moments was adopted, applying two level of DWT. Each one of these feature vectors is studied individually. Four types of Euclidean distance metrics were used for classification decision purposes. The considered method was applied on 475 classes of textures belong to 32 sets from Salzburg Texture Image Database, each set holds 16 images per class, so the total 7600 image images were tested. Each image was separated into seven bands of color component (i.e., red, green, blue, and gray….). Concepts of average and standard deviation were calculated to determine the inter/entra scatter analysis for each feature to find out the best discriminating features that can be used. Final result of DWT was 99.98 for testing sets and 99.71 for training sets, while the final result of GM was 98.3 for testing sets and 96.2 for testing sets.

Keywords: Texture classification, texture analysis, gradient features, DWT features

Assessment of lung cancer risk due to exposure to radon from oil well in (Majnoon) Basra

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Abstract. The natural radioactivity levels of Majnoon oil field (MJ-95), which is considered one of the oldest oil fields in Basra, were studied using scintillation detector gamma ray spectrometer with NaI(Tl) detector. Soil samples were collected from MJ-95 plants at different depths. Radon (Rn) concentrations within and outside the oil field were calculated using a set of formulae. The highest value in the sample in depth 2750m was 93.36Bq/m3 and the lowest value in the sample in depth 2850m was 0.58Bq/m3. The average risk of cancer caused by radon (deaths per million people) was 14.93.

Keywords: Majnoon oil field, deaths per million people, Rn concentrations

"Determining the specific activity of radioactive isotopes of, ^{226}Ra,^{228}A, ^{40}K, ^{137}Cs in the soils of selected areas of Najaf city - central Iraq"

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Abstract. This study dealt with the determination of the specific activity of radioactive isotopes, 226Ra,228A, 40K, 137Cs in soil samples from selected areas in the city of Najaf - central Iraq, 20 samples were collected from different areas of Najaf governorate - central Iraq during the month of December 2021. An effective short-term measurement method using High Purity Germanium (HPGe) detector was used. The results showed that the values of the specific activity of natural radioactive isotopes in the soils of the study area, were the lowest value of the specific effectiveness of radium 226Ra Bk.kg-1 22.95 in sample No. S16 (Abbassi) and the highest value of 186.74Bk.kg-1 in sample No. S17 aldasam area with an average of 39.05 Bk.kg-1 and for actinium 228Ac, the lowest value for activity was 17.73 Bk.kg-1 in sample (S16) and the highest value was 45.15 Bk.kg-1 in sample (S10) in the wahat alruhban with an average of 29.32 Bk.kg-1 For potassium 40K, the lowest value for the activity was 208.19 Bk.kg-1 for sample No. S16 and the highest value for 530.18 Bk.kg-1 for sample (S10) with an average of 349.86 Bk.kg-1, and for synthetic cesium 137Cs, the highest value for the activity was 5.10 Bk.kg-1 for sample No. (S13) and the lowest value of Bk.kg-1 was 0.34 for sample S5 with an average of 2.33Bk.kg-1 S5. The radium equivalent was calculated and found that its value ranged between (63.46-158.53) Bk.kg-1 ((S16-S10) and an average of 105.34Bk.kg-1 4917. The values of the absorbed dose in the air were calculated and found to range between nGy.h-1 (29.64-74.05) and an average Bk.kg-1 of 48.90, the external and internal risks resulting from the level of specific efficacy in those models and it was found that the internal risks Hin ranged between 0.27) S16)) to (and (0.53 .) With a rate of 0.39, and for Hex external hazards, it ranged between (0.22) (S16) to (S10) (0.44) (S10) and a rate of 0.32. In general, the study found that the values of the specific effectiveness of the radioactive isotopes, 226Ra,228A, 40K, 137Cs , for the studied models fall within The internationally permissible limits are 32Bq/Kg,33Bq/Kg,412Bq/Kg,14.8Bq/Kg), with the exception of some study areas, especially the wahat alruhban, which recorded a noticeable increase in the values of specific activity.

Key words: specific activity, high purity germanium detector, radium equivalent,

Synthesis and Characterization study of CuO Thin Film and CuO-CeO_2 nanostructured composite using Chemical Spray Pyrolysis

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Abstract. In this work, thin films of copper oxide (CuO) and copper-cerium metal oxide composite (CuO-CeO2) have been deposited on glass substrates at 400°C using spray pyrolysis. The structural, optical, topographical, and morphological properties of the prepared films were investigated using XRD, UV-visible spectrum, photoluminescence, AFM, and FESEM. The structural properties revealed a polycrystalline structure of a monoclinic phase with a sharp peak orientated at (111) for the CuO sample, whereas a mixed phase of monoclinic and cubic was developed for the CuO- CeO2 composite sample. Optical measurements demonstrated the thin film bandgap between 2.2 and 2,65 eV respectively for CuO and CuO-CeO2. An emission peak at 554 nm is found in the PL spectrum conforming to the copper oxide film, while it was shifted at 502 nm for the metal oxide composite sample. The AFM investigations indicate that the deposited films are homogeneous and that the particles distribute over a whole surface with an average particle diameter ranging from about 35 to 93 nm. FESEM micrograph images revealed a random grain distribution on the surface of the CuO film with primarily trapezium grain structure-like. Meanwhile, the CuO-CeO2 film revealed a porous surface with the non-uniform distribution.

Keywords: CuO, CeO2, thin film, PL, structural properties, FESEM, morphology

Hazard Indices and Cancer Risks Estimations Due to Inhalation of Lead in Air of Some Baghdad Cities

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Abstract. The concentration of toxic lead (Pb) have been measured in more than seventy indoor air samples that collected from several areas in Baghdad districts frequented by a large number of people. Samples will be collected from the aircraft conditioning systems at some of these places and washed with the use of pure water. Pb concentration was obtained using Atomic Absorption Spectroscopy (AAS). The study found that Pb concentrations are generally greater than permitted global levels. The lowest, highest, and overall average lead amounts (mg m-3) for the examined locations; 0.001102*10-3, 1.587302*10-3, and 1.56851*10-4, respectively. Finally, the harmful impacts of cancer and non-cancer toxic risks were calculated, and the results were significant and cannot be neglected.

Impact of Molarity on the Structural, Morphological and Optical Properties of Ceo_2 Thin Films Prepared By Spray Pyrolysis Technique

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Abstract. CeO_2 thin films are deposited on glass substrate by spray pyrolysis technique (SPT) at 623 K using different molar concentration of cerium chloride precursor solution. The structural, morphological and optical properties of films were investigated by a set of characterization techniques such as X-ray diffraction(XRD), scanning electron microscopy(SEM),UV-VIS-IR. The estimation of crystallite size is 80-120 nm, which is confirmed by Scherrer formulae from XRD pattern. XRD analysis shows that the film has cubic fluorite phase with orientation along (111) for all molarity. The optical energy gap decreased with the increase of crystallite size (98-120 nm) due to the size effect.

Keywords: Molar concentration, CeO_2 films, morphology, structure, Optical properties, crystal size.

Impact of Annealing Temperature on Optical Properties of CeO_2 Thin Films Deposition by Spin Coating Technique

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Abstract . Cerium oxide (CeO_2) bulk and thin films, it has been one of the most important oxide materials. CeO_2 films deposited by spin coating technique on a glass substrate. The films were annealed with different annealing temperatures. XRD diffraction used to reveal patterns of CeO_2 thin films, it shows FCC cubic structure with preferred orientation (220) plane. Scanning electronic microscopy (SEM) exhibited a smooth uniformed surface. The films were had a good adhesion with the substrate with no cracks or holes were observed. Because of the intense near bandgap emission and a broad luminescence in the PL spectra caused by Ce and O vacancies, as well as structural defects, deep level impurities, and amorphous phases. The relative intensity between the distinct peaks of the bands associated with flaws or contaminants was investigated as a technique for film quality control.

Keywords: CeO_2 films, PL spectra, annealing temperatures, spin coating

Study Effect of Nitro group on Some Properties Polycyclic Aromatic Hydrocarbons (Anthracene; Phenanthrene).

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Abstract: In this study, the amount of change in the bond length between atoms, and the energy gap range was calculated for the Anthracene and Phenanthrene mixing with nitro molecules. It were investigated depending on the density functional theory. The best geometry for the structures of the studied molecules was investigated by using a 6-31G* basis set. The optimized structures, total energies, electronic states, energy gaps were calculated for the positional variation of the Nitro subgroup in the Anthracene and Phenanthrene. As a result, the total energy for Polycyclic Aromatic Hydrocarbons (PAHs) was increasing linearly with the change in the positions effective when added nitro molecule. Energy gap markedly reduced within change the positions effective when added nitro molecule locations first, second and ninth, where it gradually diminished, and then go up again for Nitro-Anthracene Compounds, and also Nitro-Phenanthrene Compounds at position 1, 2, 3, 4, 9 Nitro Phenanthrene. The forbidden energy gap was reduced and the 2-Nitroanthracene; 2-NitroPhenanthrene molecule has the smallest value so the results showed a decrease in gap energies and the presence of the nitro group is likewise actively electron-withdrawing, via C−H bonds alpha to the nitro group can be acidic.

Keywords: Anthracene, Phenanthrene, Nitro group, Nitro-Anthracene Compounds, Nitro-Phenanthrene Compounds, Density functional theory, Electronic Properties.

The Indoor Air Radioactivity Content Determination in Districts of Baghdad Governorate

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Abstract.The inhalation is the most probable channel of the radioactivity intake that has 75% from all bath ways, which are the ingestion and contaminated by skin. Therefore, in this work the indoor natural radioactivity occurring materials (NORM) in Baghdad districts have been measured and the annual annihilation radiation effective dose (Eff) for workers and publics, also, have been calculated for two particle sizes; 1 and 2 µm. The overall average results of NORM were 9.19, 5.75, and 69.31 Bq/L for U-238, Th-232, and K-40, respectively. In general, the results of Eff for particle size 1µm were larger than 2 µm results, the workers suffered more than others, and the fifteen years old people group was affected more than others groups (1y and adults).

The Nuclear Stopping Power of Some Ions Incident on Elements With Different Atomic Numbers

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Abstract. In this research, the nuclear stopping power were studied using NIST program, then calculate it by effect the form factor (exponential) in account for some ions (C, Li, Al) that incident on atomic targets (C, Na, Si, Ca Fe, Mo, Sn, Sm, Au, Pd and U). The nuclear stopping power estimations for all projectiles have been calculated within energy range 0.01 keV -1000 MeV.

The results indicated a great dependence on the form factor of the nucleus, but this dependence begins at a specific energy for each studied isotope and this energy changes with the incident elements change. The results of the nuclear stopping power containing the exponential form factor are decreased by increasing the energies. Also, the nuclear stopping power increases with the increase in the mass number of the incident ion. Finally, the behavior of the nuclear stopping powers as a function of the incident ion energy of the studied elements behaved like what is expected and known.

Keywords: Electronic Stopping Power; Nuclear Form Factor.

