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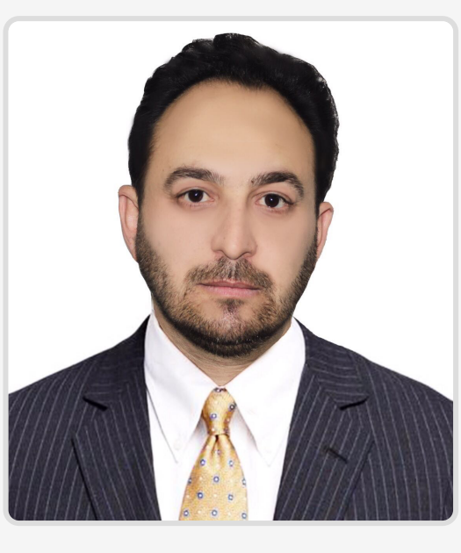

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Volume & Issue: Volume 17, Issue 2, December 2023, Page 1-371

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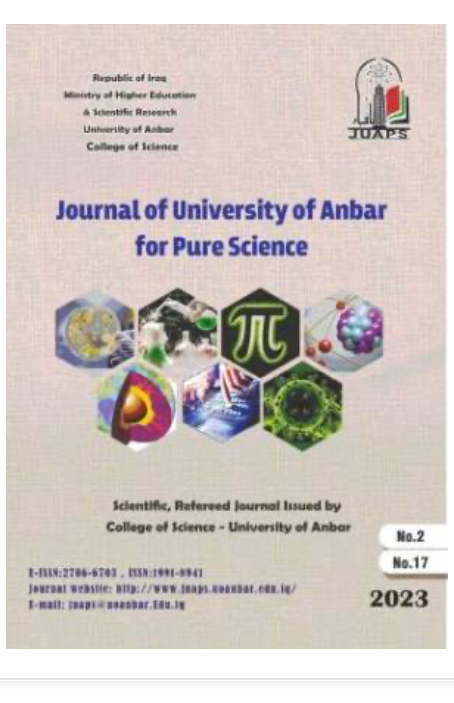

Revolutionizing Soft Electronics: Cutting-Edge Polyacrylamide Hydrogels for Flexible and Durable Sensing Innovations

Khalid Waleed Zainulabdeen; Emad Yousif; Omar Al-Obaidi; Muna Bufaroosha

Volume 17, Issue 2 , December 2023
https://doi.org/10.37652/juaps.2023.181591

Abstract The field of materials science has witnessed remarkable developments in recent years, particularly in the realm of flexible, durable materials. Among these advancements, polyacrylamide ... Read More ...

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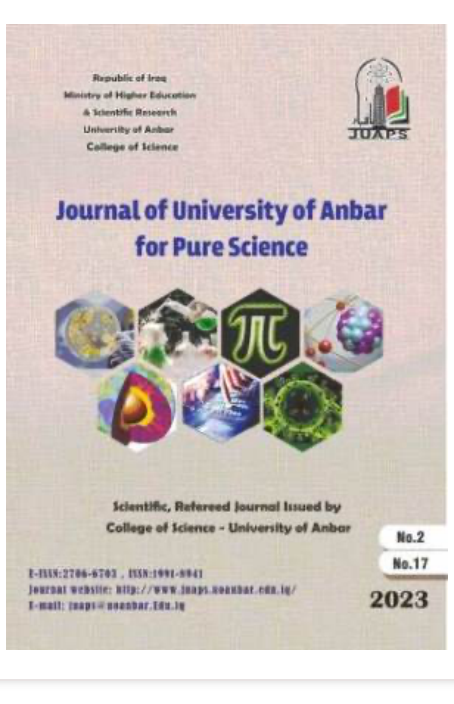

Viral encephalitis associated with COVID-and following COVID-19 vaccination a review of the literature and three cases

Nadia Jebril; ali Almusawi; Charles Braungardt

Volume 17, Issue 2 , December 2023, Page 1-4
https://doi.org/10.37652/juaps.2023.139243.1049

Abstract Severe acute respiratory syndrome-related coronavirus (SARS-CoV-2) infects the human upper respiratory, causing coronavirus disease 2019 (COVID-19) with symptoms of acute respiratory ... Read More ...

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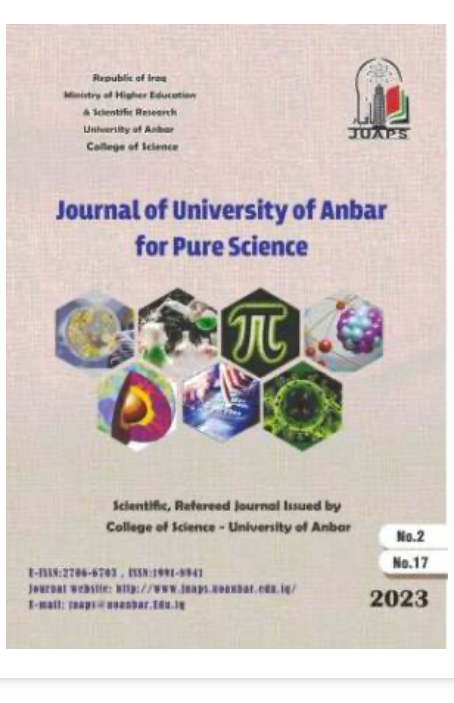

Molecular detection of aminoglycosides modifying enzymes and its relationship to drug resistance in Pseudomonas aeruginosa

Sara Hameed Al-janaby; Mayada Abdullah Shehan

Volume 17, Issue 2 , December 2023, Page 5-11
https://doi.org/10.37652/juaps.2023.141186.1088

Abstract Pseudomonas aeruginosa is an opportunistic pathogen that causes a variety of infections throughout the world, including bacteremia in immunocompromised patients, wound and soft tissue ... Read More ...

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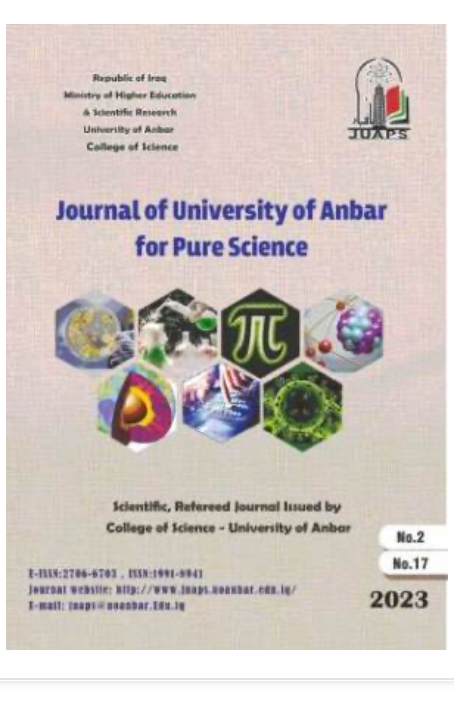

Evaluation of Garlic efficiency on precipitated lead chloride in hepatocytes of mice

Sumaiah Ibrahim Hussein; Khalid Hamdan Gathwan; Muna Sachit Hashim; Sara Majed Obaid

Volume 17, Issue 2 , December 2023, Page 12-18
https://doi.org/10.37652/juaps.2023.141429.1092

Abstract AbstractLike other soluble lead compounds, exposure to lead chloride may cause lead poisoning, In the current study, we seek to determine the effect of lead chloride on body and liver ... Read More ...

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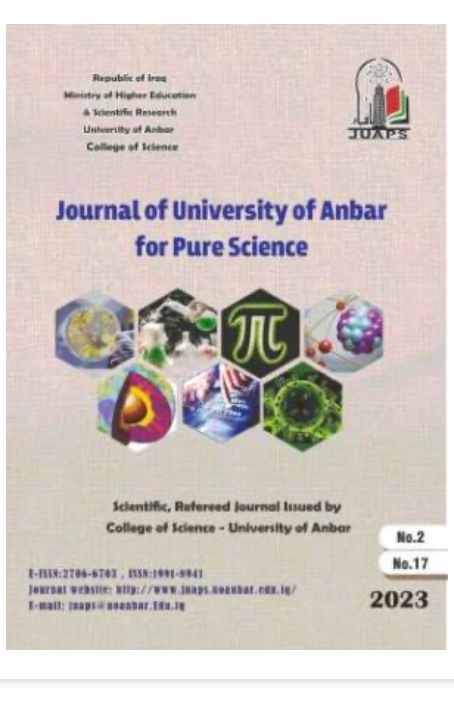

Evaluation of Lipid profiles in psoriasis patients

Rafiff Sami Mualla; Maryam Ibrahim Salman; Rawaa AlChalabi

Volume 17, Issue 2 , December 2023, Page 19-25
https://doi.org/10.37652/juaps.2023.141763.1098

Abstract Introduction and aim: Psoriasis is a skin condition that causes flaky patches of skin which form scales normally appear on elbows, knees, scalp and lower back, but can appear anywhere ... Read More ...

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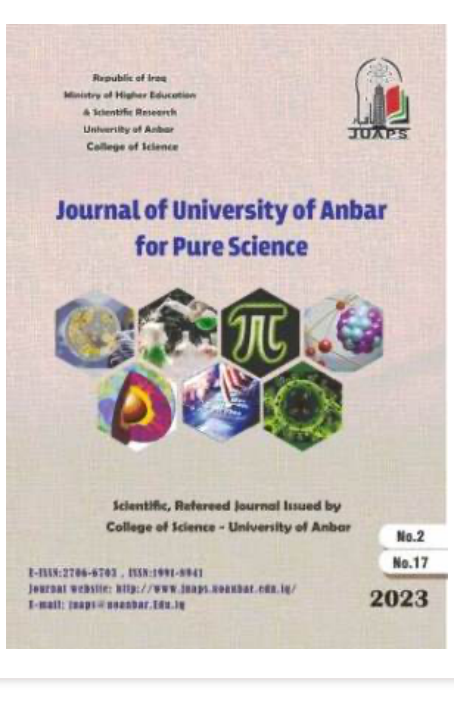

Molecular and phenotypic detection of siderophore production by hypervirulent Klebsiella pneumoniae

abdulbaset jassim; Gerben J. Zylstra; Thamer Y. Mutter

Volume 17, Issue 2 , December 2023, Page 26-35
https://doi.org/10.37652/juaps.2023.141818.1100

Abstract Klebsiella pneumoniae is a highly prevalent pathogen among nosocomial and community-acquired infections, including urinary tract infections (UTIs), pneumonia, surgical site infections, ... Read More ...

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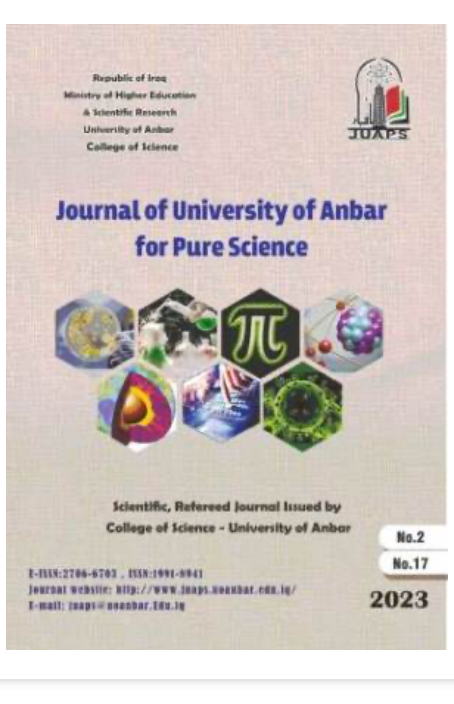

Evaluation of the Lipid Profile and its Correlation to Inflammatory Markers in a Sample of Rheumatoid Arthritis Patients in Iraq

Mohammed Hameed Sulaiman; Rashied Mohammed Rashied; Luay Asaad Mahmood

Volume 17, Issue 2 , December 2023, Page 36-41
https://doi.org/10.37652/juaps.2023.142676.1115

Abstract Rheumatoid arthritis (RA) is one of the most prevalent chronic, autoimmune diseases of the joints. Although the disease itself is rarely deadly, complications such as disorders of pulmonary ... Read More ...

