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2nd International Conference of Pharmaceutical and Applied Medical Sciences (ICPAMS24)

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Preface

It is my pleasure to present the preface for the 2ⁿᵈ International Conference of Pharmaceutical and Applied Medical Sciences, to be held on 7ᵗʰ and 8ᵗʰ May 2024 in Erbil, Iraq. This conference is organized with the aim of bringing together leading researchers, academics, and professionals from various fields of pharmaceutical and applied medical sciences to exchange ideas, share knowledge, and discuss the latest advancements in their respective fields.

The conference will feature keynote speeches, oral and poster presentations, and workshops on a wide range of topics related to pharmaceutical and applied medical sciences, including drug discovery and development, pharmacology, pharmacy practice, clinical pharmacy, pharmaceutical technology, medicinal chemistry, bioinformatics, medical imaging, medical physics, and medical devices.

The conference provides a unique opportunity for participants to network and establish new collaborations with researchers and practitioners from different parts of the world, and to learn about the latest trends and developments in their respective fields. The conference will also provide a platform for young researchers to showcase their work and gain valuable feedback from experts in the field.

I would like to express my sincere gratitude to the organizing committee and all the participants for their contributions to this conference. I hope that the conference will be a great success and will serve as a platform for advancing the field of pharmaceutical and applied medical sciences.

Finally, I would like to extend a warm welcome to all the participants and wish them a productive and enjoyable conference experience in Erbil, Iraq.

Sincerely,

Prof. Dr. Ahmed Anwer Dezaye

Conference Chair

Part-1
Pharmaceutical Sciences

Session no.01	Basic Pharmaceutical Sciences & Applied Medical Health Sciences
Hall no.	127
Session date	7/5/2024
Session time	12:30- 2:30
Chairman	Asst. Prof. Dr. Wala Gazey Dizayee
Coordinator	Asst. Prof. Dr. Diyar Salahuddin
	2:30 Lunch period

ICPAMS-24P01	
Title	Accessory gene regulator (agr) group polymorphisms in methicillin-resistant staphylococcus aureus and its association with biofilm formation
Researcher/s	Sharmin A. Omer[1], Aryan R. Ganjo[1]* , Sayran H. Haji[1], Sakar B. Smail[2]
Affiliation	[1]Department of Clinical Analysis, College of Pharmacy, Hawler Medical University Erbil, Iraq [2]Department of Microbiology, Par Hospital, Erbil, Iraq.

Abstract:

Background: Methicillin-resistant Staphylococcus aureus (MRSA) is one of the main causes of community- and hospital-acquired infections. The expression of virulence genes in S. aureus is arranged by regulators like the accessory gene regulator (agr). The present study aims to estimate phenotypic characteristics of S. aureus and investigate the occurrence of agr genes with their correlation to biofilm formation.

Materials and Methods: In this study, 34 MRSA strains out of 100 S. aureus isolates were recovered in a variety of clinical samples. Phenotypic characterization and ability of biofilm formation were assessed.

Results: About 8(24%) of isolates were biofilm producers. The percentages of biofilm production among isolates were 3(37.5%), 2(25%), 3(37.5%) as strong, moderate, and weak, respectively. Furthermore, the resistance rates for all antibiotics were higher in biofilm producers and 76% of the isolates were staphyloxanthin producers, around 82% of the strains showed resistance to H_2O_2 . Hemolytic activity was detected in 74% of the total isolates. The activity of the protease enzyme was 68%. The lipase enzyme was active in 79% of the tested S. aureus isolates. The majority of isolates were established to be agrI 73%, followed by agrII 52%, agrIII 13%, and 9% of the isolates have agr IV.

Conclusions: Our study indicated that the majority of MRSA isolates were non-biofilm producers and the agr I is the most dominant type. Thus, agr I is not correlated with biofilm production.

ICPAMS-24P02	
Title	**Expression analysis of cell cycle related lncrnas in breast cancer tissues**
Researcher/s	**Bashdar Mahmud Hussen, Mohammad Taher, Hazha Jamal Hidayat, Soudeh**
Affiliation	**Ghafouri-Fard**

Abstract:

Cell cycle regulation is an important cellular function. Abnormal regulation of this process can cause cancer. Several genes are involved in this process. There is no comprehensive study on expression pattern of cell cycle related lncRNAs in breast cancer patients. In the current study, we evaluated expressions of LINC00668, PRDM16-DT, SNHG7 and CDKN2A in 42 pairs of breast cancer tissues and adjacent non-tumoral tissues. Expression of SNHG7 was significantly lower in tumoral tissues compared with non-tumoral tissues. However, expressions of LINC00668, PRDM16-DT and CDKN2A were not significantly different between these two sets of samples. Expression levels of SNHG7 could separate tumoral tissues from non-tumoral tissues with AUC value= 0.66, sensitivity= 61% and specificity= 73%. Expression of CDKN2A was associated with clinical stage (P value=0.01). Expression levels of LINC00668, PRDM16-DT, SNHG7 and CDKN2A were higher in estrogen receptor (ER) positive samples compared with ER negative ones (P values=0.044, 0.008, 0.002 and 0.022, respectively). Moreover, expression of SNHG7 was higher in progesterone receptor (PR) positive samples compared with PR negative ones (P value=0.02). Finally, expressions of PRDM16-DT, SNHG7 and CDKN2A were higher in HER2/neu positive samples compared with HER2/neu negative ones (P values=0.017, 0.02 and 0.021, respectively). Taken together, our study demonstrates possible roles of these genes in breast cancer and warrants further functional studies.

ICPAMS-24P03	
Title	**The inhibitor of interleukin-3 protects against neutrophil infltration in severe acute pancreatitis**
Researcher/s	**Mohammed Merza (PhD.)**
Affiliation	**Department of Clinical Analysis, College of Pharmacy, Hawler Medical University, Erbil, Kurdistan Region of Iraq.**

Abstract:

Background and purpose: Severe acute pancreatitis (AP) is linked with leukocyte infiltration and tissue necrosis, but the cellular signaling pathways driving organ destruction in the pancreas remain unknown. IL-3 is a powerful regulator of different cellular processes that promote pro-inflammatory activities. In this study, we investigated the role of IL-3 signaling in acute pancreatitis.

Methods: In C57BL/6 mice, pancreatitis was triggered by taurocholate infusion into the pancreatic duct. Prior to development of pancreatitis, animals were given an IL-3 inhibitor (100 mg/kg).

Results: The administration of IL-3 significantly reduced the rise in L-arginine in serum amylase, pancreatic neutrophil infiltration, pancreatic edema formation, an acinar cell necrosis. Furthermore, in response to taurocholate challenge, inhibition of farnesyltransferase decreased the MPO levels in the pancreas and lung. However, IL-3 therapy had a significant impact on L-arginine, provoked macrophage inflammatory protein-2 (MIP-2) induction in the pancreas. Interestingly, IL-3 inhibition eliminated Mac-1 expression on neutrophils in pancreatitis-affected mice. Additionally, in vitro isolation of neutrophils revealed that IL-3 significantly reduced MIP-2- induced Mac-1 upregulation, pointing to a direct function for IL-3 in regulating Mac-1 expression in neutrophils. Finally, secretagogue-induced activation of trypsinogen in pancreatic acinar cells in vitro, was not directly affected by the inhibition of IL-3.

Conclusions: These results show that IL-3 signaling plays a significant role in acute pancreatitis by regulating tissue injury and neutrophil infiltration via expression of Mac-1 on neutrophils Thus, in addition to clarifying pancreatitis signaling processes, our findings also raise the possibility that IL-3 can represent a new target in the treatment of severe AP.

ICPAMS-24P04	
Title	**Rac1 inhibition attenuates platelet chemokine activation in diabetes mellitus**
Researcher/s	**Assist. Prof. Dr. Rundk Ahmad Hwaiz**
Affiliation	**Hawler Medical University, College of Health Sciences, Department of Nutrition and Dietetics**

Abstract:

Background: Diabetes mellitus is one of the common causes for activation of platelet. Inflammation-induced abnormal platelet function contributes to chronic complications.

Aim:

Rac1 a 21kD G-protein, has been shown to regulate a variety of platelet functions; we predicted that Rac1 could regulate platelet release of CXCL4 and CCL5, which leads to macrovascular and microvascular complications under diabetes mellitus.

Method: 150 confirmed diabetic patients which they visit Layla Qasim health center for diabetes and 50 healthy individuals were included in this study. The serum CXCL4 and CCL5 in diabetic patients and healthy volunteer were measured. Swiss albino male mice were pretreated with 5 mg/kg of a specific Rac1 inhibitor NSC23766 and injected with (45 mg/kg body wt.) streptozotocin, twice for five days. Rac1 activity in the platelet was measured using pulldown assay and western blot method. Moreover, the concentration of serum chemokines was assayed using ELISA and histology score for kidney, liver, pancreas and lung were examined.

Results: CXCL4 and CCL5 were significantly higher in diabetic patients compared to healthy individuals. Our results showed that Diabetes mellitus was induced in mice by streptozotocin. GTP-Rac1 was induced in diabetic mice and pretreatment with NSC23766 was significantly lower compared to vehicle group. In addition, CXCL4 and CCL5 were markedly higher in diabetic mice when compared to the sham group P-value <0.05.