Adsorption of Methylene Blue by Nanoferrites Synthesized Using Sol Gel Method

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Abstract. The CoFe2O4, NiFe2O4 and MgFe2O4 powder were prepared using wet method. XRD, AFM, and UV-Vis spectrophotometer were used to determine the structure and morphology of the samples, as well as photocatalytic activity to degrade the methylene blue (MB) dye. The samples were exposed to a 2 hours heat treatment at 700°C. CoFe2O4, NiFe2O4 and MgFe2O4 had average crystalline sizes of 32.5 nm, 34.7 nm, and 35.3 nm, respectively, while magnetic saturation magnetizations of 84.4 emu/g, 84.1 emu/g, and 26.06 emu/g, respectively. CoFe2O4, NiFe2O4 and MgFe2O4 have coercivity (Hc) values of 428.7 Oe, 182 Oe, and 93.075 Oe, respectively and degradation percentage of methylene blue (MB) through four hours by these materials were 70.1 %, 66.7% and 58.81 %, respectively.

Keywords: Adsorption of methylene blue, Nanoferrites, sol- gel, CoFe2O4, NiFe2O4 and MgFe2O4

Estimating the Longitudinal Development of Atmospheric Cascades at High Energies

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Abstract. The effect of extensive air showers (EAS) was described by estimating the longitudinal development of atmospheric cascades at high energies of different cosmic-ray particles. The longitudinal development was performed using the air shower simulation (AIRES) program (version 19.04.00) at high energies (10^{17},10^{18},10^{19} and 10^{20}) eV for created particles such as an electron, muon, and pion for various primary particles (carbon, iron, proton, and silicon) with zenith angles (0 and 30^{o}). New parameters were obtained by fitting the longitudinal development curves of Extensive air shower using a polynomial function for created particles, initiated by primary particles at the energy 10^{20} eV. Good agreement was obtained by comparing the present results with results simulated by Sciutto as well as the results using CORSIKA simulation for primary proton at the energy 10^{20} eV.

Keywords: EAS, longitudinal profile, AIRES, created particles.

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Health and Medical Paper Papers

Synthesis and application of new electrochemical sensor based on molecularly imprinted for environmental monitoring of cupper (ll)

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Abstract: To determine the cupper ion, a new technique was devised with great sensitivity, cheap cost, and excellent stability. This method utilizes a molecularly imprinted polymer (MIP) with a functional monomer of acryl amide and styrene to construct a monolithic solid-phase micro extraction (SPME) fiber, a fitting cross-linker, and an EGDMA mold. A new technique was devised with great sensitivity, cheap cost, and excellent stability. This method utilizes a molecularly imprinted polymer (MIP) with afunctional monomer of acryl amide and styrene to construct a monolithic solid-phase micro extraction (SPME) fiber, pre-concentration and selective determination of cupper ion (Cu). The stability, stability and durability of the manufactured fibers gives its essential and indispensable role in SPME, where samples were collected blood of those suffering from kidney diseases and industrial water samples (waste batteries discarded to the sewer network), and the monitoring of analyzes was performed using (AAS) and the use of electron

Comparative Study of Cholesterol and Triglycerides Values in Blood of Nasirya Inhabitants

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Abstract: The study aims at comparing results of blood triglycerides and cholesterol in samples taken from various age and gender groups among inhabitants of Nasirya City. Samples were also taken from pregnant and non-pregnant women for comparison. Both aims are essential in evaluating the health risk of these vital blood parameters. Results of the present research pointed out that the average cholesterol and triglyceride levels were higher in old persons than the younger ones. It reached 185 180 mg/dl and 225 180 mg/dl respectively in people of more than 50 years compared with 142 mg/dl and 114 mg/dl in persons of 29 years old and younger. The other comparison was according to gender. It appeared that cholesterol levels of 37 males averaged 169 mg/dl which is lower than that recorded in females (182 mg/dl), triglycerides elevated from 182 mg.dl-1 in males to 197 mg.dl-1 in females. In both cases, differences were not significant according to LSD test. Risk for developing high cholesterol in young women seemed to be lower than that in young men due to the estrogen protective effect. It was also found that levels of cholesterol in non-pregnant women (averaged 180 mg/dl) exceed those in pregnant women (averaged 148 mg/dl). Differences were significant according to LSD Test. This might also be due to the protective action of the estrogens against high cholesterol as most of the pregnant women in Nasirya City were young (22-38 years old).

Key words: Cholesterol, Triglycerides, Gender, non-pregnant women.

The correlation of BMI and age to some hormonal indices in Iraqi women with the polycystic ovarian syndrome

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Abstract: Only a few researches have looked at the link between age and the occurrence of Polycystic Ovary Syndrome (PCOS). The goal of this study was to see if there was a link between age and BMI and the prevalence of PCOS, as well as to compare the levels of certain endocrine profiles in PCOS and healthy females. In this study, seventy-five random females participate in this study, twenty-five healthy females and fifty are patients in PCOS. Age has no significant difference among females with PCOS as compared with females with normal ovaries. Otherwise, thirty cases of PCOS group occurred in high percentage (64%) at (18-26) years. Also, high significant differences in BMI of PCOS group as compared with control group, in which 30 cases (60%) from total study cases 50 (100%) of females diagnosed with PCOS were obese and their BMI over 30, on the other hand, the results of the control group (healthy females) were categorized mostly under normal weight 24 (96.0%) from total study count 25 (100%). Finally, high significant differences in serum levels of LH and Testosterone of PCOS group as compared with control group and non-significant differences of FSH serum levels of PCOS group as compared with control group. In summary, we observed that women with PCOS with signs and symptoms of PCOS represented mainly in obesity, menstrual irregularity, and hirsutism had higher body mass index, LH levels and testosterone compared to women with normal ovaries.

Keywords: Body Mass Index, Age, Hormones, Polycystic, Ovaries, Obesity.

Burnout among nursing workers who provide nursing care for people infected with COVED-19

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Abstract: Background: The unpredictable nature of the new COVID-19 pandemic and what is already troubling incidents of affecting nursing workers can have a significant impact on their psychological well-being. Objective: To describe the prevalence of burnout among nursing personnel caring for patients with COVID-19 and associated factors. Study Design: cross-sectional study. Setting: Alhossien Teaching Hospitals designated to isolate patients with COVID-19 in Thi Qar Governorate. Participants: A sample of 50 nurses practitioners in the study sites who were caring for COVID- 19 patients. Measurements: age, gender, marital status, job title, certificate, job category, number of years of service, working period, hospitalization, and work load, as well as burnout level in each subscale consist (12)items. Results: Nurses working in isolation hospitals suffer from high levels of burnout, emotional exhaustion, depersonalization, and personal underachievement. Limitations: There was no control group and therefore we cannot claim a causal relationship between COVID-19 and the level of fatigue observed. Not all confounders may have been accounted for. Conclusions: Burnout is prevalent among nurses caring for COVID-19 patients. Age, gender, job category, and location of practice contribute to the level of burnout experienced by nurses. Recommendations: Psychologically rehabilitate nursing workers under the supervision of specialists and give them financial and moral rewards to compensate for the harm they have suffered.

A 90-day repeated oral dose toxicity study of mixed extract of fenugreek seeds and Ashwagandha root in rats

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Abstract: This study was aimed at assessing the safety of a mixed extract of fenugreek seeds (Trigonella Foenum-graecum) and Withania Somnifera root (TFWS), which effectively relieves male menopausal symptoms. To this end, male and female Sprague-Dawley rats were divided into the following groups and repeatedly administered TFWS orally for 90 days: control, low-dose (500 mg/kg/day), intermediate-dose (1,000 mg/kg/day), and high-dose (2,000 mg/kg/day) groups. The animals were monitored for general symptoms; their body weights and electrolyte levels were measured; and urinalysis, blood chemistry and biochemistry tests, and histopathological tests were performed to assess the toxicity of TFWS. The no-observed-adverse-effect level of TFWS was 2,000 mg/kg/day for all male and female rats. While in the TFWS -administered and control groups, most parameters were within the normal range; some rats in the high-dose group showed changes not induced by the test substance but which may be specific to an individual animal or may occur naturally. Thus, on the basis of our findings, we consider that TFWS may be a safe, non-toxic substance for alleviating male menopausal symptoms.

Keywords: good laboratory practice, male menopausal symptoms, toxicity experiment, TFWS

The relationship between acetylcholinesterase activity and Gene polymorphism in patient's diabetic mellitus with neuropathy in Babylon province

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Abstract: The study was designed to understand the relationship between enzyme Acetylcholinesterase activity (AChE) in patients type 2 diabetes mellitus with neuropathy and related it with gene polymorphism of AchE in the same sample. The study had involved 97 Pearson, 74 had Diabetes Mellitus type 2 all of them had a history of the disease for one year. 23 of them were healthy (control group) the age that considered in the study was (50-60) years the samples were taken from Marjan teaching hospital \ Diabetes center \ Hillah\ Babylon\ Iraq the period between September 2019 to January 2020. The study included three groups: Group one: 42patients diabetes mellitus type 2 with neuropathy. Group two: 32patients diabetes mellitus type 2 without neuropathy. Group three: 23 healthy people. Results of this study was obtained as following: Genetic variation in the Acetylcholinesterase gene occurring in the Sequencing of nitrogen bases after comparing it with sequences in the NCBI by using NCBI blastn. The alignment results revealed only one mutation in some of the samples analyzed compared to the reference DNA sequences by the G21T transformation (Guanine to thymine) in the 3,4 samples. The chromatogram of this sequence was shown according to its position in the PCR amplicon., this SNP was detected in heterozygous (G / T) states in both S1 and S2. , A homozygous pattern (T/ T) in both S4 and S5, and another homozygous (G / G) pattern in both S5 and S6.Three patterns of the genetic heterogeneity (Signal Nucleotide Polymorphism) (SNP) (rs3757869) in the Arab community the Iraqi in Babylon Governorate(G / T).

Keywords: acetylcholinesterase, polymorphism, acetylcholinesterase gene.

Correlation of Polyomaviruses (PyV)infection with the incidence of breast cancer in Iraqi women

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Abstract: Breast cancer is the most prevalent kind of malignancy among females all over the world, accounting for around one in every eight cases. Breast cancer is the second most prevalent malignancy in women under the age of 35, after lung cancer. Breast cancer is a type of cancer that arises from breast tissue. It is characterized by the uncontrolled development of abnormal cells in the milk-producing glands of the breast or in the passageways that transport milk to the nipples of the breast. Polyomavirus (PyV) infections were accidentally exposed in the 1950s when characterizing a infectious agent causing manifold tumors within rodents. The purpose of this study was to detect the prevalence of (PyV) in breast cancer. A total 100 breast tissue samples of female patients were included in this study, 80 samples with breast cancer and 20 samples of normal breast tissue were considered as control group involved in this study. Ages of patients ranges from 20 to 69 years, Real-Time PCR was performed to detect (PyV) DNA among breast tissue, and Immunohistochemistry was performed for detection of (ER, PR and Her2). The Real-Time PCR detection rate of (PyV) was reported in 13 out of 80 cases of breast carcinoma represented (16%) with no significant difference among tissue types ($P < 0.05$). The immunohistochemistry detection rate of ER, PR and Her2 was reported in 32 (40%), 29(36.25) and 12 (15%) out of 80 cases of breast carcinoma, ER show a significant the (p.v) less than (0.05) and PR, HER2 show no significant. All normal control cases showed no specific signals forPyV DNA and (ER, PR and Her2). In conclusion, we found that PyV over expression plays a significant role in the etiology of breast cancer based on the findings above.