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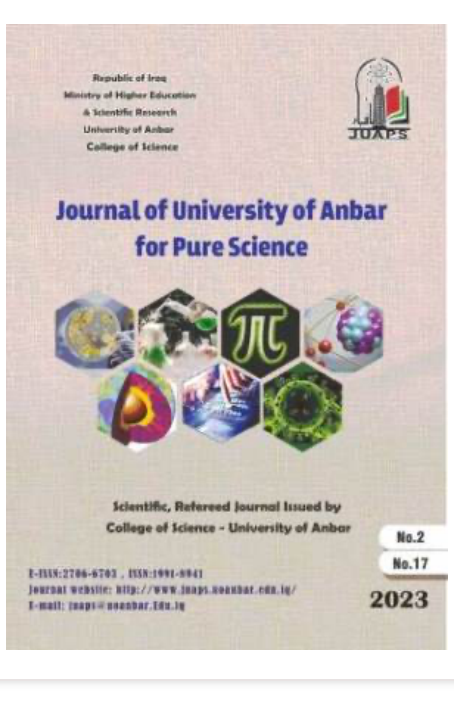

Effect of glucose on biofilm formation in Acinetobacter baumannii isolated from clinical sources

Ghassan L Alrawi; Jamal Abdul Rahman Al hdeethi

Volume 17, Issue 2 , December 2023, Page 42-47
https://doi.org/10.37652/juaps.2023.142795.1117

Abstract Acinetobacter baumannii is a biofilm-forming bacterium . In this study, 21 isolates of A. baumannii out of 120 different clinical sample were diagnosed with the Vitek 2 device, which ... Read More ...

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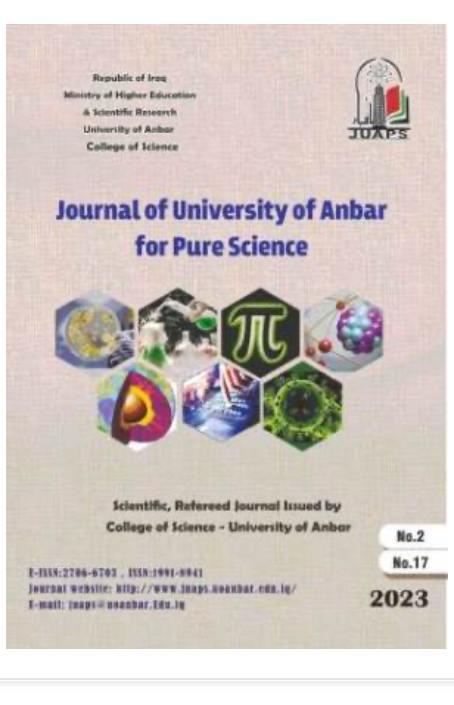

Using Multiplex Polymerase Chain Reaction (m-PCR) Methods to detect six Pathogenic Bacteria in Human Oral Cavity

Waleed Khalid Mohammed

Volume 17, Issue 2 , December 2023, Page 48-56
https://doi.org/10.37652/juaps.2023.140052.1060

Abstract According to estimates, the human oral cavity can harbour 700–1000 different species of bacteria, which are associated with periodontal and dental problems such as dental caries. ... Read More ...

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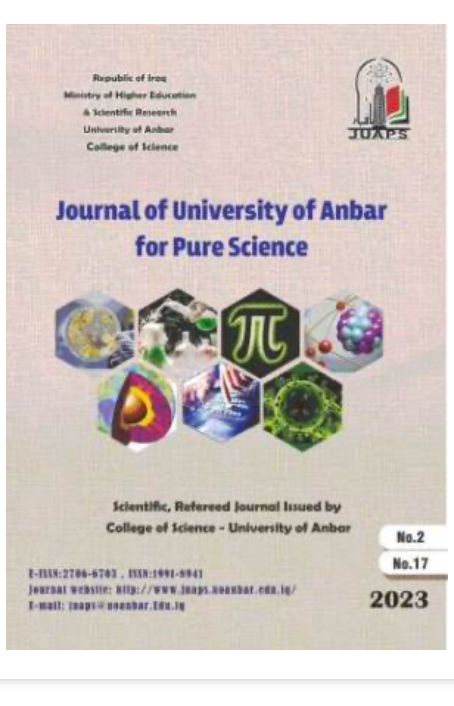

An investigation of the effects of untreated waste water containing elements on the soil of the Khabat region in Erbil, Iraq.

Nazar Mohammed Samen

Volume 17, Issue 2 , December 2023, Page 58-63
https://doi.org/10.37652/juaps.2023.143496.1138

Abstract Wastewater contains a high amount of toxic metal substances (cadmium, chromium, lead, copper and cobalt) which have a negative effect on the soil and plants.This study was conducted ... Read More ...

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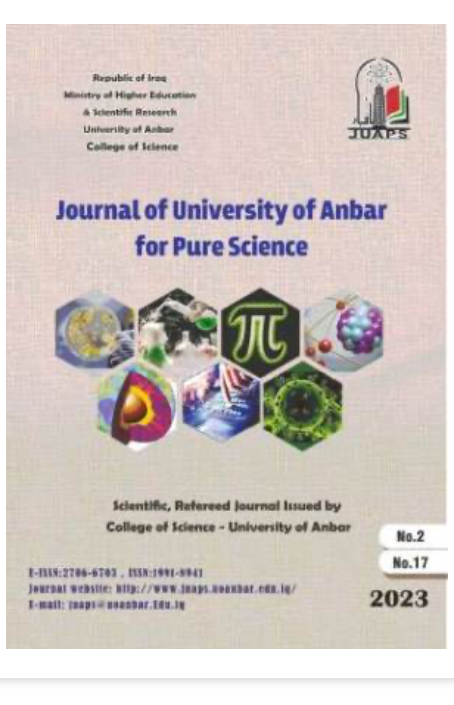

Molecular genetics of electricity production in bacteria: A review

Rayan Mazin Faisal; Ahmed Yaseen Al-shiti; Mohammed Abdul Razaq Ibraheem

Volume 17, Issue 2 , December 2023, Page 64-72
https://doi.org/10.37652/juaps.2023.144321.1158

Abstract As the number of population around the world increases, the search for new energy sources has become a necessity. Much research has been conducted on renewable energy sources that may ... Read More ...

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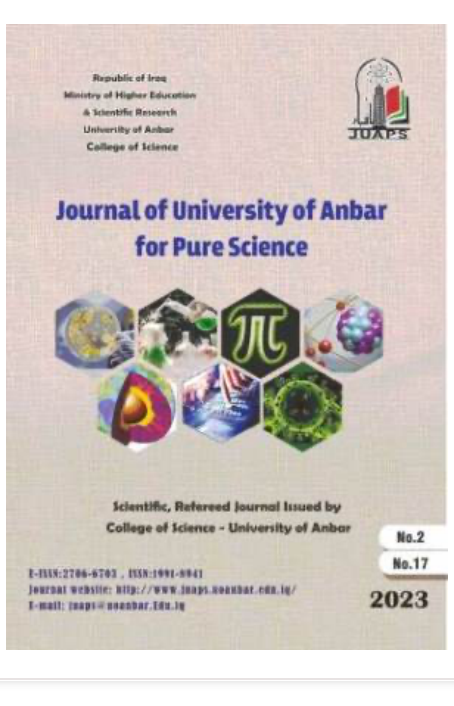

Advances in the Applications of Organic Materials for Fingerprint Detection

Mohammed Hussein Al-Mashhadani; Suror Mahdi; Ahmed Ahmed; Emad Yousif; Abdualbasit Graisa

Volume 17, Issue 2 , December 2023, Page 73-80
https://doi.org/10.37652/juaps.2023.140129.1065

Abstract One of the most significant ... Read More ...

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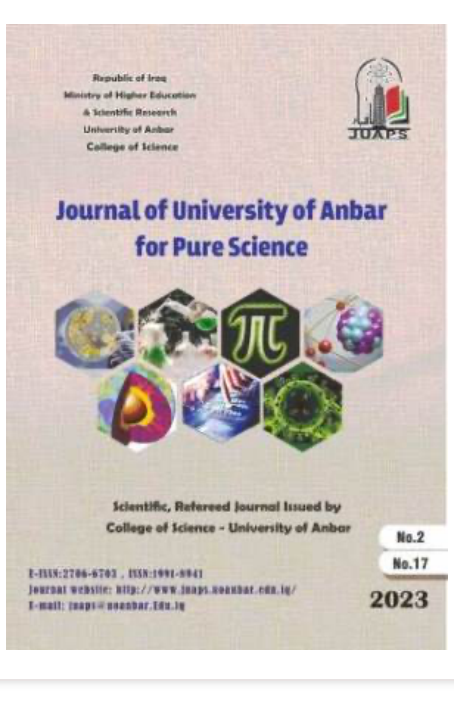

Synthesis of Vanadium Pentoxide using Hydrothermal Autoclave Approach

Amal Shakir Abbood; Ibraheem Jaleel Ibraheem

Volume 17, Issue 2 , December 2023, Page 81-85
https://doi.org/10.37652/juaps.2023.140257.1070

Abstract The transition metal vanadium can easily move between the oxidation states +V, +IV, and +III and expand its sphere beyond tetrahedral coordination. It oxidizes into a brownish black ... Read More ...

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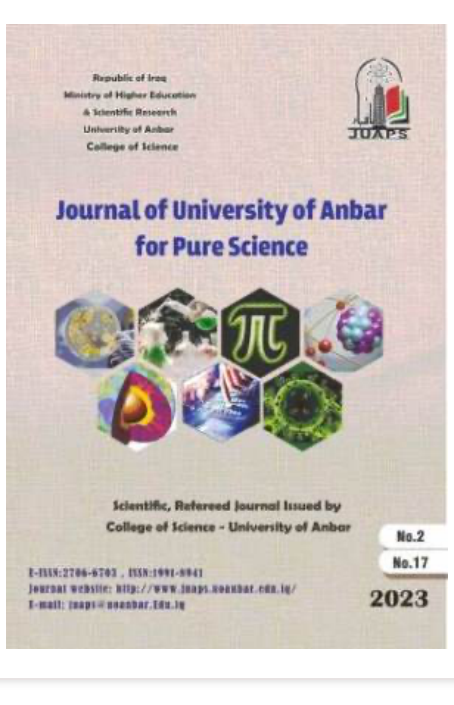

Fire Chemistry and Forensic Analysis of Fire Debris

Mohammed Kadhom; Alaa Mohammed; Peter Oladoye; Emad Yousif

Volume 17, Issue 2 , December 2023, Page 86-90
https://doi.org/10.37652/juaps.2023.140544.1072

Abstract As the combustibles are almost in contact with the oxidizers and mostly all conditions are available to start a fire, this review covers the fire scene which could be intentionally ... Read More ...