Keywords: Polyomavirus (PyV), Breast carcinoma, Real-Time PCR, Immunohistochemistry.

Role of Nitric Oxide and some Antioxidants in women with Pregnancy-induced Hypertension

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Abstract: Background: Pregnancy-induced hypertension is a primary factor to mother and fetal morbidity and mortality (PIH). Until now, the treatment has been symptomatic. Early detection and monitoring of illness development may help to avoid negative consequences. The study's goal was to determine the impact of nitric oxide and some antioxidants in women with high blood pressure caused by pregnancy. The study included 40 cases, 20 patients and 20 controls, and was conducted on a group of pregnant women with high blood pressure at Shatra General Hospital in Thi Qar Governorate between 5/10/2018 and 10/1/2019. Method: About 40 blood samples were taken from pregnant women., and these samples were divided into two groups: There were 20 pregnant women and 20 non-pregnant women in the study. 4 Results: The results were higher concentrations of MDA, Cp in patients compared to control, but in NO, V.E, V.C, the concentrations in patients were lower compared to control. Conclusion: There is a mismatch the relationship between antioxidant vitamin levels and nitric oxide production. High oxidative stress may be a cause of hypertension, however supplementing with vitamins C and E later in pregnancy, following placentation, may be "too little, too late" to avoid clinical trials manifestations of the predicament. We also can't rule out the possibility that an insufficient amount of vitamins C and E is having an impact, or that other antioxidants are more powerful. Antioxidants that target oxidative stress with a "wide brush" may be unsuitable during pregnancy.

Keywords: hypertension, nitri oxide, antioxidants and vitamin E, C.

Interleukin_4 gene polymorphisms and connect with asthma patients province of Thi-Qar /Iraq

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Abstract: Asthma disease is a most common chronic inflammatory(lung) disease, may be “prompts a variable or even persistent airflow limitation”. The primary manifestations are shortness of breath, also wheezing, chest tightness and persistent hack. The current study aimed to investigate connect between (IL-4) polymorphisms and asthma. A total of one hundred blood samples were collected from age range between (10 to 70) years from both sex sixty of them suffering from asthma and forty without asthma as a healthy control both groups, genotyped for’ Interleukin (IL-4) Single Nucleotide polymorphism “C-589T” (rs2243250)’ using RFLP-PCR. In this study the SNP associate with asthma was significantly.

Case control study on socio-demographic, behavior factors associated with HIV among women in Indonesia

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Abstract: This study an unmatched case control study which determines the factors associated with HIV/AIDS among women in Sambas Regency, West Kalimantan, Indonesia. The study was conducted among 90 women who were tested positive for HIV/AIDS (cases) and 90 women tested negative for HIV/AIDS (controls). Data collection was done by using questionnaires from June 2019 to August 2019, at three community health centres in Sambas Regency. Data was analysed by using IBM Statistical Package Social Science (SPSS) 19. Descriptive analyses and Multivariate logistic regression analysis were used to examine the factors associated with HIV/AIDS. This study has found a significant association between some crucial factors such as marital status, occupation, knowledge about HIV/AIDS, HIV treatment and VCT service program with cases of HIV/AIDS. There was a significant association between marital statuses with HIV/AIDS suggesting that divorced/widowed have higher risk having HIV/AIDS followed by the married group. Women with good education background were more likely to know about the measures to prevent HIV infection and to take preventive measures to protect themselves. Thus, the fulfilment of the need to educate women about sex could potentially decrease the number of HIV/AIDS cases.

Keywords: Case control study, HIV, Aids

Properties of Certain Analytic Multivalent Function Defined by Ruschewey's Type

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Abstract: By means of certain extended derivative operator of Ruscheweyh's type, we introduce and investigate subclasses $K_{n,m}^{p}(\lambda, \alpha, \beta)$ of p-valent analytic function of complex order. The various result obtained here for each of the subclasses included coefficient estimate, distortion theorem, radius of starlikeness and convexity, close- to- convex, extreme point, $\delta -$ neighborhood, partial sums, integral operator and closure theorem.

Keywords: Multivalent functions, Ruscheweyh derivative, distortion theorem, starlike

Diagnostic role of Dynamic Contrast-Enhanced Magnetic Resonance Imaging in differentiating Breast Lesions

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Abstract: Objective: this study aimed to assess the Diagnostic role of dynamic contrast-enhanced Perfusion weighted image (DCE-PWI) in the differentiation of benign from malignant breast lesions. Patients and methods: The study comprised 32 women who had mammography and/or breast ultrasonography findings that were clinically questionable. All patients were fasting during the MRI test to avoid nausea or vomiting from the contrast medium. Result: in our, study we observed the form of the dynamic curve (time and signal intensity curve) type I (persistent curve) was noted in 12 lesions (37.5%): 10 lesions were benign and 2 lesions were malignant; while type II (plateau curve) was noted in 8 lesions (25%): 3 lesions were benign and 5 lesions were malignant, and type III (washout curve) noted in 12 lesions (37.5%): 1 lesion was benign and 11 lesions were malignant. Conclusion: the dynamic contrast-enhanced (DCE) magnetic resonance imaging perfusion technique play important role in Differentiate between benign and malignant tumours in breast cancer.

Keywords: DCE, MRI, breast cancer, differentiation, benign and malignant.

Effect of homocystein and vitamin D in ploycystic ovary syndrome with Iraqi women

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Abstract: This research has been carried out on effect of some biochemical parameters on woman with polycystic ovaries. The goal of the presented work is to determine the levels regarding a few biochemical parameters in females with polycystic ovaries syndrome (PCOS) attending the Biotechnology department of the University of Baghdad's College of Science. The study comprised 35 women between the ages of 18 and 35 who had PCOS based upon complete Rotterdam criteria. The control group comprised of 35 healthy females of one age who had a regular menstrual cycle. The results indicated that females with PCOS have been obese or overweight when their Body Mass Index (BMI) was more than 30. Insulin, Fasting blood sugar (FBS), glycated hemoglobin (HbA1c %), and homeostatic model assessment for insulin resistance (HOMA-IR), have all been higher (≤0.05) in females with PCOS in comparison with control group, showing that Insulin resistance (IR) has been present. Total cholesterol (TC) and Low-density lipoprotein (LDL) levels have been higher (≤0.05), but very low-density lipoprotein (VLDL) and triglycerides (TG) levels were within normal reference range without considerable differences when put to comparison with the control group. High density lipoprotein (HDL) has been lower than control group. The majority of females with PCOS had a high BMI, according to this work. Those patients showed signs of IR. It was discovered that the patient had dyslipidemia. Those results vary from previous studies that found no evidence of IR. The primary goal of this work is assessing the effects of homocysteine and vitamin D in females who have PCOS, and the findings revealed a large increase in the homocysteine levels and a considerable drop or deficiency in vitamin D in Iraqi females who have PCOS.

Keywords: Polycystic ovary syndrome, lipid profile, HbA1c, HOMA-IR, VITD, homocysteine

blood Hemolytic activity and acute toxicity of Saponins extract from Lepudium aucheri boiss

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Abstract: The hemolytic activity process was applied to erythrocytes by an analyst, as well as the lysis o f erythrocytes resulted in a positive test result. The L. aucheri boiss extracts are high in triterpenoids sap onins, according to the findings. Both extracts were used in an acute toxicity in vivo research on four groups of rats (6 rats in each group). After 72 hours of treatment with various concentrations of terpenoids saponins extracts (25,50, and 100 mg/kg B.W), no mortality was detected in the rats of the trials. This demonstrated that both extracts are harmless when taken orally.

Keywords: Extraction, L.aucheri boiss, Acute toxicity, blood Hemolytic

Adsorption of Remove Methyl Green Dye from Wastewater by Using Fava Bean Peel Waste: Kinetic and Thermodynamic Studies

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Abstract: Adsorption of Methyl Green dye using Fava Bean Peel Waste was investigated in detail by conducting batch kinetic, thermodynamic and desorption experiments. Experimental data found appear that adsorption method was highly dependent on equilibrium time, adsorbent amount, initial concentration of dye and pH solution. The sorption equilibrium for Methyl Green dye via Fava Bean Peel Waste was reached within 30 minutes and removal percentage of up to 82%. The result appear isotherm Freundlich gave the better fit comparative with Langmuir isotherm., Thermodynamic quantities including Gibbs free energy, enthalpy, entropy was evaluated, the negative values for each (ΔG^o and ΔH^o) obtained indicated the spontaneous and exothermic process and negative value of ΔS^o is indicate decreased randomness during the process of adsorption.

Keywords: Adsorption, Methyl green dye, Langmuir model, Freundlich model, Thermodynamic function, fava bean peel waste.

L-Carnitine Role in Fertility and Health

A Review Article

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Abstract: The benefits of metabolic supplements on infertility have been extensively described thanks to the modern-day reproductive biology breakthrough. Thousands of supplements have been introduced thus far. L-Carnitine is a small water-soluble protein that is generated when Lysin is methylated. It regulates the oxidative and metabolic integrity of both the female and male reproductive systems, among other things. However, because of these systems' susceptibility to the impacts of free radicals, sophisticated anti-radical medicines are required. Furthermore, L-Carnitine is widely recognized as one of the most effective techniques for increasing endurance, losing fat, and reducing post-workout recovery time, all of which help maintain healthy body weight. Our understanding of L-Carnitine biochemical, physiological and medicinal applications is addressed. This review aims to present the most up-to-date information and recommendations for L-Carnitine prescription and use.

Keywords: L-Carnitine, PCOS, male infertility, obesity

Relation between Acetyl CoA Carboxylase with some Biochemical Variables in Iraqi Men with Acute Myocardial Infarction and Diabetes

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Abstract: Background: Acute Myocardial Infarction (AMI) is widespread cause of death in numerous parts of the world. Many factors rise the risk of Myocardial Infarction (MI), one of the most of it, is Atherosclerosis cause by many factors such as Hyperlipidemia. Acetyl CoA Carboxylase (ACC) is the key regulatory enzyme in fatty acid synthesis. The disorder of lipid metabolism is one of the characteristics of diabetes, which is considered a risk factor for MI, therefore, the activity ACC was estimated in patients with AMI and Diabetes. Method: The study included estimation of ACC activity and correlated with other biochemical variables such as Troponin T(cTnT) , C-Reactive Protein (CRP) , Glucose, Lipid profile, Electrolytes [Sodium (Na^+), Potassium(K^+), Chloride(Cl^-)] , Urea and Creatinine (Crea.), and evaluation of body mass index (BMI) effect in serum of 60 patients with AMI and Diabetes compared with 30 serum from apparently healthy individuals as control group, both groups are of males with an average age (25-60 years). Results and Conclusions: Results showed a significant increase in levels of ACC, cTnT, CRP, Glucose, Lipid profile except High Density Lipoprotein – Cholesterol (HDL-C) and Urea while a significant decrease with $Na^+$and K^+also a non-significant variation was observed with Cl^- and crea in AMI and Diabetes patients compared to control group.

Key words: Acute myocardial infarction, Acetyl CoA carboxylase, Troponin T, Diabetes.

Molecular Identification of Cystoisospora Belli In Patients Infected With The Virus Human Immunodeficiency

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Abstract: Infection with Cystoisospora belli causes severe diarrhea, bile duct involvement, and Extra-intestinal spread in patients with acquired immunodeficiency syndrome (AIDS). This study included eight adult patients with AIDS and chronic diarrhea diagnosed stool cystosisporosis (oocysts) and / or duodenal biopsies (asexual and sexual stages in epithelium). Identification was carried out at the molecular level using a nested-PCR technique that amplifies a fragment of the ribosomal RNA small subunit gene, using DNA extracted from feces and biopsies. This work allowed us to make the diagnosis of cystoisosporosis through analysis coproparasitological, optimize the DNA extraction protocol from samples fecal and implement the nested -PCR technique for the diagnosis of Cystoisospora belli in biological samples from infected patients.

Keywords: Cystoisospora belli, PCR, AIDS, oocyst.

Application Of The Evans Blue Dye For The Study Of Permeability Of The Blood Brain Barrier In Rodents

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Abstract: Background: The data of spectrofluorimetric analysis showed that 1 hour after exposure to music / sound (100 dB), the concentration of EBAC in the brain tissues of all mice (100%) was increased 17.3 times (music) p <0.001 and 18.6 times (sound) p <0.001 compared with the control group. Similar results were found in mice exposed to music / sound (90 dB). After 4 and 24 hours, the permeability of Evans Blue returned to normal. The data indicate the effectiveness of the method for quantifying the BBB permeability for high molecular weight substances. The method of fluorimetric determination of the extravasation of the Evans Blue dye from cerebral vessels into brain tissue is effective for assessing the state of the BBB in real time and can be useful for studying the functions and pathology of the barrier function of the brain in animal experiments.

Keywords: The blood-brain barrier (BBB) Evans Blue (EB) ،fluorescence microscopy ، male white mongrel mice ،Audacity ®. Sound speakers were used to create loud music

The study of the investigate of Ser447Ter lipoprotein lipase gene polymorphism and obesity in children and adolescents

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Abstract: Objectives: Obesity raises the risk for many chronic illnesses. Clinically, obesity is determined using the Body Mass Index (BMI). The lipoprotein lipase (LPL) gene was linked to the metabolism and obesity of lipoproteins. This study aimed to study the investigate the Ser447ter (C-G) polymorphisms of the LPL gene and rs9939609 of the FTO gene and obesity in children and young Rostov people from Russia. Methods: In the research investigated the relationship between the Ser447Ter in the LPL gene with obesity in 870 participants of both sexes aged (3 – 17) years: the major group consisted of 540 obese, and the control group - 330 participants without obesity. Genotyping of the gene LPL Ser447Ter polymorphisms rs328 was performed using PCR- allele-specific primers. Polymorphisms (rs328) of the LPL gene in donor DNA samples were typed by the electrophoretic method using commercial test systems from the Litekh research and production company (Russia). Results: The relationship between the LPL Ser447Ter gene obesity (P > 0.05) was not significant established between the main and control groups in the frequency of occurrence of the genotype SerSer (P = 0.381) and allele Ser447 (P = 0.404; OR 1.17; 95% CI 0.82 – 1.67) of the rs328 polymorphism of the LPL gene. Even though recessive and dominant models are constructed, for LPL gene was statistically not significant TerTer vs SerTer + SerSer (P = 1.000 OR 1.84; 95% CI 0.07– 45.05). Conclusions: An observed the absence of an association between the gene Ser447Ter of the LPL gene with the obesity. However, more studies are needed to confirm these findings.

Keywords: Obesity; Lipoprotein Lipase; Ser447Ter polymorphism; children and adolescents.

Genetic diagnosis of Entamoeba histolytica in patients with acute diarrhea in AL-Rifai city/Thi-Qar province.

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Abstract: Entamoeba histolytica is one of the Entamoeba histolytica .is one of the most prevalent parasitic .infections. in humans, causing amoebiasis and liver abscess, most prevalent parasitic infections in humans, causing amoebiasis and liver abscess, with diarrhoea being one of the most common symptoms. Diarrhea is a symptom of a digestive disorder that can be caused by pathogens or be the result of an imbalance in the digestive process. Diarrhea is a condition in which you defecate three or more times a day and your .stool is watery and liquid. In Thi –Qar Province / AlRifea city, this study focused on identifying and diagnosing Entamoeba histolytica from samples of patients with diarrhoea cases, a combination of microscopic and genomic methods. From October 2017 to January 2018, stool samples were. collected from patients with infectious diarrhoea at Al-Rifai General Hospital for an extended length of time. (603) stool samples were. collected from patients of various ages and genders for the detection of Entamoeba histolytica. The percentage of positive samples was (27.9%), while the percentage of negative samples was determined by. microscopy (72.1%).Males had (28.2 %) favourable outcomes, while females had (27.3 %) positive .results. In terms of housing, rural areas had the .highest infection. rate (38.1 %). Considering the low infection prevalence in urban areas (27.9%). In terms of age, the lowest infection rate (21.1%) was discovered in the .age group. (21-30) years, while the greatest infection rate (37.8%) was identified in the age group .fewer than ten years. While .the results by PCR examination show. that .percentage of positive samples are was (19), with percentage of (19.8) %, while negative samples were (77), with a percentage of (77.8%) Males had the highest infected patients. (20.3%), while females had the lowest (19.0%) Infected patients in rural areas were (38.1 %) and in urban areas were (27.9 %), respectively. In terms of age, infected patients were discovered (31.2 %) in the age group under 10 years and (6.2 %) in the age group between (11 – 20) years.

Keyword: E. histolytica ,polymerase chain reaction (PCR) ,protozoa, amebiasis.

The role of Healing gardens in improving public health in presence of Corona pandemic

(Medical City Complex in Baghdad as a case study)

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Abstract: The current Corona pandemic has become a present reality and considered as the pandemic era. Many recent studies had presented the role of the landscape designed according to the design principles of healing gardens in supporting the public health, but the study of the healing gardens benefits in improving the public health in in presence of Corona pandemic not submitted previously, which represented the research problem. As for the research hypothesis, the healing gardens during the Corona pandemic era would support the public health and improve the quality of life of users. To verify the hypothesis of the research, a practical study was conducted for one of the Baghdad city garden in the medicine city by studying the design of the gardens and analyzing its components and, research indicating the most prominent weaknesses in it and the possibilities of developing it to be compatible with healing gardens with the aim of promoting public health.

Title of article: The rationale behind serum markers for preterm labor prediction

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Abstract: Preterm labor is considered a significant cause of perinatal morbidity and mortality; the rate is increasing in developed countries despite the current advances in management. Although several risk factors are present, the ability of preterm labor prediction is still elusive now. Therefore, finding novel biomarkers to identify pregnant women who will subsequently have preterm labor could enable targeted treatments and timely medical intervention for maternal and fetal outcomes improvement. Furthermore, different biochemical markers of a protein source have been found in Various body fluids; Saliva, urine, amniotic fluid, blood (serum/plasma), and cervicovaginal fluid; these could reflect different pathophysiological pathways disorders during pregnancy, such as preterm labor. This review highlighted recent advances in the discovery of these current biomarkers.

Keywords: Preterm labor, Amyloid A, calponin, alfa-1 antitrypsin, pregnancy.

Visible Spectrophotometry Method for Quantification of Atenolol Using Cerium IV-Rodamin6G Complex

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Abstract: Atenolol is a very important drug that is used for treating chest pain (angina), and high blood pressure, due to this medical importance, a spectrophotometric method has been proposed for the determination of Atenolol in its pure form as well as in some of its pharmaceutical preparations. The proposed method relies on two important steps, the first is the oxidation-reduction reaction between Atenolol and an excess amount of cerium (IV) as an oxidizing agent in presence of acidic medium, then the second step that occurs between unreacted cerium (IV) that was deceased rhodamine 6G absorption intensity. This is an indirect method for estimating Atenolol as it relies on decreased color intensity of a dye Rhodamine 6G, which is proportional to the increase in the amount of the cerium (IV) in the acid medium at the wavelength of 525 nm. The proposed method follows Beer's law within the range (50-800) µg/25 mL, with good sensitivity relative to the molar absorption coefficient value 2.53×104 l.mol-1.cm-1 and the Sandell value equal to 0.0105 µg.cm-2 . The proposed method has been successfully applied to quantify Atenolol in pure form and its pharmaceutical preparations.

Keywords: Atenolol, Rhodamine 6G, Cerium Ion, Pharmaceutical Preparations.

Clinical study of Serum Gamma- Glutamyl levels in cigarette smokers with nonalcoholic fatty liver disease, Governorate – Iraq

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Abstract: Serum gamma-glutamyltransferase (GGT) is a marker higher oxidative stress, linked with multiplied cardiovascular (CV) danger. The influence of smoke on oxidative stress can also keep the increase in persons together with non-alcoholic fatty liver disease (NAFLD). We aimed to conform to verifying the community over smoke over GGT degrees within the arrival yet penurity of NAFLD. Methods 200 subjects (men) chronic forty years or older contribute within a public-based land scan between the Thi-Qar government. Information about people who smoke was once amassed through the usage of a certified application. NAFLD was identified by using belly B-mode ultrasound checking out. A multivariate longitudinal throwback about the cross-sectional affiliation of smoking or GGT used to be performed primarily based on NAFLD status. We focused according to ascertain the affiliation about smoking on GGT ranges among the availability and non-appearance over NAFLD. Results There have been 200 subjects analyzed: 102 (51%) not smoke cigarettes and not non-alcoholic fatty liver disease, 72 (36%) not smoke cigarettes and had non-alcoholic fatty liver disease, 14 (7%) people who smoke except NAFLD then 12 (6%) smokers including NAFLD. Smokers had extensively greater GGT stages within the attendance about NAFLD ($P < 0.001$). After multivariable modification , modern smoke was related with 4.60 IU/L greater GGT level, $P < 0.001$, the contrast in control of non-smokers. When stratified via NAFLD, the measurement of the affiliation was once more important among topics including NAFLD (β-coefficient: 11.12; 95% self belief inside (CI): 5.76 - 16.48; $P < 0.001$); however, no certain kinship was notice in these except NAFLD (β: -0.02; 95% CI: -3.59, 3.56; $P = 0.992$). Overall the interplay on NAFLD yet smoking along GGT stages as indications of os was once statistically sizeable. Conclusions: Smoking is severally related including significantly improved oxidative emphasis as estimated via GGT level. The affiliation explains impact amendment by using NAFLD status, suggesting so smoking may additionally increase CV gamble within individuals with NAFLD.