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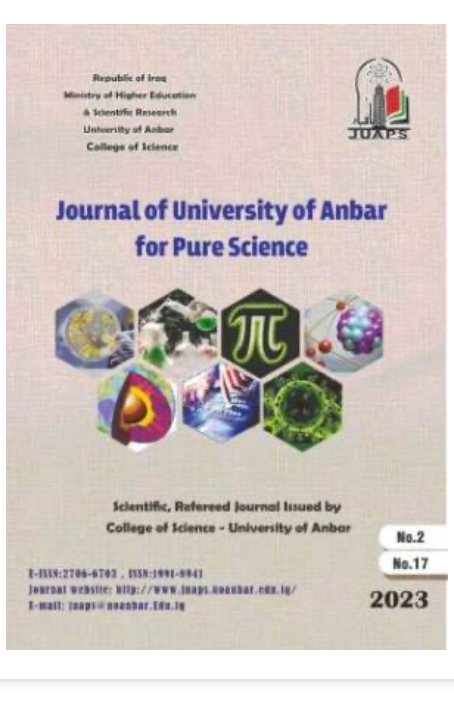

Electrical conductivity of the composite thin films of polyvinylpyrrolidone impregnated with nickel oxide nanoparticles

zainab Dakheel Al dakheely; Ahamed A. Ahamed; Ousama abdul Azeez Dakhil; Omer El-Amin Ahmed Adam

Volume 17, Issue 2 , December 2023, Page 91-99
https://doi.org/10.37652/juaps.2023.140603.1076

Abstract The aim of this work is to study the effect of the addition of nickel oxide nanoparticles in different concentrations to the polymer matrix of polyvinylpyrrolidone on the electrical ... Read More ...

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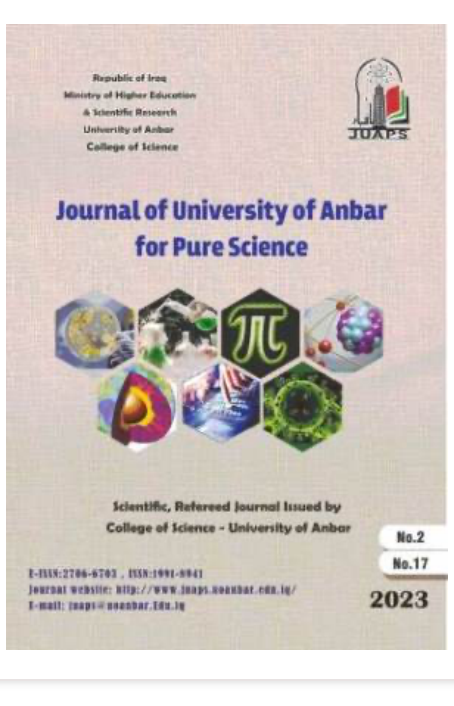

Studying Neudesin marker in Iraqi Thyroid Dysfunction Patients

Dhuha I. F Aljumaili; Shakir F. T. Alaaraji

Volume 17, Issue 2 , December 2023, Page 100-106
https://doi.org/10.37652/juaps.2023.181554

Abstract Thyroid dysfunctions (TDs) are the most common endocrine diseases, especially in women. Phrase "thyroid dysfunction" refers to a variety of diseases affecting the thyroid gland and ... Read More ...

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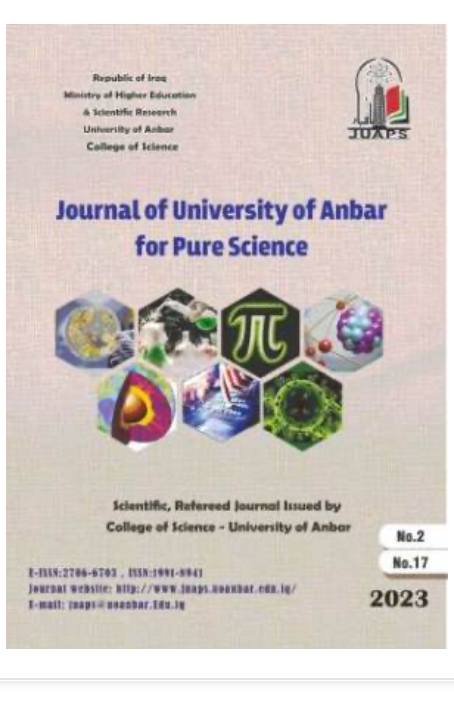

An Association of Galanin with some biochemical parameters in Iraqi Type II Diabetic Patients

rossol saadoon abood; Shakir F. T. Alaaraji

Volume 17, Issue 2 , December 2023, Page 107-114
https://doi.org/10.37652/juaps.2023.141231.1087

Abstract Body's ability to produce insulin is affected by a group of chronic metabolic diseases known as diabetes. present study tried to explore whether there was any association of galanin ... Read More ...

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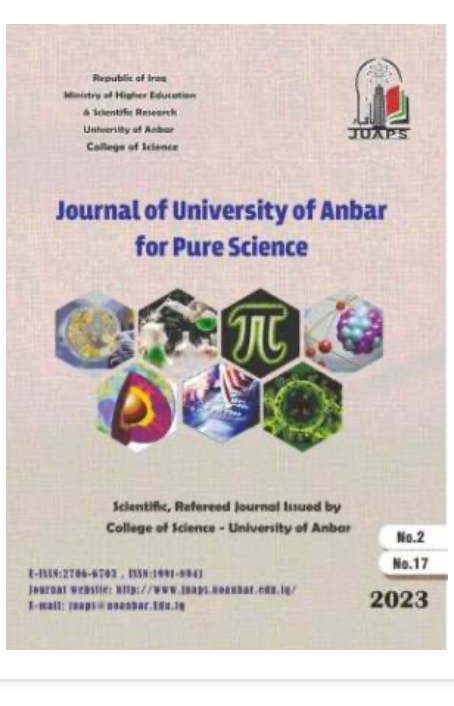

Induction of Photodegradation of Poly(vinyl alcohol) Using a Cobalt Binary Mixed Ligand Complex

yasmeen mouthna al-mhmdy; Hameed Khalid Ali; Omar Hamad Shihab

Volume 17, Issue 2 , December 2023, Page 115-125
https://doi.org/10.37652/juaps.2023.141493.1097

Abstract The present study included optical degradation of pure polyvinyl films and also when mixing the complex [Aqua diphylcarbazide thiourea Cobalt (||)]chloride by weight (0.1% - 0.00625 ... Read More ...

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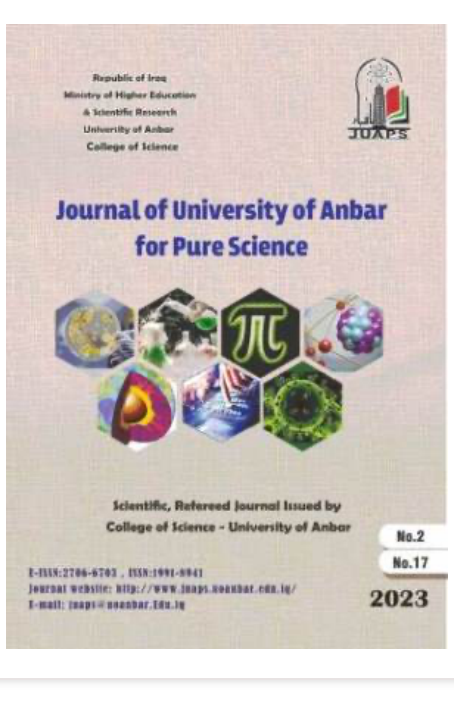

Preparation and Characterization of Fluorone Ligand Complexes for Co+2, Mn+2, and Fe+2 Metallic Ions

ahmed Nayef Salem; Hameed Khalid Ali; Omar Hamad Shehab Al-Obaidi

Volume 17, Issue 2 , December 2023, Page 126-133
https://doi.org/10.37652/juaps.2023.141636.1095

Abstract In this study, new complexes are produced by bonding of transition metal dinuclear chlorides (CoCl2.6H2O, MnCl2.4H2O, and FeCl2.6H2O) with a polychelated ligand called 9-Phenyl-2,3,7-trihydroxy-6-fluorone, ... Read More ...

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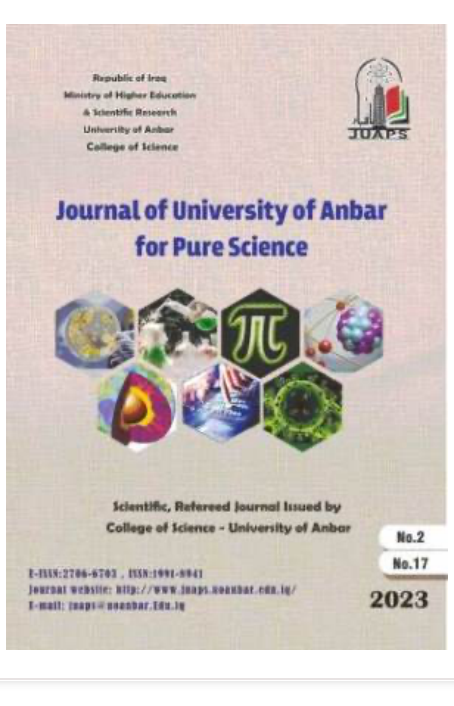

Studying the effect of adding Magnesium oxide-nano to poly hydroxamic acid on the adsorption Isotherms of V+5 and Fe+3

Soraa Ahmed Mukhlif; Saddaa Abed Abdullah Jamal

Volume 17, Issue 2 , December 2023, Page 134-143
https://doi.org/10.37652/juaps.2023.141920.1101

Abstract This study involves preparations of polymers poly (styrene -co-acrylic) and poly (styrene -co-methyl methacrylate) via free radical polymerization at temperatures between (70 and 80 ... Read More ...

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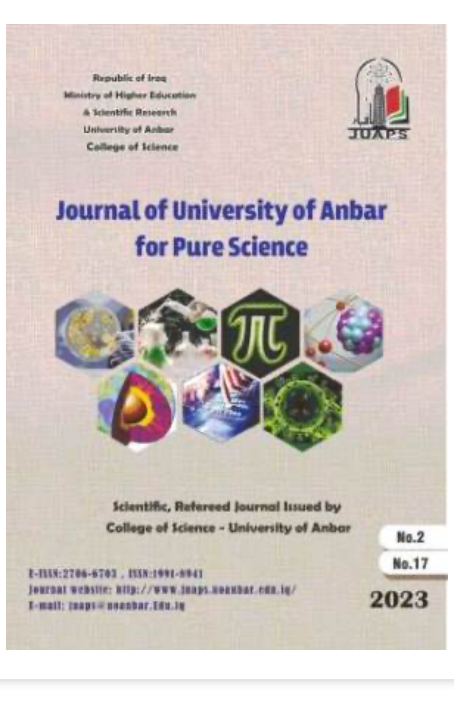

Synthesis, Spectroscopic Identification for Mixed-Ligand Complexes and Evaluating Their Biological Effectiveness

marwa mahdi aldulaimi; Omar Hamad Shihab

Volume 17, Issue 2 , December 2023, Page 144-153
https://doi.org/10.37652/juaps.2023.142224.1107

Abstract in this paper show Mix ligand composed of (HL1) Dimidone and (HL2) 1,2-dibenzothiophene were allowed to react with next metal ions: Cobalt (III), Manganese (II), iron (III), Cobalt ... Read More ...

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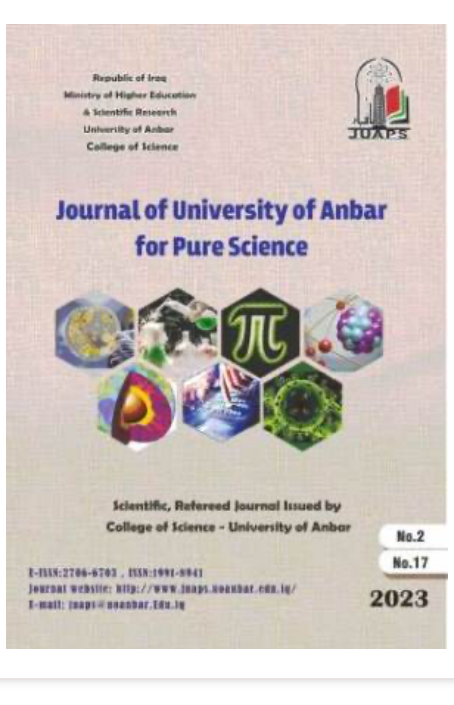

New Metal Complexes Derived from Azo Linked Schiff-Base ligand: Synthesis, Spectral Investigation and Biological Evaluation

Mariam Bassem Hamza; Enaam Ismail Yousif

Volume 17, Issue 2 , December 2023, Page 154-164
https://doi.org/10.37652/juaps.2023.142314.1108

Abstract : A new azo-Schiff base ligand derived from an p-anisidine moiety and its monomeric metal complexes were prepared and characterised. The titled ligand, (1-((E)-((4-methoxy phenyl) imino) ... Read More ...

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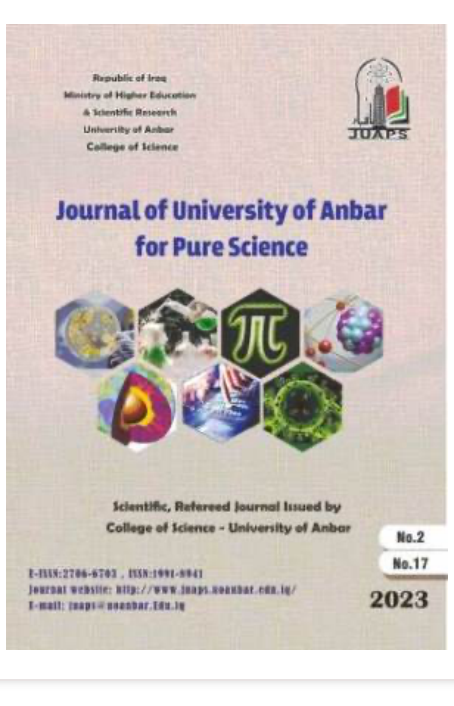

Estimation of Prolactin Level in Iraqi Diabetic Women of Menopause

Ahmed Salih Lateef; Ahmed Salih Lateef; Mithal Read Alkubaisi; Abrar Dawood Salman; Noor Thair Tahir; ALAbdaly Asaad Mahmood

Volume 17, Issue 2 , December 2023, Page 165-171
https://doi.org/10.37652/juaps.2023.142550.1113

Abstract Background: Menopause is the stage of a woman's life when her menstrual cycles cease for good. In the early stages of menopause, cardiovascular risk significantly rises, primarily as ... Read More ...

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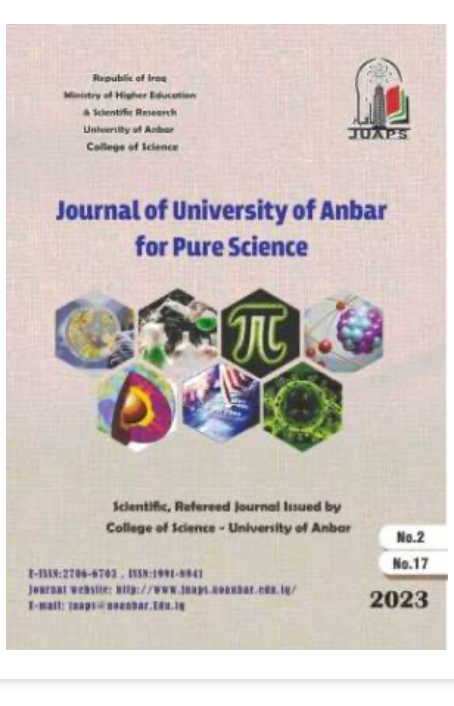


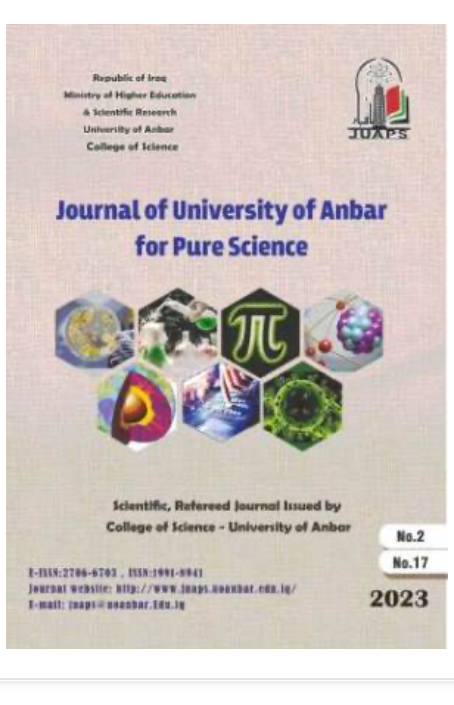
Modification of polyvinyl chloride by organic molecule for the improvement of its thermal stability

Emad Yousif; Zahraa N. Adnan; Ahmed A. Ahmed; Dina Ahmed; Alaa A Rashad; Amamer M. Redwan; Waled Abdo Ahmed

Volume 17, Issue 2 , December 2023, Page 172-179
https://doi.org/10.37652/juaps.2023.181477

Abstract Improving the stability of PVC became a task for many research groups to improve its properties and lower plastic pollution. An invented Schiff base was applied as a heat-resistant ... Read More ...

Show Article PDF 654.99 K



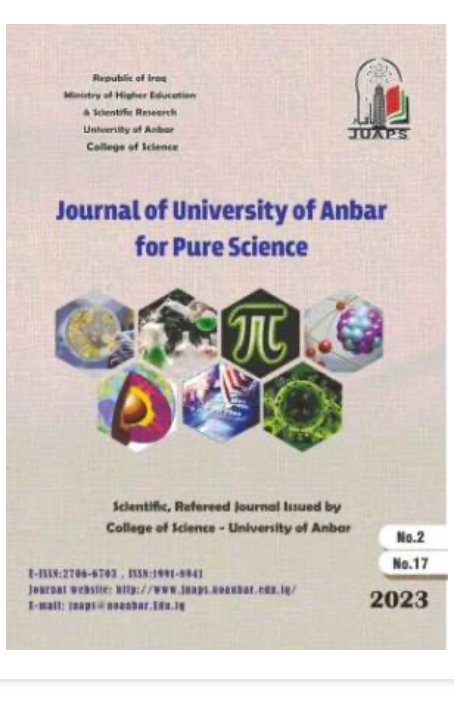
Transparency and Ethics in Chemical Laboratories

Emad Yousif

Volume 17, Issue 2 , December 2023, Page 180-183
https://doi.org/10.37652/juaps.2023.142902.1118

Abstract Chemical precisionists must continuously develop and enhance their cognition and general awareness through research, innovation, teamwork, collaboration, and community outreach. Through ... Read More ...

Show Article PDF 321.78 K



Characterization of Alumina Nanoparticles Prepared Via Green Synthesis Method

Sahar Naji Rashid; Shahbaa F. Bdewi; Eiman T. Alshammary; Ruaa T. Hammad

Volume 17, Issue 2 , December 2023, Page 184-189
https://doi.org/10.37652/juaps.2023.143632.1143

Abstract The green synthesis method of nanoparticles attracts the attention of researchers in various scientific specializations as it is easy, environmentally friendly, and low-cost. It is ... Read More ...

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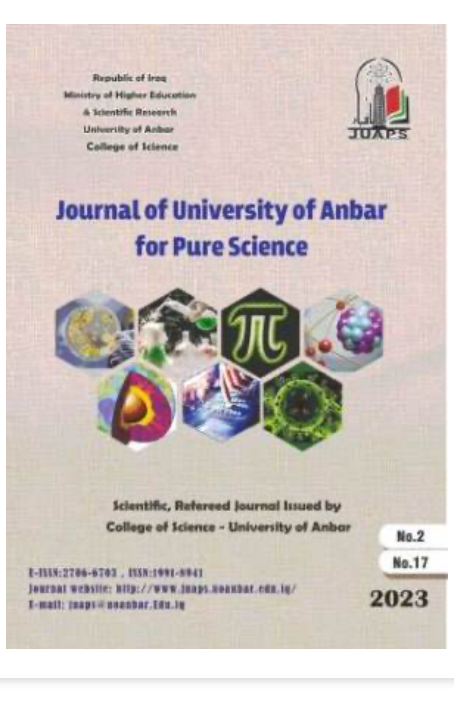

Investment Jute Fiber as Environmental Waste to Reinforcement Polyester Resin, Epoxy Resin and its Mixtures Used in home applications

Rasha Alani; Aya Aljumaili; Taha alqaisi; Saad Alani

Volume 17, Issue 2 , December 2023, Page 190-195
https://doi.org/10.37652/juaps.2023.141991.1104

Abstract In this paper , hand lay - up method was employed to prepare three models of polymeric materials and their compositions before and after reinforcement with different Volume fractions ... Read More ...

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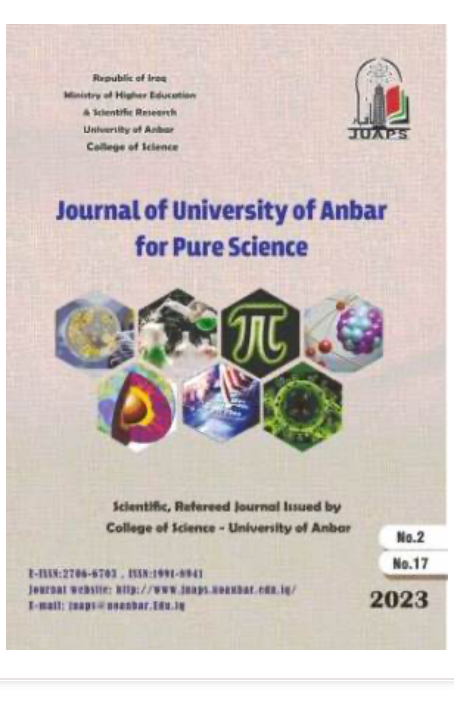

Preparation and Study the Structural and Optical characteristics of Zinc Oxide (ZnO) Thin Films.

Omar Raad Attallah; Jamal Fdel Abid

Volume 17, Issue 2 , December 2023, Page 196-202
https://doi.org/10.37652/juaps.2023.142067.1105

Abstract In this study, thin films of Zinc Oxide (ZnO) were prepared on glass substrates at a temperature of 350oC using theThermo Chemical Spray Pyrolysis (CSPT) technique. Zinc chloride salts ... Read More ...

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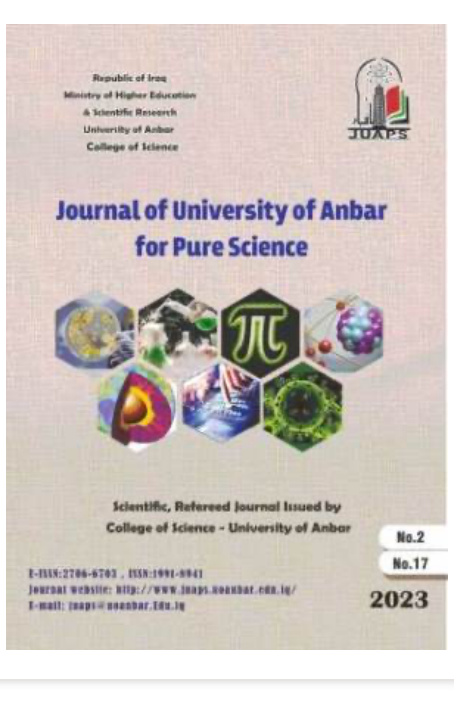

The Effect of Grain Size of Reinforcing Material (Corn Cob) on Some Mechanical Properties of the Composite Material.