Culture-Based Techniques and Automated Methods Were Used to Detect Staphylococcus Aureus Among Other Bacteria in Tonsilitis And Burn Patients in Thi-Qar

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Abstract: Staphylococcus aureus is mostly obtained from clinic contaminations and exhibited the capacity to foster protection from numerous anti-infection agents. This study planned to research S .aureus in some clinical samples by culture-based procedures and automated techniques like PCR.. All swabs were streaked on MacConkey agar, 5% human blood agar, Mannitol salt agar, and DNase agar and incubated at 37 C for 24 h DNA fragments were amplified from isolated DNA. PCR was used to amplify the sequences of 16S rRNA. The detection of PCR products were by agarose gel electrophoresis. Depending on the cultural, morphological, and biochemical characteristics, the Prevalence of S. aureus were 18.75% (n=30), 14.29% (n=20), and 6.33% (n=19) to Burn patients, tonsillitis patients and healthy human. The highest percentage of S. aureus had been recognized in burn patients. Most S. aureus isolations can able to generate virulence factors such as hemolysins, urease, and protease. The DNase test and (MSA) may be an essential indicator of Staph. aureus. The results of phenotypic diagnostic were confirmed by polymerase chain reaction (PCR) technique employing 16SrRNA gene that showed only 48\50 certain bacterial isolations of this microbe from patients while in healthy humans were in line with phenotypic diagnostic (19\19). This study showed that culture based techniques and the PCR is a specific and powerful strategy for classifying and identifying isolations of S. aureus.

Keywords: S. aureus; Polymerase Chain Reaction (PCR); MSA media; DNase test; 16S rRNA gene

Detection of Antibiotic Susceptibility for Staph. Aureus in Tonsilitis And Burn Patients by Used 12 Antibiotics

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Abstract: Staph. aureus is a member of the normal flora and an opportunistic pathogen. It is particularly prevalent in skin and soft tissue. The CLSI-recommended modified Kirby-Bauer disc diffusion technique was used to evaluate antibiotic susceptibility. The disc diffusion technique was used to screen all isolates against 12 antibiotics.The findings indicated that Staph. aureus isolates were subjected to Penicillin-G 100% in tonsillitis and healthy human isolates, but 90% in burn isolates. Vancomycin resistance was 15% in tonsillar isolates, 3.3 percent in burn isolates, and 0% in healthy people. According to the study's findings, Staph. aureus resistance to Ciprofloxacin was 23.3 percent and 20 percent in burn and tonsillitis patients, respectively, but 15.78 percent in healthy individuals Sequential proportions of Azithromycin were identified in this investigation.These were 50% for burn patients and 60% for tonsillitis patients, but only 42.10% for healthy individuals. Clindamycin resistance was 73.3 % in burns and tonsillitis, but only 5.26 % in healthy individuals.Levofloxacin indicated the same levels of resistance (13.3 % and 10%, respectively) at both clinical sites, but when compared to healthy individuals, it was zero percent and 10.52 % to Levofloxacin and Nitrofurantoin, respectively.. The current investigation revealed a significant increase in Erythromycin resistance, which reached 80 percent and 57 % for tonsillitis and burn isolates, respectively, but 42.10 % in healthy individuals.The antibiotic resistance values for tonsillitis isolates of Ofloxacin and Gentamycin were the same at 15%, while both antibiotics were reported at 13% and 10% for burn isolates, respectively, and the levels of Ofloxacin and Gentamycin in healthy individuals were 10.52 %.It was discovered in the study that the rate of antibiotic resistance to tetracycline was 30% and 23.3 % for tonsillitis and burn isolates, respectively, but 36.84 % in healthy individuals. Doxycycline resistance was set to 20 % and 16.7 % in tonsillitis and burn isolates, respectively, but 21.05 % in healthy individuals.

Keywords: Staphylococcus aureus; MHA; MSA; Vancomycin; Levofloxacin

A cross-sectional survey of knowledge, attitude and practice (KAP) towards COVID-19 pandemic among the Iraqi population

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Abstract: In December 2019, a novel coronavirus emerged in China. On 11 February 2020 this newly emerged virus was named Severe Acute Respiratory Syndrome Coronavirus -2 (SARS-CoV-2). On 11 March, the World Health Organization declared that SARS-CoV-2 to be a pandemic. Iraq adopted different measures to mitigate the transmission of the virus by imposing a lockdown and increasing the level of awareness of the public to Coronavirus disease 2019 (COVID-19). This study aims to assess the effect of knowledge, attitude, and practice of the Iraqi society towards COVID-19. A cross-sectional study of 3514 Iraqi residents was conducted from 28 May 2020 to 13 June 2020 using data collected via an online questionnaire. The results showed that men participated more than the women (60.1%). 64.6% of the responders were married. The majority of the responders held a higher degree (89.19%). More than 91% of the responders thought the cause of the pandemic was not a virus. Most of the participants thought that sick people don't spread the virus (82.47%). 72.48% of the participants had received public health authorities' messages and had heard about COVID-19. 95.87% of the participants were taking precautions such as not touching their faces, and washing their hands. The results suggest that the overall knowledge level of the Iraqi population was acceptable. However, the practice towards SARS-CoV-2 in Iraqi society during the pandemic was mostly inadequate. These findings intensify the significance of consistent messaging from Iraqi health authorities and the need to design effective health education plans to manage and mitigate the pandemic.

Keywords: COVID-19; Knowledge; attitudes; practices; coronaviruses; Iraq.

Ultrasound- Assisted & Guided Neuraxial Anesthesia for Obstetric patients; a Narrative Study

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Abstract: Background: Ultrasound neuraxial anesthesia refers to use ultrasound technology to assist in identification of anatomical structures that represent the landmarks for spinal and epidural anesthesia or to real-time guidance of needle insertion and catheter placement. Methods: All relevant and published data were searched in MEDLINE and EMBASE bibliographic databases, the Cochrane Central Register of Controlled Trials (CENTRAL) and by manual search for relative titles or abstracts. Results: reviewed RCTs for both ultrasound- assisted and ultrasound-guided neuraxial blocks indicate, that neuraxial ultrasound can show the intended lumbar intervertebral space more correctly than by a formal landmark palpation, improves the rate of effective puncture at the first puncture site and reduce the times of puncture attempts. It facilitates CSE puncture in obese parturient. Ultrasound neuraxial anesthesia can correctly predict the needle insertion depth intended to reach the epidural or intrathecal space and improve the efficacy and safety of spinal and epidural anesthesia. Authors' conclusions: regarding to reviewed studies, authors concluded that neuraxial ultrasound assisted or guided anesthesia increases the efficacy of epidural, spinal, and combined spinal and epidural anesthesia for obstetric patients.

Keywords: ultrasound, neuraxial anesthesia, spinal anesthesia, epidural anesthesia, obstetric and cesarean section.

The Role of premedication melatonin for patients undergoing general anesthesia

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Abstract: Background: Premedication has some important goals during general anesthesia such as relief of anxiety, induce sedation, offer proper analgesia and decrease the need for anesthetic drugs. Purpose of study: The purpose of this study is to evaluate the effectiveness of Melatonin as a premedication agent for patients undergoing surgery to reduce anxiety, induce sedation and analgesia. Methods: We searched all relevant and published data using PUBMED, MEDLINE and EMBASE bibliographic databases, Cochrane Central Register of Controlled Trials (CENTRAL). We also searched manually by using the appropriate search terms.
Results The reviewed articles showed that melatonin has an appropriate effect as a premedication agent by, reducing anxiety before surgery as well as reducing the need for postoperative analgesics when orally used before surgery.

Keywords: melatonin, general anesthesia, anxiety, analgesia, sedation, pre-operative, postoperative, Premedication.

Thyroid disorders and their relationship to age and body weight of patients in Dhi Qar governorate

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Abstract: A total of 276 samples of hypothyroid blood were collected, then five milliliters of blood were drawn and wine tubes were placed free of anticoagulant for 15 minutes, then the blood was separated using a centrifuge (3000 cycles/min) for 10 minutes, then the blood serum was drawn by Micropipette for the purpose of measuring thyroid hormones and thyroid stimulating hormone by the Mini VIDAS System. The hormonal measurement of T3, T4, TSH, was measured using the System VIDAS-Mini system by means of the immunoassay analyzes Immunoassay Enzyme and using the analysis technique ELFA (Assay Fluorescent Linked Enzyme), which is one of the most accurate and modern methods known to measure the concentrations of many hormones, including thyroid hormones T3, T4, and TSH. And the measurement kit (KIT) used to measure thyroid concentrations in humans was used to measure the level of these hormones. And the method of work was followed in the information booklet attached with the measurement kit for the Mini System VIDAS to measure hormone concentrations and for a period of time that ranged between (30-40 minutes) inside the device, depending on the type of hormone measured, whether it was T3, T4 or TSH.

Keywords: Thyroid gland, goiter, Adam's apple.

Human Lipidogram In Diabetes

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Abstract: Diabetes mellitus is the most highly prevalent disease that affects people all over the world. Diabetes mellitus is typically connected with lipid dysregulation and cardiovascular complexities. This study is intended to assess the lipemic changes in diabetes mellitus patients. Total Cholesterol (TC), Triglycerides (TG), Low density lipoprotein Cholesterol (LDL-C), High density lipoprotein Cholesterol (HDL-C) levels have been studied in serum of diabetes patients. the case control study is involving 100 people with diabetes as case and 70 of people who healthy controls is similar in gender and age. The people who took the samples all abstained from food for 12 hours before taking the blood samples from them. The manual process was used to measure parameters using spectrophotometer by liquid chemistry. In both IDDM and NIDDM, total cholesterol, triglycerides, and, Low density lipoprotein cholesterol were higher in cases compared to controls. HDL-C was decreased in NIDDM patients on sulfonylureas or iguanids, but not substantially different in IDDM patients taking insulin. TG,TC, Low density lipoprotein cholesterol showed significant correlation in IDDM subjects.

Keywords: (DM), LDL Cholesterol(LDL-C), Total Cholesterol (TC), Triglycerides (TG), HDL Cholesterol (HDL-C).

Relationship between gene polymorphism of vitamin D receptor with Coronary Heart Disease (CHD) in Baghdad province /Iraq

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Abstract: Current study targeted 80 patientshave Coronary Heart Disease (CHD)Their ages range from 50 to 80 years, They were diagnosed in Ibn Al-Nafees Teaching Hospital consultant by doctor's consultants in the specialty of cardiologyin Baghdad governorate from period November 2018 – April 2019.The number of men with CHD was 70 percent Compared to women that was 30 percent of overall patients.For 80 patients, the analysis of vitamin D3 levels revealed that about 15% of them had extreme D3 deficiency at a minimum value of 7.6 ng/ml, but the lack of vitamin D represents 50% at rate of condensation 14.2 ng/ml. Among autistic individuals, the percentage of mild-moderate deficiency (insufficient) was 25% when measured at a condensation rate of 23 ng/ml, while the appropriate quantity of D3 (sufficient) was 10% when measured at an accumulation rate of 32.6 ng/ml. Results of nitrogen base sequence vitamin D receptor mutation in 10 CHD patients with serious vitamin D deficiency and two-sample stable control patients.Results revealed no mutations in 8 specimens other than 2 reference samples, whereas one case (A1) had 10 alternative mutations grouped into 8 replacement mutations divided into 8 Transition mutations at locations 475, 395, 292, 287, 249, 211, 206, 179 and 2 Transvertion mutations at locations 314, 259; two replacement mutations existed inside Intron and six registered nonsense mutations and 2 missense mutations at locations 314.Nucleotide G>T Modification of the nucleotide CTA>ATA Modification of the amino acid Leucine> Isoleucine and position 249 Nucleotide G>A Modification of the nucleotide ACG>ATG Modification of the amino acid Threonine> Methionine When patient (A2) 6 substitute mutations were registered separated into 5 Transitions at location 475, 292, 157, 154, 138, and 1 Transvertions at site 492.5 mutations existed inside Intron and one mutation was known as the position of both the nonsense mutation 292 Nucleotide G>A Nucleotide.

Keyword: VDR, CHD, vitamin D,Baghdad.

Changes in the Level of Some Trace Elements in Blood Serum of Patients with TypeI Diabetes

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Abstract: Type 2 diabetes constitutes a major threat to public health; non-ideal control leads to chronic hyperglycemia. This kind occurs due to the resistance to the body's cells to the action of insulin hormone / or maybe due to the lack of production of a sufficient quantity of insulin by the pancreas and it is caused by multiple factors, most notably the overweight and lack of physical activity. Metabolic syndrome is a complex set of disorders that significantly increases the risk of heart disease. The present study is designed to determine the levels of HbA1c and some trace elements (copper, chromium, zinc, and selenium) in type 2 diabetic patients. The measured parameters were studied based on two variables: general comparison, Age. Patients and controls were divided, in the general comparison, into two groups: Control group: included 50 supposed healthy subjects aged (40-60 years) DM group: included 50 type 2 patients diabetes aged (40-60 years)
Patients and controls were divided according to their ages, into two age groups: A1 (40-50 years) and A2 (50-60 years) The results also noted that there was statistically significant differences in levels of Zn, Cu, Se and Cr between all groups of the patient compared with corresponding groups of health control ($P \leq 0.0001$). Aging has a positive effect on the studied parameters in diabetic patients.

Keywords: Diabetes mellitus, HbA1c , Trace elements (copper,zinc,chromium and selenium).

The occurrence of recurrent aphthous ulcers for primary schools students in Nasiriya city south Iraq

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Abstract: Recurrent aphthous ulcers address an exceptionally normal yet ineffectively comprehended mucosal problem. (Scully, C. 2006). They happen in people, everything being equal, races and geographic districts. It is assessed that no less than 1 of every 5 people has to some degree whenever been burdened with aphthous ulcers.(Scully, C., & Porter, S. 2008).. Aphthous ulcers were found in 2% of an aggregate of 4.562 students matured between 6-12 years or more inspected in primary schools understudies of Nasiriya city south of Iraq. At the point when a background marked by two years was thought of, the pervasiveness was 12.7%. A little power was found for females. The more youthful bunches appear the most elevated prevalences of idiomatic expressions, which then, at that point, diminished consistently with age. Meetings were led with a negligible portion of the populace involving 300 understudies as to their encounters of RAU. Hence, instance, the normal number of scenes each year was a few and the most predominant time for recuperating, 3-7 days. between the elements thought by students to recurrence the condition, contracting a bug was accounted for as the fundamental one, trailed by GIT issues and shedding of essential teeth At times, genital mucosa portrayed by the rehashed improvement of one to numerous discrete, . (Rivera, C. 2019).

Intermittent aphthous ulcers (RAU) are depicted by the presence of only one or numerous agonizing, repeating ulcerations of the oral mucosa. The sickness has arranged in 3 diverse clinical structures: minor, major, and herpetiform (Buonavoglia ; et al.2019). Clinical experience shows impressive variety for various patients. Some of them allude to single scenes with mending seasons of under multi weeks, though another have ulcer continually & recuperating stages that are accounted for to surpass multi month (Cui ;et al .2016). Many articles have been distributed on the predominance of RAU, a couple of examinations have been done on elementary school understudies populaces. Also, the primary article of RAU in Nasiriya south of Iraq

Identification of Candida krusei by 18S rRNA gene and investigation of SAP1 gene in samples isolated from female genital tract infection

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Abstract: The current study is aimed to identify Candida krusie by 18SrRNA and also to detect virulence gene (SAP1), This study was conducted in Maternity and Children Hospital in Nasiriyah, Thi-Qar province for the period from 9/11/2020 to 30/6/2021. Randomly, 150 samples were collected from women infected with vulvovaginal candidiasis (VVC) who their ages ranged from 17 to 50 years. C.krusie isolates were obtained from patients with Vulvuvaginal. The most predominant Candida species isolated was Candia albicans (68.57%) followed by C. krusie (11.43%), C. glabrata (8.57%), C. parapsilosis (5.71 %) and C. tropicalis (5.71 %).18S rRNA gene was detected in all isolates. A sequencing and phylogenetic analysis was showed a genetic variation between the local isolates and global strains. Only 7 isolates were positive for SAP1(87.5%). However, the presence of this virulence gene may be an essential role in occurrence of the infection, 18S rRNA gene has a perfect reliability in the identification of C. krusie.

Keywords: C. krusie, SAP1, vulvuvaginal candidiasis, sequencing, phylogenetic analysis

Effect Of Gamma Radiation And Borax On Mechanical Properties Of Polyvinyl Alcohol And Chitosan Blend Film

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Abstract: The creation and characterisation of biodegradable blend films based on chitosan and polyvinyl alcohol for application in a range of packaging is described. The compatibility between the chitosan and PVA polymers was good. Composite films had a compact and homogeneous structure, according to the morphology analysis. The mechanical test result of PVA/CH at concentrations 5% showed, that The higher values of TS recorded in sample (p1, with 40 MPa) while the lower values appeared in sample (p9, with 22.09 MPa), the TS decreased gradually as the amount of PVA increased in blend film. While the blend film of pure Chitosan exhibits a poor mechanical strength which makes it a poor candidate for packaging but Blending CH with PVA together improved tensile strength. PVA/CH at concentrations 10%. Showed the higher TS values appeared in sample (C1 with 36.64MPa) while the lower values of TS appeared in sample (C9 with 24.4 MPa). In comparison with pure PVA have the lower TS than all blend film. The result of mechanical properties after addition of borax solution revealed that the Borax improves the E at max and TS of blend films. Mechanical properties results of CH/PVA/Tio2, Showed that the TS and E at max were increased after introducing of Tio2 into the polymer matrix. The P1 sample have been chosen according to their possess acceptable TS, E at max to be subjected to gamma radiation at different doses 2.3, 3.5, 4.5, 6, 7.5 kGy . The results demonstrated, that the increasing the radiation doses lead to increasing in TS of blend film, following increasing in E at max, the highest TS of the irradiated films is observed at 7.5.kGy dose.

Bacterial Profile and Anti-microbial Resistance of Bacteria Isolates From Septicemia Patients A metaanalysis Report / Iraq

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Abstract: Infections of the bloodstream are frequent in people of all ages. To design and implement effective therapies, scientists are currently studying patterns of "bacterial profile and its antibiotic resistance". It was decided to carry out this research to see how common septicemia is and how much of an antibiotic resistance problem it has become. Septicemia patients had comparatively high rates of positive blood culture results. Additionally, a high number of isolates were found to be resistant to routinely prescribed antibiotics. Data on culture-confirmed septicemia patients and antibiotic resistance trends are scarce, which may contribute to the problem

Detection Of Extend Spectrum B–Lactmase Genes Tem,Shv And Oxa In Enterobactriacea Bacteria Isolated From Uti Of Pregnant Women In Al-Nassyriah City

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Abstract: This study was performed to detect the presence of TEM,SHV and OXA genes in urinary tract infections caused by Enterobactriacea in pregnant women in Al- Nassyriah town , during the period from March(2020) to June(2020).Six hundred and thirty (n= 630) urine samples contains bacteria were collected and cultured on macConky media for initial isolation.Morphological, conventional biochemical tests and the API 20 system were performed to identify the causative agents.Ninety samples showed positive culture, most common isolates were E. coli 57 (63.3%) followed by Klebsiella pneumonia 21(23.3%), Klebsiella oxytoca 4(4.4%) , , serrtia marcesence, Proteus mirabilis were 2(2.2%), Citrobacter freuendii and Enterobacter clocae were 1(1.1%) . Among enterobactriacea bacteria isolates, ESBLs were detected in 26 isolates (28.9%) of these ; Escherchia coli 17/57(29.8%), Klebsiella pneumoniae accounted 5/21 (23.8 %) , Klebsiella oxytoca 1/4(25%), Proteus mirabilis, serrtia marcesence were 1/2(50%) and Enterobacter clocae is 1/1(100%). DNA band had volume TEM(800 bp), SHV(713 bp) and OXA(564 bp).

Keyword: ESBLs, Enterobactriacea,Pregnant Women,UTI.

The Significant Cardiovascular Changes during Isoflurane and Sevoflurane Anesthesia: A Narrative Study

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Abstract: Background and goals: The volatile halogenated agents are essential to induce smooth anaesthesia during induction and maintenance period, however they do have historic effects on the physiology of the cardiovascular system and these effects are considerable during anaesthesia to avoid or decrease the unwanted effects or morbidity. So this narrative study attempts to evaluate the effects of each anaesthetic agent and to give a gist comparison between them.

Keywords: sevoflurane; isoflurane; cardiovascular system; volatile anesthetic agents; cardiac index; heart; contractility; rhythm, heart rate; baroreceptor reflex; systemic vascular resistance.

Immunological and Biochemical changes in women with recurrent miscarriage

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Abstract: In this research was studied Cytomegalovirus, Toxoplasma, Rubella , Antiphospholipid , and Anticardiolipin are tested to distinguish between women with explained and unexplained of recurrent miscarriage, where the study was conducted in Thi-Qar province in the south of Iraq. The results revealed that concentration of MDA & CP levels showed a significant increase ($p \leq 0.05$) in the patient group in comparison with the control group, and no significant ($p \leq 0.05$) between explained and unexplained groups. Whereas, IFN-γ level showed no significant ($p \leq 0.05$) in the patient group in comparison with the control group, and no significant ($p \leq 0.05$) between explained and unexplained groups.

Keywords: Recurrent Miscarriage (RM) , Interferon gamma , MDA , Ceruloplasmin

Detection of Diarrhoeagenic Escherichia Coli Among Other Bacterial Species Isolated from Children Patients by Automated Methods and Culture based Techniques

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Abstract: Diarrhea is one of the most widespread medical problems, and it can be caused by a variety of microorganisms, including parasites, viruses, and bacteria. Intestinal bacteria (Diarrheagenic E.coli) is one of the most important, since infection with it results in hospitalization and, in some cases, death, particularly in youngsters. The goal of the investigation was to see if (Diarrheagenic E.coli) was spreading in Thi Qar after it was isolated from children with diarrheal infections. From Bint Al-Huda Maternity and Children Hospitals and Mohammed Al-Mousawi Hospital for Children, 430 diarrhea samples were obtained from children under the age of five, both gender, as well as 40 samples from healthy children as control samples. Laboratory and molecular techniques were used to diagnose all of the isolates. Statistical analysis of the samples indicated an infection rate of 180 (41.86%) with bacteria, while other microbial causes showed an infection rate of (58,14%). Escherichia coli was prevalent with a percentage of 180/100 (55,56 %). In this study, we used control strains to detect DEC in pure cultures and spiked stool samples. DEC has a detection limit using multiplex PCR methods. In comparison to conventional lab procedures, we may consider PCR to be a very sensitive and specific molecular biology approach for the identification of virulence gene in different clinical specimens based on this and other research.

Keywords: Diarrheagenic E. coli; Polymerase Chain Reaction (PCR); 16srRNA gene; API 20 E and VITIK-2 system.