Omar T. Mohammed; Waleed B. Salih

Volume 17, Issue 2 , December 2023, Page 203-209
https://doi.org/10.37652/juaps.2023.181565

Abstract Corn cob (CC) is an agricultural waste that can be recycled and used to reinforce unsaturated polyester resin, which can be utilized to produce low-cost structural sections, as well ... Read More ...

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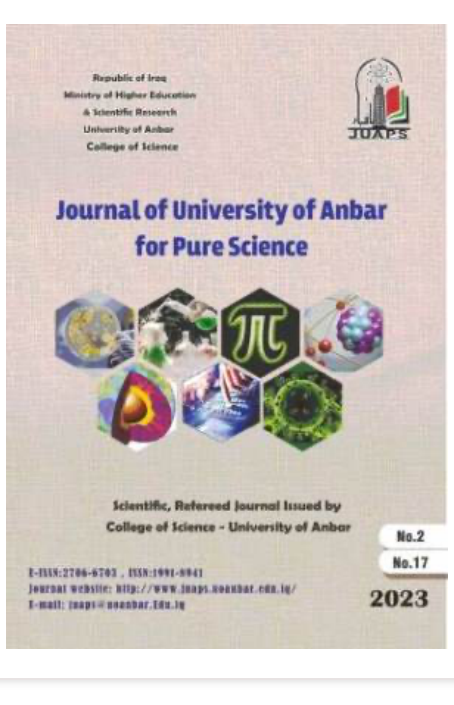

Antibacterial activity of NiTi alloy with sputtered tantalum

Seenaa Eesa Alsaaidi; Bilal K. Al-rawi; Mohammed K. Khalaf

Volume 17, Issue 2 , December 2023, Page 210-224
https://doi.org/10.37652/juaps.2023.142363.1109

Abstract A study was conducted on the use of the Mactrontronic Sputtering (DC) plasma technique by sprinkling tantalum metal (Ta) and depositing it on shape-memory nickel-titanium (NiTi) alloy ... Read More ...

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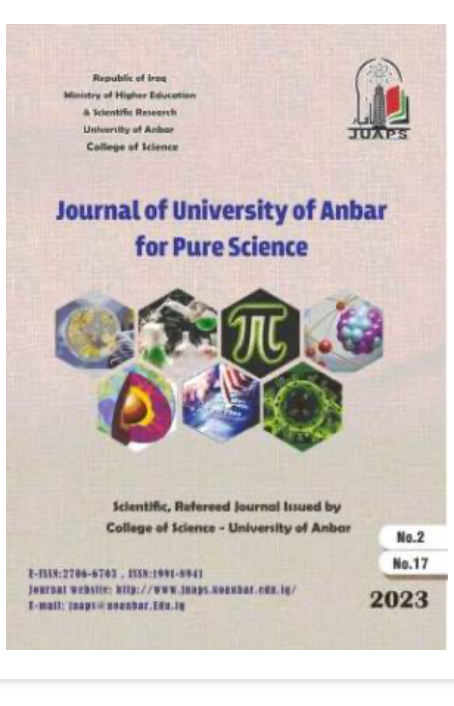

Structure and Optical properties of Lead Sulfide (PbS) Thin Film Prepared by Chemical Bath Deposition(CBD) Technique: A Review

Ghazwan Ghazi Ali; Tahseen Ali Aswad

Volume 17, Issue 2 , December 2023, Page 225-233
https://doi.org/10.37652/juaps.2023.181569

Abstract In this review, the chemical bath deposition method has been studied to investigate lead sulfide thin film. The important results obtained ... Read More ...

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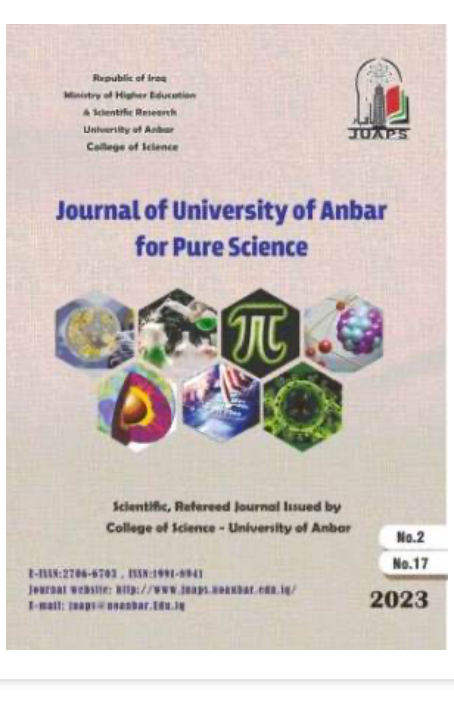

Hyperchaotic technology-based efficient image encryption algorithm an overview.

Kawthar M. Khalaf; Ali M. Sagheer

Volume 17, Issue 2 , December 2023, Page 234-244
https://doi.org/10.37652/juaps.2023.181570

Abstract Multimedia data encryption is so crucial because the multimedia encryption algorithm needs more time and memory, and it is difficult to implement. Because of this, the hyperchaotic ... Read More ...

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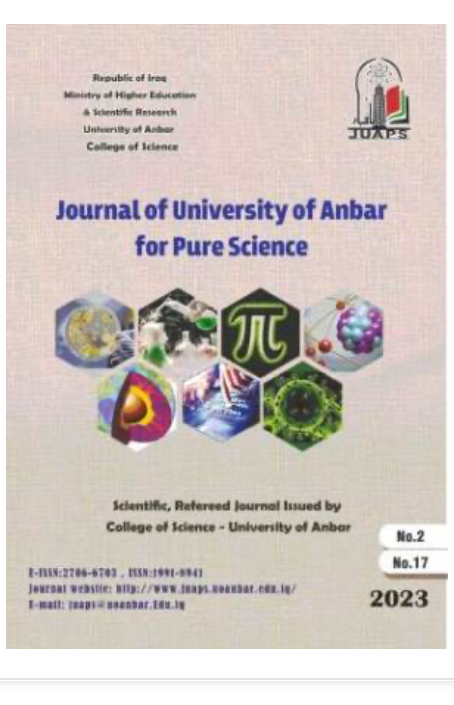

On Restricted Shrinkage Jackknife Biased Estimator for Restricted Linear Regression Model

Ahmed A. Mohammed; Feras Shaker Algareri

Volume 17, Issue 2 , December 2023, Page 245-253
https://doi.org/10.37652/juaps.2023.181574

Abstract In restricted linear regression model, more methods proposed to address the Multicollinearity problem and the high variance. For example, shrinkage biased estimation and optimization ... Read More ...

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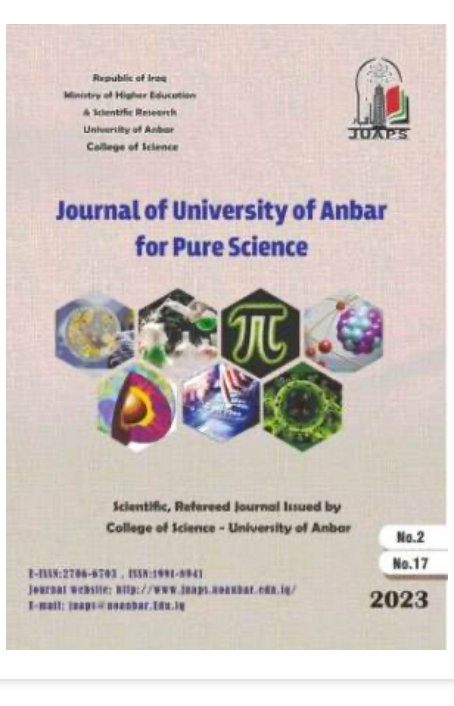

An Initial-Boundary Value Problem With New Technique of Piecewise Uniform Mesh

Rafiq Salih Muhammad

Volume 17, Issue 2 , December 2023, Page 254-264
https://doi.org/10.37652/juaps.2023.139969.1059

Abstract The objective of my research is to establish facts and determine their significance. A new ε-convergent piecewise uniform mesh has been produced, by deriving a hybrid technique ... Read More ...

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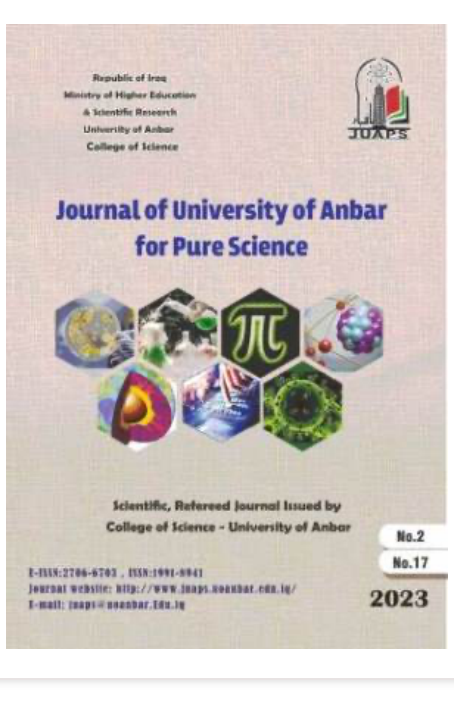

Solving system of Euler's equations using Runge –Kutta methods

Aseel Ali Al_Ameely; Athraa N . Albukhuttar

Volume 17, Issue 2 , December 2023, Page 265-268
https://doi.org/10.37652/juaps.2023.181576

Abstract In this paper, linear systems with variable coefficients (Euler's equations) were solved using one of the numerical methods that are subject to initial conditions defined over a given ... Read More ...

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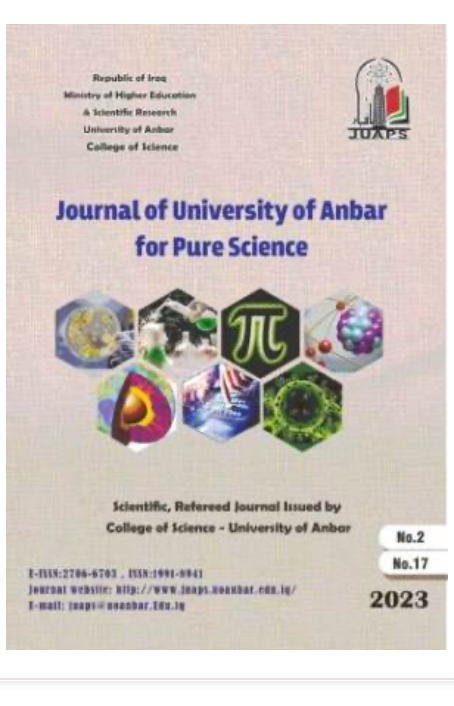

Modified Unbiased Optimal Estimator For Linear Regression Model

Hussein Ail AL-jumaili; Mustafa Ismail Alheety

Volume 17, Issue 2 , December 2023, Page 269-272
https://doi.org/10.37652/juaps.2023.140832.1078

Abstract Abstract In this paper, we propose a novel form of Generalized Unbiased Optimal Estimator where the explanatory variables are multicollinear. The proposed estimator's bias, variance, ... Read More ...

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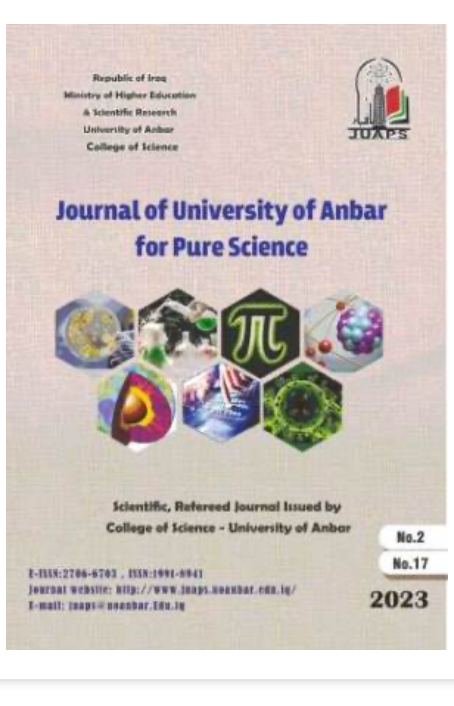

A Review on the Integral Transforms

Jinan A. Jasim; Emad Abbas kuffi; Sadiq A. Mehdi

Volume 17, Issue 2 , December 2023, Page 273-310
https://doi.org/10.37652/juaps.2023.141302.1090

Abstract Many integral transformations have been proposed, tasted and proven to solve many applications in various scientific fields. The diversity of integral transformations comes from their ... Read More ...

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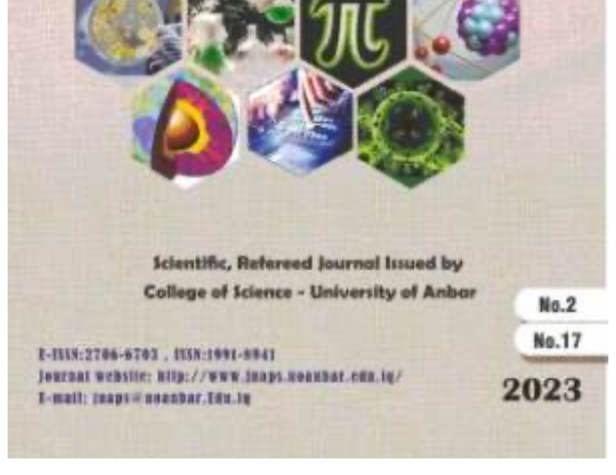
Characteristic 0 Resolution of the Weyl Module in the Event of Partitioning (4, 4, 3)

Haytham Razooki Hassan; Hayder Muhi Hashim

Volume 17, Issue 2 , December 2023, Page 311-316
https://doi.org/10.37652/juaps.2023.141652.1094

Abstract Let R be a commutative ring with 1, ƒ be a free R-module and Ḍ_ị be "the divided power algebra" of degree ị. Ṃ is a left-graded module with for Ꞷ = Ƶ_21^κ∈ Å and V ... Read More ...



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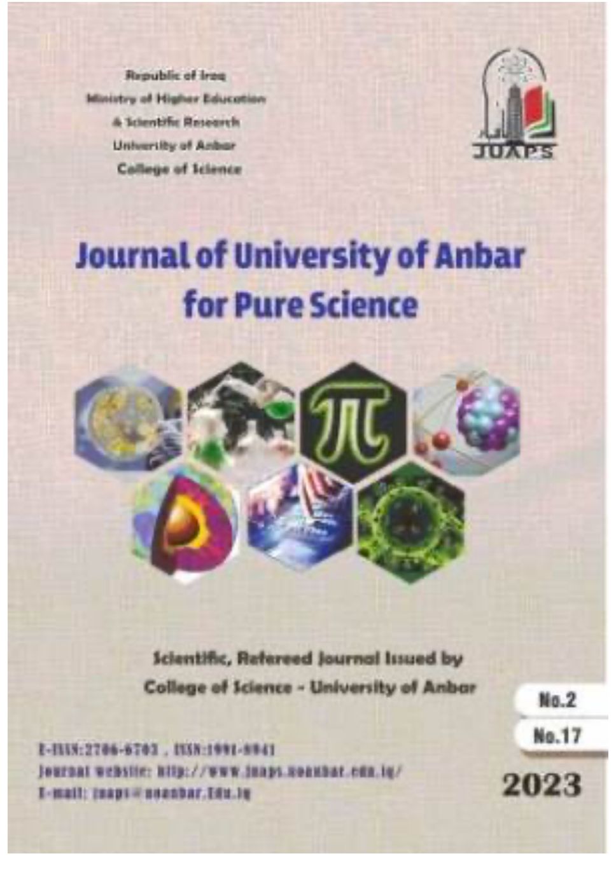

On Free Resolution of Weyl Module and Zero Characteristic Resolution In The Case of Partition (7,5,3)

Haytham Razooki Hassan; Ghsoon Rabeea Raheem

Volume 17, Issue 2 , December 2023, Page 317-325
https://doi.org/10.37652/juaps.2023.141655.1096

Abstract The characteristic-free resolution of K_((7,5,3)) is applied to the Lascoux resolution of K_((7,5,3)) F (characteristic zero resolution) in this paper. This research teaches us about ... Read More ...

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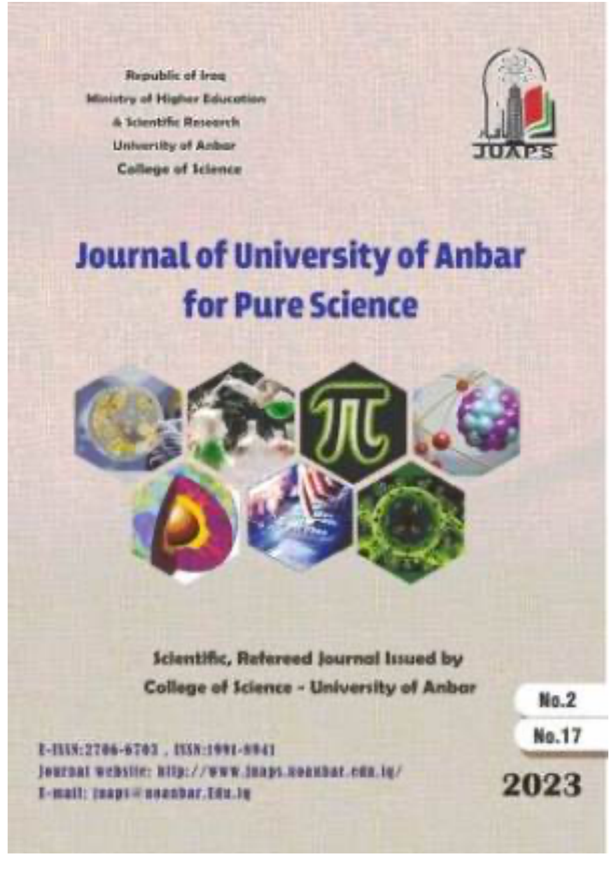

Bipolar Valued Fuzzy SA-subalgebras and Fuzzy SA-ideals of SA- algebra.

Alaa Salih Abed; areej tawfeeq hameed

Volume 17, Issue 2 , December 2023, Page 326-337
https://doi.org/10.37652/juaps.2023.181582

Abstract In this paper, the notions of bipolar valued fuzzy SA-subalgebras and bipolar valued fuzzy SA-ideals on SA-algebras with their properties are familiarized. Several theorems are stated ... Read More ...

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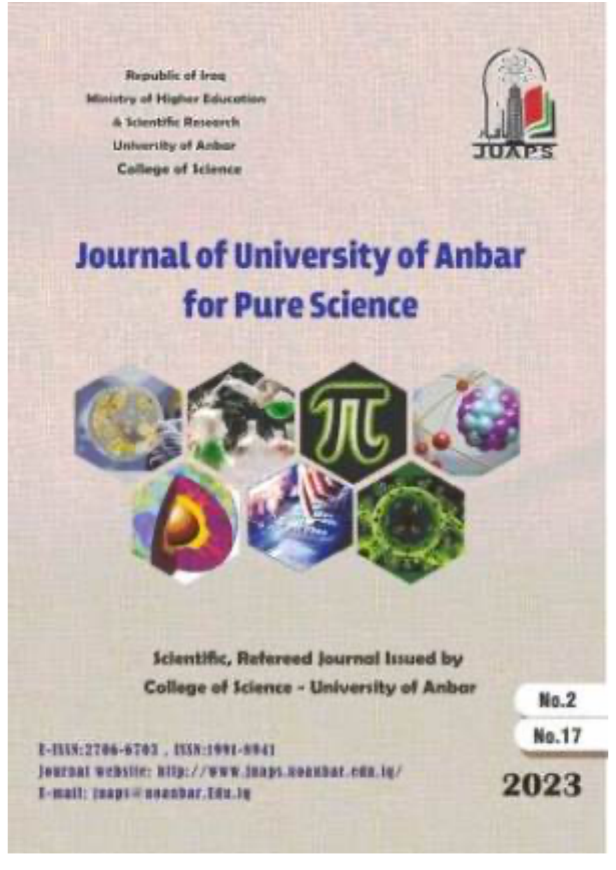

A Further Generalization of the General Polynomial Transform and its Basic Characteristics and Applications

Ahmad Issa; Emad Kuffi; Murat Duz

Volume 17, Issue 2 , December 2023, Page 338-342
https://doi.org/10.37652/juaps.2023.143479.1140

Abstract In this article , we developed the general polynomial transform into a new transform (Ahmad - Emad - Murat transform) , which was expanded by writing a general formula of the Kernel ... Read More ...

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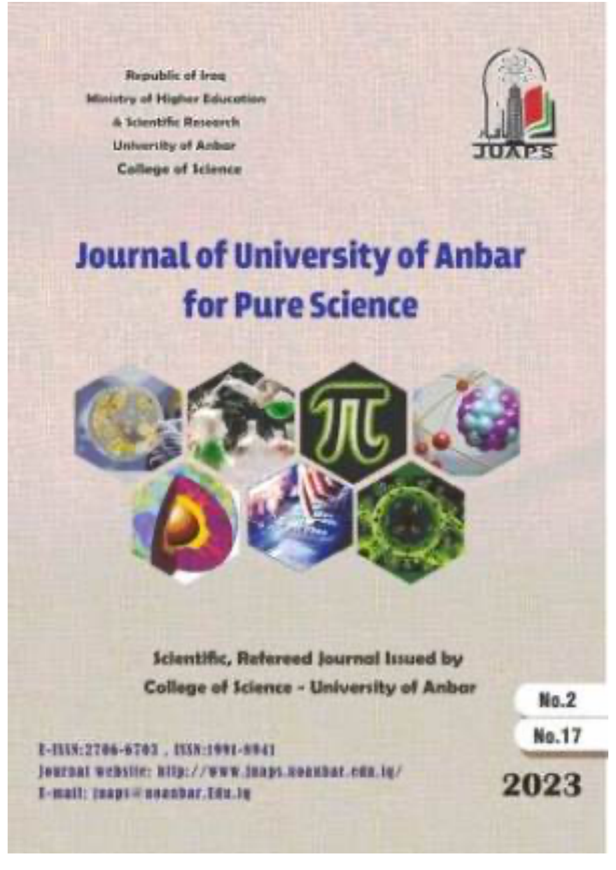

Homotopy Analysis Method for Solving Multi-Fractional Order Random Ordinary Differential Equations

Sahar Ahmed Mohammed; Fadhel S. Fadhel; Kasim A. Hussain

Volume 17, Issue 2 , December 2023, Page 343-354
https://doi.org/10.37652/juaps.2023.142993.1123

Abstract The homotopy analysis method may be considered as one of the most important and efficient methods for solving several problems in mathematics with different operators, linear and nonlinear, ... Read More ...