Physicochemical And Heavy Metal Properties Of Soil Samples In Waste Disposal Site, Suq Al- Shyokh, Iraq

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Abstract: Discharging of untreated municipal solid wastes (MSW) onto land is very common in developing countries. One of the serious problems is the enrichment of heavy metals in the nearest environment and various hazardous effects of toxic compounds contained in MSW have been reported on the humans. An assessment was conducted to evaluate the effect of discharged solid wastes on soil quality in two different seasons (summer and winter) within the landfill of Suq al-shyokh city, Iraq. In the study, different soil physicochemical parameters such as electrical conductivity, pH, and organic matter content including heavy metal content were considered. Sampling locations were selected by transect sampling method and soil samples were taken at distance of 10m, 30m and 60m from the periphery of the disposal sites at a depth of 0-20cm. The soils collected at different point in the Suq al-shyokh disposal sites are silty loam in texture, low in organic matter with a high salinity content. There was seasonal variation in the level of chemical properties measured in the soil due to the effect of temperature increase on the soil capilliary force. The average soil pH recorded in the two seasons were slightly above neutral 7.26 and 7.18, respectively. The average EC recorded in the two seasons showed elevated salt level (4.80 and 5.4). Result of the soil physiochemical analysis indicates that vertical distribution of Pb, Cr, Cu and Cd increased in Al-Nasiriyah disposal site, which is a clear indication of the level of pollution in the area. The study demonstrated contamination of the soil by heavy metals that will cause environmental and human risk through the food chain and possibly leaching into groundwater sources.

Keyword: waste management, physicochemical, heavy metal properties, soil samples, waste disposal site.

Rational Use of Antibiotics for Community Acquired Pneumonia in Dhi-qar's Hospitals

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Abstract: The hospital and laboratory findings of all adult patients who was hospitalized in Dhi-Qar hospitals were reviewed during the period (1 November 2020 to 30 August 2021) with a clinical features of community acquired pneumonia. Potential cases were identified, aged 23 to 75 years at the time of admission. The hospitals findings were requested and reviewed for eligibility. All data were collected by the Case Information Sheet (CIS) project, a general practice research database containing data from hospital patient records of about 42 patients in the Dhi-qar's hospitals and the details of the database have been described. The Case Information Sheet contains coded and anonymous data on patient demographics, Symptom, and treatment including their indications and dosage regimen. The evaluation was based on differentiation of community acquired pneumonia from other types, location of therapy, treatment strategy, and duration of therapy.

Keywords: Antibiotics, community acquired Pneumonia, Hospital acquired pneumonia.

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Sports Papers

Psychological fluency and its relationship to psychological flow among students of the College of Physical Education and Sports Sciences

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Abstract: Psychological fluency and psychological flow among students of the fourth stage of the Faculty of Physical Education and Sports Sciences at the University of Babylon. The relationship between psychological fluency and psychological flow among the fourth stage students of the College of Physical Education and Sports Sciences at the University of Babylon. In this study, the two researchers used the descriptive approach with its survey and correlational methods, and the work began by preparing the two measures of psychological fluency and psychological flow, and then applying them to a sample of the fourth stage students in the College of Physical Education and Sports Sciences of the University of Babylon, and after processing the statistically extracted results, the two researchers reached several conclusions: The fourth-year students of the College of Physical Education and Sports Sciences enjoy a high level of psychological fluency. The fourth-year students of the College of Physical Education and Sports Sciences enjoy a high level of psychological flow. Psychological fluency has a positive relationship with the psychological flow of fourth-stage students in the College of Physical Education and Sports Sciences with a high level of psychological fluency.

Keywords.psychological fluency; psychological flow.

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Physical-kinetic intelligence and its relationship to the accuracy of the performance of the handling and scoring skills in the game of futsal football extract

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Abstract: The study aims to identify the relationship between physical kinetic intelligence and the extent of its contribution and impact on the performance of technical skills in futsal, where the researcher used the descriptive approach to suit the nature and achievement of the objectives of the research. Their number is (14) players, and the simple correlation law (Pearson) was used to obtain the results of the correlation between the variables. The researcher concluded that there is a statistically significant relationship for the physical kinetic intelligence and the accuracy of the performance of the handling and scoring skills in the game of futsal football, and the researcher recommended the need to alert the coaches to Using intelligence measures to know the level of players, especially during selection, and conducting other similar studies in the light of psychological, physical and physiological aspects to contribute to the progress and development of research and studies. Physical motor intelligence and its relationship to the accuracy of the performance of the skills of handling and scoring in the game of football for the lounges.

The effect of dynamic lactic exercises in the maximum oxygen consumption (VO2max) and lay-up shooting endure of basketball under 20 years old

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Abstract. The importance of research is to prepare dynamic lactic exercises and identify its effect of the maximum oxygen consumption and lay-up shooting endure of basketball under 20 years old. Research problem, Through the experience of researchers being interested in the game of basketball and by watching most of the matches of the youth premier league in general and Al-Tadhamun sports club matches in particular, they noticed that there is a noticeable decrease in skill performance when the level of technical performance is very high or whenever the time in the game progresses, Thus, this negatively affects the team and the inability to score goals that may be crucial to the match, the researcher believes that the reason may be a weakness in the functional and physical ability of the players, which has an effect in the level of performance, also the lack of use of modern training methods, including the method (dynamic lactic), which is one of the training methods that give the player the ability to enduring changes in the players' tactics in the competition, as the researcher believes that it will develop the functional side of the player. Research objectives, preparing of dynamic lactic exercises in basketball, as well as identify its effect of the maximum oxygen consumption and lay-up shooting endure of basketball players under 20 years old. Research hypotheses, there is an effect of dynamic lactic exercises of the maximum oxygen consumption and lay-up shooting endure of basketball players under 20 years old. As for the research methodology and its field procedures, researchers used the experimental method to solve the problem of research.

The research Society was determined by Al-Tadhamun sports club of basketball, the number (16) players, the researchers chose a sample of them in a simple random manner (lots) and their number (12) players, they were divided into two groups (experimental and control) in the simple random way (Lottery). The most important conclusions, the duration of the dynamic lactic exercises, represented by the number of training units, it was suitable to development the experimental research group for the maximum oxygen consumption variable, as well the development of the maximum oxygen consumption has a positive impact on the development of and lay-up shooting endure for members of the experimental research group.The most important recommendations, researchers recommend to use the exercises according to the training rules for the dynamic lactic method to raise the aerobic and anaerobic efficiency for basketball players during matches and competitions, Also, the necessity rationing the training load for dynamic lactic exercises to suit the players in terms of gender, biological and training age, as it have a high impact on the body during performance.

Keywords. Dynamic lactic, Exercises, Maximum oxygen consumption, Lay-up shooting endure.

Suggested physical exercises to develop endurance for speed and power that moves with speed for the legs and pulse after effort, and performing two-point correction for basketball for youth

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Abstract- The science of athlete training and physiology has an important role in developing athlete levels in basketball, especially for teenagers. As we know, training causes a lot of changes whether it was physical or internal which happens because of athlete training. After the researcher consideration on the scientific resources that belong to the physiology of athlete training as well as proceeding meetings and interviews with experts and specialists in the physiology of the athlete training, the researcher chose the Functional variable to heartbeats rate after giving an effort to proceed the whole work on it and discovering the real reasons behind its weakness by the observation of the researcher to a group of young players in training units in addition to watching basketball games, the researcher observed weakness in aiming jump with two points skill inside the forbidden area especially at the third or fourth period of the game, this is a clear indicator to the existing of weakness in training on developing this skill and from here the importance of the research comes in recognizing the effect of proposed exercises on heartbeats rate after doing an effort, physical ability and doing an aiming jump with two points in basketball for teenagers، The problems of research is that any weakness suffered by any basketball team is an important problem, so work must be done to overcome this weakness, whether it is physical, skill, or related to the internal organs of the player's body and turn it into a point of strength and benefit from it, and since the researcher is one of the Iraqi Premier League basketball players as well On his follow-up to

youth championships inside Iraq, the researcher noticed that most of the young players' physical and skill performance declines during the third and fourth period of the official match, and this indicates a problem in physical and skill abilities in particular (bearing speed, strength distinguished by speed, shooting by jumping with two points) Hence the research problem through the use of suggested exercises to develop physical abilities and the skill of shooting by jumping with two selected points in the research as well as developing the heart rate after the effort and obtaining the best results for it in order to provide an easy service to the beloved basketball ، As for the most important aims of the research, it was in preparing proposed exercises to develop some physical abilities and the functional variable and shooting with two-point jumping with basketball for youth, as well as identifying the effect of the proposed exercises on some physical abilities and the functional variable and correcting the two-point jumping with basketball for youth. The research hypotheses are the existence of Significant differences with statistical significance in pre and post tests for some physical and functional abilities and shooting by jumping with two points with basketball for youth, and the presence of statistically significant differences between the experimental and control group in the post-tests and in favor of the experimental group ، As for the limits of research, the researcher chose his human limits represented by the young players of the Nasiriyah Sports Club in basketball for the season (2019/2020) and between the ages of 16 and 18 years. As for the spatial limits, it was in the martyr Haider Kamel Burhan Closed Sports Hall in Dhi Qar Governorate, Time limits from 1/9/2019 to 31/10/2019.

The effect of using E-learning technology in learning the skill of clean and jerk for students of the Faculty of Physical Education and Sports Sciences

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Abstract. The purpose of this paper is to identifying the effect of using the e-learning technology method and the method used by the teacher in teaching clean and jerk skill to students in the College of Physical Education and Sports Sciences / University of Kufa, as well as identifying the difference in the effect between using the e-learning technology method and the method used by the teacher in teaching clean and jerk for students of the College of Physical Education and Sports Sciences / University of Kufa. In terms of research methodology, the researchers used the experimental method in the two groups equivalents.The research community has identified 40 students in the first stage of the Faculty of Physical Education and Sports Sciences, University of Kufa for the academic year 2020-2021, and this was done after collecting data for the research, where the researcher performed the statistical treatment in order to be able to reach and achieve the objectives and hypotheses of the research.The researchers reached several conclusions, including: there is a development in the level of performance of students with the skill of raising the net and for both groups (control and experimental), as well as the emergence of differences in the effect of the e-learning method and the method followed by the teacher in developing the level of performance of students with the skill of raising the net and in favor of the experimental group (E-Learning).As for the most important recommendations: the application of the method of e-learning technology in teaching skills and activities because of its importance in the attic of teaching and learning to achieve the required goals, as well as conducting similar studies on other activities and age groups.

The effect of qualitative exercises in developing motor compatibility and learning the skill of the jump set volleyball for the players of the specialized school

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Abstract. The aim of this study is to preparing specific exercises in developing motor compatibility and learning the skill of jump set in volleyball for the players of the Specific School, identifying the effect of qualitative exercises in developing the motor compatibility of the players of the Specialized School, identifying the effect of qualitative exercises on learning the skill of jump set in volleyball for the players of the Specialized School. As for the research methodology and playing field events, the researchers used the experimental method to solve the problematic. As for the community, it was determined the players of Specialized School in Al-Qadisiyah Governorate, and the number of them was (28) players, and they were distributed equally to two groups by the simple random method (raffle). As for important conclusions: that the qualitative exercises helped to develop the motor coordination of the legs and arms of the experimental group, that the qualitative exercises helped in learning the technical performance of the jump set skill in volleyball for the experimental group.The researchers recommend paying attention to using qualitative exercises according to the level of learners in learning the jump set skill in volleyball, the researchers recommend adopting the qualitative exercises ready by them as simple data when learning the jump set skill in volleyball.