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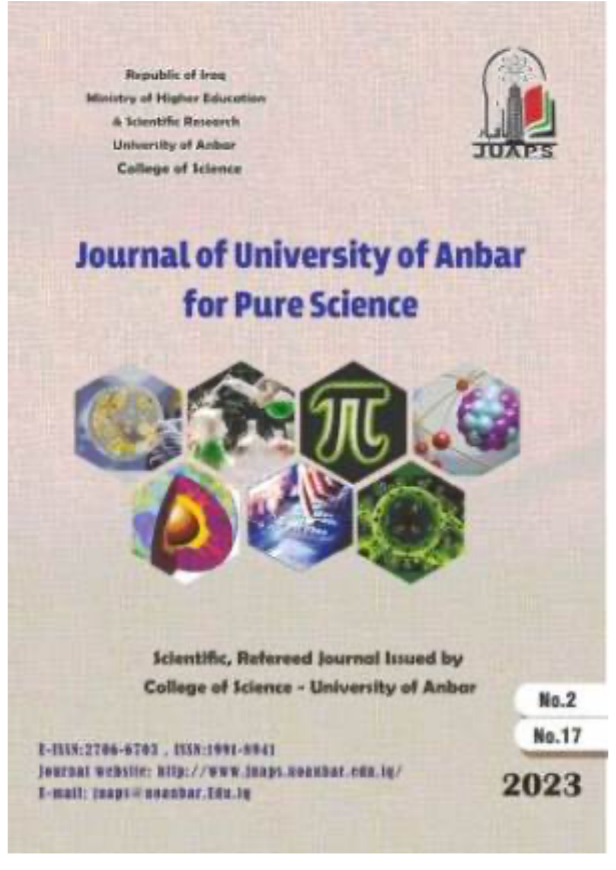

New iterative technique for computing Fourier transforms.

Ahmad Jalal Issa; Murat Düz

Volume 17, Issue 2 , December 2023, Page 355-359
https://doi.org/10.37652/juaps.2023.181586

Abstract The Fourier transformations have stimulated many amounts of articles in recent years. they arise in the fields of engineering, control systems, and technology like analyzing signals ... Read More ...

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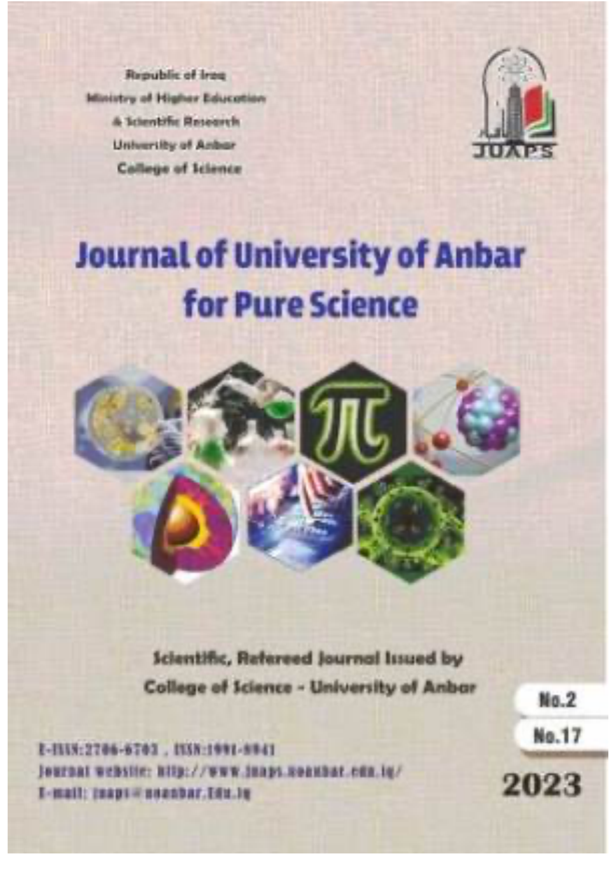

Supra semi preopen sets in supra topological spaces

N. A. Nadhim; Ahmed Hanoon Abud

Volume 17, Issue 2 , December 2023, Page 360-363
https://doi.org/10.37652/juaps.2023.181587

Abstract The purpose of this article is to provide a new set which is supra semi preopen set via supra topological space (,). with the help of some examples and properties. Also, ... Read More ...

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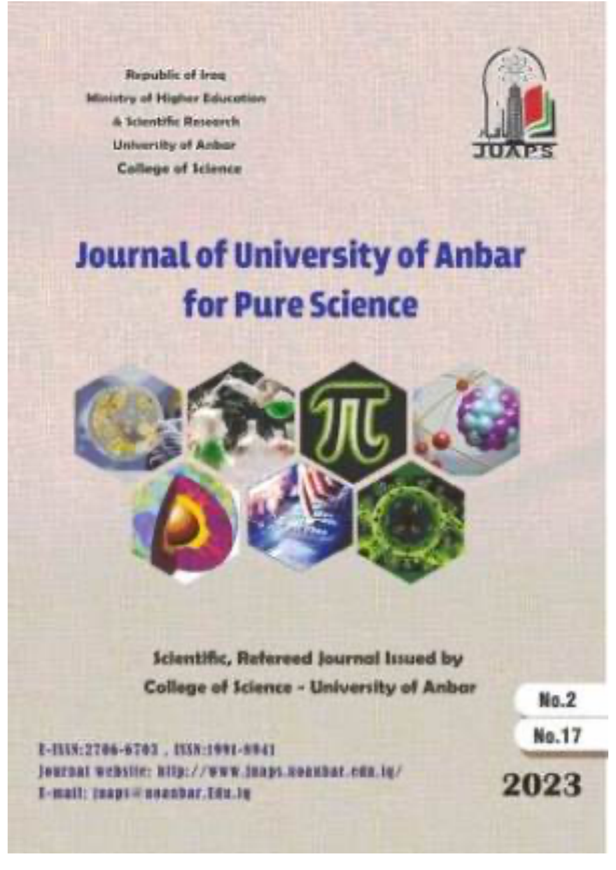

Application of the Electrical Resistivity Method to Investigate Groundwater in Ramadi, Western Iraq

mohand abd alwahab noon; Ali M. Abed; Firas H. AL-Menshed

Volume 17, Issue 2 , December 2023, Page 364-371
https://doi.org/10.37652/juaps.2023.140876.1079

Abstract The vertical electrical sounding (VES) survey was carried out using a Schlumberger array to investigate groundwater in the West of Ramadi City. Fieldwork for 20 VES points was carried ... Read More ...

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P- ISSN 1991-8941 E-ISSN 2706-6703
2023,(17), (2):180 – 183

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Transparency and Ethics in Chemical Laboratories

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Keywords:
Transparency, Morals,
Chemical laboratories, Ethics

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ABSTRACT

Chemical precisionists must continuously develop and enhance their cognition and general awareness through research, innovation, teamwork, collaboration, and community outreach. Through their knowledge, chemists may act as roll model and advisors to benefit societies and protect the environment for next generations. Transparency which is widely considered by researchers as a pillar for moral interaction through all work related subjects, moreover, in chemistry it has been considered as a research subject in many categories including chemical lab environment, safety regulation, honesty and clearance in data management, in addition to decision making and handling moral responsibility. This article is going to discuss some examples of luck of transparency, openness, and honesty in regard to data management and publishing and the impact they have on providing safe working laboratories and healthy environment.

Introduction

Ethics or ethics philosophy is the adhesion with what is considered morally accepted or unaccepted, what behavior is right, and which is wrong.it also applies for any theory or system of moral ethics [1]. The words ethics and morals usually mentioned when there is a roles that distinguished between what is right and wrong, given that the most known definition of ethics is the roles of behaviors that distinguish between what is accepted and unaccepted morally[2]. Cambridge dictionary of philosophy refers to the interference and correlation between the word's morals and ethics, also, refers to the limitedness of the word ethics to refer to moral ethics in general for a person or a group[3]. In correlation the word "transparency" means openness communication and accountability. It is the literal definition of a transparent subject that you can see through. For instance, in public service, it means that all the decisions and procedures considered should published to the public, more over it the decisions should be explained and discussed by public unless it's bad for the wider interest[4].

Chemical practitioners must enhance the positive awareness, general understanding and evaluation of chemistry role, and that has to build up through research, innovation, and teamwork in addition to the communication with the community and acceptable ethics, in a goal to act as role model, directors and advocates for chemical awareness and chemical security for the sake of humankind and preserving environment for next generations[5]. The responsible organizations should provide a continues materialist and moral support to workers in field to insure a highest degree of employee ethics which contribute in the happiness of humanity and environmental protection[6].

Chemical Laboratory Environment:

Safety procedures and roles is written to protect the workers form unsafe work practices and exposures to dangerous materials. Also, the follow up and imposing roles of safety to build a safe and healthy lab will definitely encourage the safety culture inside the workplace [7]. Environmental impact of teaching and research increases in educational institutions through their in lab and out lab activities, because it produces a small amounts of waste most of them are very dangerous

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[8]. As a result, educational chemical labs are considered highly dangerous places which require extreme interest applying international standards for chemical lab to insure workers and visitor's safety.

For instance, lab supervisor has informed head of department and safety manager about some cases of uneasiness and shortness of breath for some students in addition to lab supervisor himself. The case has been announced transparently by lab supervisor looking for some solution for this emergent problem. A team has been collected, and after investigation the team found the presence of different chemicals, some known and some of them are unknown preserved unsystematically in irrelevant containers which leads to area saturation with fumes and contaminating the lab.

Using a Dangerous Chemical without Supervision:

Chemical substances differ widely by type and amount of danger, chemical substances known as Pyrophorics, has tendency to flame out automatically by sensing air, these types of chemicals should be handled specifically by trained chemists who can handle them safely [9]. Here we can consider a case study when Sanji Sh. (23 years), lab assistant in California University used tertiary butyl lithium a Pyrophorics material without sufficient knowledge. Sanji used a syringe to transfer the material in a normal aired box which led to an explosion after touching the air, unfortunately she died after 18 days due to the burns on her body [10]. By evaluating and investigating the accident we conclude that the responsibility is distributed between educational institution, supervisor, safety supervisor and lab peers, all have partial responsibility about the incident. This incident had a severe impact on safety regulations in united states, a number of researches in regards to chemical explosion and fire has been conducted in the purpose of strengthen lab safety regulations [11-13].

Openness, Honesty, and Transparency in Data Handling:

Openness, honesty and transparency are terms that the researcher and administration must possess, they are part of the scientific ethics that will advance scientifically and administratively in a manner that secures the research process and secures its various aspects. Hiding data and information that should be already shared might it exposes others to danger and the responsible researcher to accountability and reprimand.

A PhD student submitted (5) samples of unknown substances with insufficient data in ceramic containers and ask to be heated to 400□C for four hours, the student hasn't present enough data about the components of same in a fear of research idea leakage.

The lab supervisor had doubts about the material might burn and ask for further information about the chemicals used and how dangerous are they if they burned, the student replays by insuring their safety, and that he has already tried treating them at these temperatures rang without any issues. Unfortunately, this confirmation in addition to the wellness of the lab supervisor to help the student was enough to start the experiment neglecting the fact that they don't have enough data. The results were fast, after 10 minutes, the workers in lab sensed a distinct, suffocating odor and three hours samples have been taken out from the furnace and it contained charred and has embers on them.

The student has been called to be asked about the nature of chemicals used, and what was the fumes elaborated due to sample burned and the results were astonishing, Nickel (II) nitrate hexahydrate & Chromium Nitrate Nonhydrate are oxidizing agents, any by contacting other burning materials, it causes a fire that evolve a toxic gases resulted from thermal decay of sample. The student has been informed about how dangerous the problem was, and it was clear enough that the student didn't know the aspects of danger related to burn these materials. Especially, when there was no usage of MSDS documents, to understand the risk of handling such materials, in addition to, the necessity to the transparency in showing data for the testing chemists to help conduct the work safely.

Transparency and Ethics in Scientific Publishing:

Scientific publishing means of sharing new knowledge. Chemists must promote and share scientific knowledge obtained from research and innovation through communication, scientific writing, and publishing for sustainable development. They must maintain honesty and integrity as a standard throughout the publishing process, in a way that meet the highest possible standards of veracity and data reproducibility without plagiarism. It is also the responsibility of editors who observe others to ensure that scientific writing is free from defects and errors [5].

There are two theories for why researchers misbehave sometimes. The first theory is based on the "bad apple" theory, which implies that most researchers are ethical, but only researchers who are basically morally corrupted, economically desperate, or suffering from mental issues commit these sorts of bad behavior. Second, misbehavior might also happened according to the theory of "fatigue" or "imperfection" because of the work environment related to work pressures, incentives, and restrictions which encourage some people to misbehave, such as: pressure to publish, obtain a grant, contract, professional ambition, and the pursuit of profit or fame [2].

Decision Making and Copping with Moral Responsibility:

What happen when there are many issues relating to devices and equipment's in a chemical factory is crucial. A company in India has overlooked all the mistakes and behaviors of its staff, not to mention, issues with the outdated equipment's. The company didn't set a budget to repair the factory as it should be, also, the workers did not object and accept to work under unhealthy and dangerous conditions, to preserve their jobs in a fear of getting fired. The results were devastating, 45 tons of Methyl Isocyanate (MIC) leaked to the city of Bhopal in December 1984 [14]. This gas is very dangerous; it can irritate the skin and can cause permanent damage to the eye. 2ppm of the gas can destroy human respiratory system, and damage the lungs and might lead to death according to United States environmental protection agency [15].

3000 city residents have died in three hours, the number of casualties reached 15000 in the first three days, after that about 25000 people have died, in addition 500000 residents who still suffer chronic disease due to the gas. The absence of morals ethics and transparency resulted in a humanitarian disaster that the city still suffers from complications.

Conclusion:

The ethical charter for any profession includes the guiding rules for the practice of a profession to improve its ideals and support its concept, and despite the importance of defining practices and priorities within a particular profession, it might imposed by coercion but even more sufficiently by commitment and that the only way to judge a particular profession is the behaviour of the members of that profession towards it, and the preservation of the values trust, respect, competence and dignity. Deviating from ethical behaviour can lead to impact people health and damage property, and the cases reviewed in this article are only some simple examples of indifference, absence of professional and moral responsibility, and lack of transparency in professional institutions.

Acknowledgment:

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Funding:

None

Conflict of Interest:

There is no known conflict for the presented work.

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الخلاصة:

يجب على المتخصصين في الكيمياء تطوير وتعزيز إدراكهم ووعيهم العام بشكل مستمر من خلال البحث والابتكار والعمل الجماعي والتعاون والتواصل المجتمعي .يعمل الكيميائيون من خلال خبراتهم كمستشارين لإفادة المجتمعات وحماية البيئة للأجيال القادمة. الشفافية التي يعتبرها الباحثون على نطاق واسع ركيزة للتفاعل الأخلاقي من خلال جميع المواضيع المتعلقة بالعمل، علاوة على ذلك، في الكيمياء تم اعتبارها موضوعًا بحثيًا في العديد من الفئات بما في ذلك بيئة المختبرات الكيميائية، تنظيم امور السلامة، الأمانة في إدارة البيانات، بالإضافة إلى اتخاذ القرار والتعامل مع المسؤولية الأخلاقية .سنتناول في هذا المقال بعض الأمثلة في الشفافية والصراحة والصدق فيما يتعلق بإدارة البيانات ونشرها وأثرها على توفير مختبرات عمل آمنة بيئيا وصحيا.

الكلمات المفتاحية: الشفافية، الأخلاق, المختبرات الكيميائية، الأخلاقيات

12. Transparency and Ethics in Chemical Laboratories

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Transparency and Ethics in Chemical Laboratories

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ABSTRACT

Chemical precisionists must continuously develop and enhance their cognition and general awareness through research, innovation, teamwork, collaboration, and community outreach. Through their knowledge, chemists may act as roll model and advisors to benefit societies and protect the environment for next generations. Transparency which is widely considered by researchers as a pillar for moral interaction through all work related subjects, moreover, in chemistry it has been considered as a research subject in many categories including chemical lab environment, safety regulation, honesty and clearance in data management, in addition to decision making and handling moral responsibility. This article is going to discuss some examples of luck of transparency, openness, and honesty in regard to data management and publishing and the impact they have on providing safe working laboratories and healthy environment.

Introduction

Ethics or ethics philosophy is the adhesion with what is considered morally accepted or unaccepted, what behavior is right, and which is wrong.it also applies for any theory or system of moral ethics [1]. The words ethics and morals usually mentioned when there is a roles that distinguished between what is right and wrong, given that the most known definition of ethics is the roles of behaviors that distinguish between what is accepted and unaccepted morally[2]. Cambridge dictionary of philosophy refers to the interference and correlation between the word's morals and ethics, also, refers to the limitedness of the word ethics to refer to moral ethics in general for a person or a group[3]. In correlation the word "transparency" means openness communication and accountability. It is the literal definition of a transparent subject that you can see through. For instance, in public service, it means that all the decisions and procedures considered should published to the public, more over it the decisions should be explained and discussed by public unless it's bad for the wider interest[4].

Chemical practitioners must enhance the positive awareness, general understanding and evaluation of chemistry role, and that has to build up through research, innovation, and teamwork in addition to the communication with the community and acceptable ethics, in a goal to act as role model, directors and advocates for chemical awareness and chemical security for the sake of humankind and preserving environment for next generations[5]. The responsible organizations should provide a continues materialist and moral support to workers in field to insure a highest degree of employee ethics which contribute in the happiness of humanity and environmental protection[6].

Chemical Laboratory Environment:

Safety procedures and roles is written to protect the workers form unsafe work practices and exposures to dangerous materials. Also, the follow up and imposing roles of safety to build a safe and healthy lab will definitely encourage the safety culture inside the workplace [7]. Environmental impact of teaching and research increases in educational institutions through their in lab and out lab activities, because it produces a small amounts of waste most of them are very dangerous

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[8]. As a result, educational chemical labs are considered highly dangerous places which require extreme interest applying international standards for chemical lab to insure workers and visitor's safety.

For instance, lab supervisor has informed head of department and safety manager about some cases of uneasiness and shortness of breath for some students in addition to lab supervisor himself. The case has been announced transparently by lab supervisor looking for some solution for this emergent problem. A team has been collected, and after investigation the team found the presence of different chemicals, some known and some of them are unknown preserved unsystematically in irrelevant containers which leads to area saturation with fumes and contaminating the lab.

Using a Dangerous Chemical without Supervision:

Chemical substances differ widely by type and amount of danger, chemical substances known as Pyrophorics, has tendency to flame out automatically by sensing air, these types of chemicals should be handled specifically by trained chemists who can handle them safely [9]. Here we can consider a case study when Sanji Sh. (23 years), lab assistant in California University used tertiary butyl lithium a Pyrophorics material without sufficient knowledge. Sanji used a syringe to transfer the material in a normal aired box which led to an explosion after touching the air, unfortunately she died after 18 days due to the burns on her body [10]. By evaluating and investigating the accident we conclude that the responsibility is distributed between educational institution, supervisor, safety supervisor and lab peers, all have partial responsibility about the incident. This incident had a severe impact on safety regulations in united states, a number of researches in regards to chemical explosion and fire has been conducted in the purpose of strengthen lab safety regulations [11-13].

Openness, Honesty, and Transparency in Data Handling:

Openness, honesty and transparency are terms that the researcher and administration must possess, they are part of the scientific ethics that will advance scientifically and administratively in a manner that secures the research process and secures its various aspects. Hiding data and information that should be already shared might it exposes others to danger and the responsible researcher to accountability and reprimand.

A PhD student submitted (5) samples of unknown substances with insufficient data in ceramic containers and ask to be heated to 400°C for four hours, the student hasn't present enough data about the components of same in a fear of research idea leakage.

The lab supervisor had doubts about the material might burn and ask for further information about the chemicals used and how dangerous are they if they burned, the student replays by insuring their safety, and that he has already tried treating them at these temperatures rang without any issues. Unfortunately, this confirmation in addition to the wellness of the lab supervisor to help the student was enough to start the experiment neglecting the fact that they don't have enough data. The results were fast, after 10 minutes, the workers in lab sensed a distinct, suffocating odor and three hours samples have been taken out from the furnace and it contained charred and has embers on them.

The student has been called to be asked about the nature of chemicals used, and what was the fumes elaborated due to sample burned and the results were astonishing, Nickel (II) nitrate hexahydrate & Chromium Nitrate Nonhydrate are oxidizing agents, any by contacting other burning materials, it causes a fire that evolve a toxic gases resulted from thermal decay of sample. The student has been informed about how dangerous the problem was, and it was clear enough that the student didn't know the aspects of danger related to burn these materials. Especially, when there was no usage of MSDS documents, to understand the risk of handling such materials, in addition to, the necessity to the transparency in showing data for the testing chemists to help conduct the work safely.

Transparency and Ethics in Scientific Publishing:

Scientific publishing means of sharing new knowledge. Chemists must promote and share scientific knowledge obtained from research and innovation through communication, scientific writing, and publishing for sustainable development. They must maintain honesty and integrity as a standard throughout the publishing process, in a way that meet the highest possible standards of veracity and data reproducibility without plagiarism. It is also the responsibility of editors who observe others to ensure that scientific writing is free from defects and errors [5].

There are two theories for why researchers misbehave sometimes. The first theory is based on the "bad apple" theory, which implies that most researchers are ethical, but only researchers who are basically morally corrupted, economically desperate, or suffering from mental issues commit these sorts of bad behavior. Second, misbehavior might also happened according to the theory of "fatigue" or "imperfection" because of the work environment related to work pressures, incentives, and restrictions which encourage some people to misbehave, such as: pressure to publish, obtain a grant, contract, professional ambition, and the pursuit of profit or fame [2].

Decision Making and Copping with Moral Responsibility:

What happen when there are many issues relating to devices and equipment's in a chemical factory is crucial. A company in India has overlooked all the mistakes and behaviors of its staff, not to mention, issues with the outdated equipment's. The company didn't set a budget to repair the factory as it should be, also, the workers did not object and accept to work under unhealthy and dangerous conditions, to preserve their jobs in a fear of getting fired. The results were devastating, 45 tons of Methyl Isocyanate (MIC) leaked to the city of Bhopal in December 1984 [14]. This gas is very dangerous; it can irritate the skin and can cause permanent damage to the eye. 2ppm of the gas can destroy human respiratory system, and damage the lungs and might lead to death according to United States environmental protection agency [15].

3000 city residents have died in three hours, the number of casualties reached 15000 in the first three days, after that about 25000 people have died, in addition 500000 residents who still suffer chronic disease due to the gas. The absence of morals ethics and transparency resulted in a humanitarian disaster that the city still suffers from complications.

Conclusion:

The ethical charter for any profession includes the guiding rules for the practice of a profession to improve its ideals and support its concept, and despite the importance of defining practices and priorities within a particular profession, it might imposed by coercion but even more sufficiently by commitment and that the only way to judge a particular profession is the behaviour of the members of that profession towards it, and the preservation of the values trust, respect, competence and dignity. Deviating from ethical behaviour can lead to impact people health and damage property, and the cases reviewed in this article are only some simple examples of indifference, absence of professional and moral responsibility, and lack of transparency in professional institutions.

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