The effect of TPS strategy in teaching some defensive skills in basketball for female students

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Abstract: Through the researchers' follow-up to the basketball lessons and his interest in this game, he noticed that there is a fluctuation in the skill level of students, especially defensive skills, as well as that most of the lessons run at the same pace and that the burdens are on the teacher's shoulders only without relying on self-strategies in teaching, and the research aimed to Recognizing the effect of the TPS strategy in teaching some defensive skills in basketball for female students, The research community was identified, represented by the second-level students of the faculty of Physical Education and Sports Sciences, Dhi Qar University, for the academic year, which numbered (49) students. To two control and experimental groups with (16) students per group, the control group used the teacher's curriculum, while the experimental group used an educational curriculum according to the TPS (Think - Pair - Share) strategy, and the TPS strategy (Think - Pair - Share) which the researchers adopted had The significant effect on improving the level of skill performance of the skill (defensive movement and defensive follow-up) in basketball among the experimental group members.

The effect of (S.W.O.M) strategy on kinetic flexibility and accuracy of the volleyball block skill for students

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Abstract The aims of this study is to identify the effect of the strategy of the stomach and the strategy followed by the subject teacher in developing the flexibility and skill of the volleyball block for students. The experimental method was also adopted in the manner of two equal groups to implement the vocabulary of the prepared strategy, and the research community was determined by the third stage students, (28) students, and the sample was divided equally into two groups. The conclusions are (S.W.O.M) strategy prepared by aid greatly in evolving the flexibility of the sample, and the time period during which the strategy was applied aid in evolving the precision of the volleyball block. As for recommendations, they are the necessity of employ the (S.W.O.M) strategy in evolving kinetic abilities, conducting similar studies on different age groups and activities.

The effect of (Tabata) style exercises for the performance stages in power characteristic of speed and the achievement of 200 meters for runners under 20 years

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Abstract. The purpose of this paper is to preparing Tabata-style exercises for the performance stages of 200 m, in addition to identifying the affect of Tabata-style exercises for performance stages in the power characteristic of speed and the achievement of 200 m for runners under 20 years. The researchers used the experimental method in a one-group style to solve the research problem, and for the research community, the research community was identify by the runners o f the 200-meter race in the Najaf Governorate for the 2020-2021 sports season, numbering (6) players, and then processing the data using appropriate statistical methods. The greatest important conclusions were the exercises that were useful in the Tabata style helped to develop the Featured Speed Power of the two legs for the research sample. The duration of the independent variable was appropriate to create adjustments that express the extent of the development of the research sample individuals to achieve 200 m.. As for the greatest important recommendations, they are attention to the use of exercises in the manner of (Tabata) as said by scientific training bases to raise the efficiency of short sprint runners during training and competitions, adopting exercises prepared by researchers as basic data when training 200m runners.The necessity of rationing the training load for exercises in a manner (Tabata) to suit the type of practitioners in terms of gender, biological and training age, because they have a high impact on the body during performance.

Keywords.

The effect of functional exercises on the explosive ability and accuracy of shooting from outside the arc three-point basketball for advanced players

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Abstract. The objective of this paper is to initial-testparing practical exercises in basketball, knowing the affect of practical exercises on the sensitive ability and initial-testcision of shooting from outside the three-point arc of basketball for advanced tester.The researchers applied the experimental system in determining the research problem, and for the research community, the research community was identified with Al-Tadamun Sports Club first basketball players for the 2020-2021 sports season, numbering (14) players, and they were divided into two groups similarly by random method (lottery). Then the experimental group was subjected to training that included the use of functional exercises, while the control group remained using the normal training method of the trainer, and after 8 weeks, final-tests were conducted, after which the data was processed using the suitable statistical means. The conclusion is that the duration of the sovereign variable, denoted by the number of units, was appropriate in creating adaptations that exinitial-testss the extent of the development of the experimental research group for sensitive ability. Basketball for advanced players, the evolution of explosive ability was positively reflected on the development of shooting accuracy from outside the three-point arc of basketball for advanced players. The most important recommendations included that the researchers recommend the espousal of functional exercises as basilar data when training basketball tester, the need to legalize the training load for functional exercises to suit the quality of practitioners in terms of gender, biological and training age because they have a high impact on the body during a performance.

The influence of dynamic work trainings according to the auxotonic contraction on values of some biomechanical variables of the high spike in volleyball for youth

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Abstract. The aims of the study was to identify the effect of dynamic trainings on values of some biomechanical variables for the high spike in volleyball for youth, and also to identify differences in values of some biomechanical variables of the high spike of the research group in the pre and the post tests. The study was conducted in the gymnasium of the Faculty of Physical Education and Sports Sciences, Thi Qar University on 6 players representing Al-Furat Sports Club class A, the duration of the practice of playing for 7-9 years. Tasks in the study required analysis of scientific and methodological sources, the use of observational and experimental methods, methods of mathematical statistics and pre – post tests. The laboratory experiment was carried out using measurement methods and equipments: a power measuring platform, two cameras integrated into a measuring system, a Kinovea, LockerPro and SPSS kinetic analysis programs connected to a computer. The experiment was photographed with two side cameras in zone 4, and the power platform was also placed in the same place. Much attention was devoted to the question of development of the ability of working muscles to apply a high level of force with such speed that helps to increase the speed of the body during run-up, because increase the speed of run-up depends on the anatomical biomechanical characteristics of the body. The obvious development in the level of technique of the high spike is revealed due to the development of dynamic work and some biomechanical variables, as well as run-up and take off speed is improved, as a result of the

development of mechanical regimes caused by use of dynamic trainings. In addition, the trainings of dynamic work and according to auxotonic contraction helped the development of take off angle in connection with the development of the moment of muscle force in accordance with absolute angles of technique.

Key words; spike, dynamic work, auxtonic contraction, extension, variables, eccentric force.

Designing an innovative method to determine the degree and level of sprained wrist ligament injury in athletes with wrist injuries

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Abstract. Diagnosing sports injuries and knowing their percentage and locations using modern medical devices (such as a measuring device for the wrist joint injury level) is very important as we can reach the direct ability to develop appropriate solutions to rehabilitate those injuries and because researchers are interested in the field of sports injuries noticed the large number of ligaments of the wrist joint Especially among athletes and for various games for young people in particular at very early times that players can be exposed to in sudden times during and after playing. As for the research objectives, it is to design a special means to measure the degree and level of sprained ligaments of the wrist joint of the injured athletes. Determining the degree and level of pain for athletes with sprained wrist ligaments in athletes.

KEYWORDS: sprained wrist; ligament injury; athletes; wrist injuries.

Morale and its relationship to the kinetic social cohesion of young football players

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Abstract. Football is one of the sports that has a distinct competitive nature, which we may not find in other games, and there is no doubt that the psychological conditions in the game of football are among the cases that deserve attention and study. The research problem crystallized through the researcher's field experience as a coach for age groups. Studying some psychological variables that will have a big and important role in developing the skillful performance of the players and achieving high results, which led the researcher to direct him to pay attention to them in the training process, believing that they will bring positive results through studying the morale and social cohesion of the sports team.The research aims to: - Identifying the morale and kinetic social cohesion of young football players - and identifying the relationship between morale and kinetic social cohesion in football. The researchers used: for young football players - the descriptive approach with survey methods and correlational relationships, in order to suit it with the requirements of the research. The research community included (25) players. The research sample amounted to (18) players were chosen randomly - the most important conclusions - the research sample possesses high morale There is a positive moral relationship between the morale and the psychomotor cohesion of the research sample. As for the recommendations, the coach pays attention to the psychological preparation of the player in order to control the methods and strategies of the morale

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and social cohesion of his and make it at a good level that achieves the high levels of the players - Take advantage of previous posts For the player to improve and raise his morale and not be affected by failures that affect the cohesion of the player.

Keywords: morale, social cohesion, movement, football

The effect of varying resistance exercises on the characteristics of the force-time curve of the skill of smashing serve in volleyball

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Abstract. The game of volleyball contains many basic skills, both defensive and offensive, that lead the team to victory if the team performs it well and quickly. The transmission is one of the decisive offensive skills, as through it a direct point can be obtained, and as a result of the development in the skill performance in this game, experts and trainers have sought to find ways and training methods to develop this skill. Hence the importance of the research is that the various resistance exercises help the player to perform Movements under variable and different conditions, so that the player is able to face the various conditions and situations that he is exposed to during the game runs well, as well as developing the values of the force-time curve for the player, to reach the best biomechanical conditions and thus develop the ace, The problem of the research was that raising the level of skill performance of volleyball players, as well as taking into account the mechanical factors accompanying performance in the field of sports training, constitutes one of the scientific foundations that increase the development of achievement and performance for most volleyball skills, and through the researchers' observation of the kinetic analysis of the skill of smashing transmission for some teams And the specialized centers for youth that there is a weakness in the performance of the sent player during the skill stages, specifically the payment stage, and this is due to the lack of the correct position of the fulcrum, which causes a loss of balance and increases the

amount of effort expended during the approaching stage, and this may be the result of a weakness in the internal strength represented by strong The torque of the body parts involved in the performance of the two fulcrum moments ،And pushing causes mechanically undesirable flexion at the relative angles of the knee joint, so the researchers decided to study this problem through biomechanical analysis of the crushing transmission and to develop different resistance exercises that would raise the level of muscle strength and skill level towards the best, while the objectives of the research are to prepare resistance exercises The disparity for developing the force-time curve for developing the skill of smashing serve in volleyball, and identifying the statistical differences and the percentage of development between the pre and post tests for the control and experimental groups for the force-time curve of the skill of smashing serve in volleyball, and identifying the statistical differences between the control and experimental groups in the post test of the strength curve. - Time for the skill of the ace of volleyball,Where the research hypotheses are there is a percentage of development and statistical differences with significant significance between the two tests, the pre-test for the control and experimental groups in the power-time curve for the skill of the smashing serve in volleyball and in favor of the post-test, and there are statistically significant differences between the control and experimental groups in the post-test in the curve Strength - time for the skill of the volleyball ace and for the benefit of the experimental group. As for the research method, the researchers adopted the experimental method by designing the two equal groups (experimental and control). The research community included young players in the specialized center for volleyball in Shatrah district, whose ages ranged from 16-18 years for the season. (2020-2021) who represent the youth category and number (20) players, (6) players were selected for the exploratory sample, and (14) players were selected representing the research sample with a percentage of (70%) from the original community, and the sample was divided into the two groups, the control and experimental in a deliberate way (to ensure the distribution of players to the two groups according to lengths and playing centers) and each group It contains (7) players, and one of the most important conclusions is that the use of differential resistance exercises gave a clear picture of its preference over the traditional program through the results shown by the experimental group and its preference over the

control group. Effective in developing a power-time curve of the crushing serve.