Conclusion: Our study reveals that Rac1 has a critical role in platelet chemokines secretion due to diabetes-induced inflammation in the organs and targeting Rac1 could be an innovative treatment to control inflammation in diabetic individual.

ICPAMS-24P05	
Title	The reduction of anxiety dass21in diabetic patients in erbil –kurdistan region of Iraq
Researcher/s	Mohammed Yousif Merza[1,2], Reyyan Khalid Baker[1]
Affiliation	[1]Department of Clinical Analysis, College of Pharmacy, Hawler Medical University, Erbil, Kurdistan Region of Iraq. [2]Department of Medical Biochemical Analysis Department, College of Health Technology, Cihan University-Erbil.

Abstract:

People diagnosed with DM are approximately 20% more likely to suffer from anxiety than those without diabetes. Metformin is the first line therapy for treating T2DM, whereas pregabalin is the first line therapy fortreating diabetic neuropathy as well as generalized anxiety disorder (GAD). The objective of this study was to determine the effect of combining pregabalin with metformin in patients who suffer from anxiety and see to what extent does it reduce anxiety symptoms as well as their glycated hemoglobin level. This study was carried out in out patients department at Layla Qasm Hospital in Hawler City during the period from December 2022 to September 2023. This study included 84 diabetic patients on metformin monotherapy and 84 diabetic patients on combination of metformin and pregabalin. An independent t-test was conducted to compare HbA1c levels in group 1 and group 2. There was a significant decrement in the HbA1c levels for group 1 pretreatment (7.325± 0.531) vs. post-treatment (6.650±0.536), p=0.0042 and group 2 pretreatment (7.650±0.492) vs. post-treatment (6.750± 0.357), p=0.0088. the anxiety level obtained from DASS21 in group 1 and group 2. There was asignificant decrement in the level of anxiety for group 1 pre-treatment (13.0±1.73) vs. post-treatment (10.5±1.84), p value≤0.0305 and group 2 pre-treatment (14.75±1.49) vs. post-treatment (8.75±0.85), p value≤ 0.034.

ICPAMS-24P06	
Title	**Quercus robur bark alternative natural antifungal for oral candidiasis caused by candida glabrata and failure of azole antifungal**
Researcher/s	**Prof. Dr. Zaidan Khlaif Imran**
Affiliation	**Babylon University, Science College for Women**

Abstract:

Background: Candida glabrata has emerged as one of the most common pathogenic yeasts in cases of oral Candidiasis. Candidiasis is a recurring oral infection in immunocompromised patients, and current guidelines suggest the use of antifungals in many cases. However, C. glabrata is known for its resistance to azoles, leading to a diminished therapeutic response.

Aim of study: This research conducted an in glass assessment of an alternative pharmacotherapy for C. glabrata biofilm by compared between Oak extract action with group of azole antifungal and Nystatin.

Methods: Isolation oral candida spp., Identification conducted by culturing on SDA, CHROMagar and genotyping of Candida spp., by amplification ITS region. Standard discs of antifungals, Fluconazole, Itracanzole , Ketocanzole 10 mg/l for each, amphotericin 100 , Nystatin 50 mg/l and hot water Oak park extract were administered to C. glabrata and C.albicans in glass.

Results: Genotyping of Candida spp. shown 98% of oral candidiasis were C.glabrata had 780bp while 2% C.albicans shown 550bp genotype based on ITS barcoding region size. The findings that the Oak park extract had high antifungal activity against C. glabrata shown inhibition zone diameter 3.08 mm compared with high resistant to antifungals under interest.

Conclusions: Oak extract considered to be as alternative to treatment of oral candidiasis infections by antifungals.

ICPAMS-24P07	
Title	**Eradication of Helicobacter pylori using different probiotic strains; a revolution in the era of antimicrobial resistance**
Researcher/s	**Eman Idrees Maruf and Bnar Salih Ismail**
Affiliation	**Hawler Medical University, Erbil, Iraq**

Abstract:

Helicobacter pylori is one of the gram-negative bacteria, that needs very little amount of oxygen to survive. Its name is the reflection of its shape and the part of stomach that it mostly affects (Helicobacter = spiral shaped bacteria; pylori = pylorus region of the stomach which is the last part of stomach and the bacterium resides in this region mostly). Beside peptic ulcer, H. pylori is also a culprit behind chronic gastritis, mucosa-associated lymphoid tissue lymphoma, and gastric cancer. Typically, the strategy for H. pylori eradication includes using antibiotics and a proton pump inhibitor. Amoxicillin, Clarithromycin, Metronidazole, Levofloxacin, and Tetracycline are the five most used antibiotics in the eradication strategy. Yearly antibiotic resistance rate increases, and in the result of this continuous rising, interest for other agents such as probiotics to be used either as a complement or alternative to antibiotics increases. Antibiotics induced side effects are also another reason which make us to try and explore more and study the effects of probiotics on H. pylori eradication. Thus, the aim of this review is to provide an insight regarding the effects of different probiotic strains on eradication of H. pylori and improving the overall health of gastro-intestinal tract. In order explore the impact of various probiotic strains, we collected several clinical research. This review article's information was sourced from science direct, pubmed, and the nature journal. An effort to focus on articles and studies that had recently been published. All the figures were made using the Biorender software.

ICPAMS-24P08	
Title	**The photochemical catalytic properties and hydrothermal synthesis of nano bismuth borate for efficient removal of congo red dye from aqueous solution.**
Researcher/s	**Hasan J. Mohammed, Zaki N. Kadhim**
Affiliation	**Chemistry Department, College of science, University of Basra , Basra, Iraq**

Abstract:

In this study, Bismuth Borate (BB) , was synthesized by one step precipitation from nano bismuth oxide and Boric acid. The product was characterized by FTIR, XRD, SEM, EDX and Zeta potential. This product act as photocatalyst to remove Congo red dye (CR) from aqueous solution, all factors that effect on adsorption process studied (Time, wight of adsorbent, adsorbate concentration, PH, temperature). Model of isotherm adsorption Langmuir and Freundlich, kinetic adsorption, first order and second order pseudo and values of thermodynamic (ΔS, ΔG, ΔH) are studied. Results of study indicated that best amount of adsorbent was 0.1 g used against dye, optimal concentration of CR was 50 mg L 1 , and optimum acidity function was equal to 5.5 with a volume of 100 ml of aqueous solution . Adsorption processes were carried out using distilled water as solvent. Also, this study included calculating adsorption capacity based on optimal conditions that were obtained by applying Langmuir and Freundlich isotherm models, and q max = (196) mg g -1 for (BB), kinetic adsorption following second order pseudo. Values of thermodynamic (ΔS, ΔG, ΔH) are measured and the results indicating increase in system randomness and that adsorption process is spontaneous and endothermic.

Session no.02	Pharmaceutical, Medicinal Chemistry & Pharmacognosy
Hall no.	127
Session date	8/5/2024
Session time	10:00 – 11:30 am
Chairman	Asst. Prof. Dr. Shahid Jamil
Coordinator	Dr. Hemin Sardar
	11:30-12:00Cafe Break

ICPAMS-24P09	
Title	Biomedical, and pharmaceutical applications of dendrimers as a promising architectural nanostructure
Researcher/s	Suren Azad Ramadhan[1], Huner Kamal Omer[2], Nozad Rashid Hussein[2]
Affiliation	[1]Department of Pharmacy, College of Pharmacy, Knowledge University, Erbil 44001, Kurdistan Region-Iraq. [2]Departmnet of Pharmaceutics, College of Pharmacy, Hawler Medical University, Erbil 44001, Kurdistan Region-Iraq

Abstract:

Dendrimers, which are a type of hyper-branched, three-dimensional, and nanostructural architecture polymers, exhibit a range of unique characteristics such as enhanced drug solubility, uniform size, surface multifunctional groups, and high loading capacity. These properties make dendrimers adaptable and biocompatible, and they have been gaining significant attention in the pharmaceutical industry as potential drug carriers for targeting, delivery, and controlled release systems. Dendrimers can be used for a broad range of therapeutic agents, and their well-defined structure, along with their synthesis, which is controlled through a stepwise method, enables them to overcome the challenges that have arisen during drug development, such as solubility, bioavailability, targeting, and permeability. Dendrimers are widely recognized as a useful nanostructure that can enhance drug solubility and reduce cytotoxicity problems. Polyamidoamine PAMAM and poly(propylene) imine PPI are the two most commonly employed dendritic polymers in the formulation of various therapeutic agents. This review examines the applicability of dendrimers in the pharmaceutical and biomedical sectors, their advantages, limitations, and their synthesis.

ICPAMS-24P10	
Title	Synthesis and evaluation novel thiazolidinedione derivatives as antidiabetic agents
Researcher/s	Mujeeb Ur Rahman, Sarhang hayyas mohammed, Gazala Parveen, Shahid Jamil.
Affiliation	College of Pharmacy, Knowledge University, Erbil 44001, Iraq.

Abstract:

A series of new thiazolidinedione linked with benzilidine derivatives (4a-4j) were planned, synthesized, and screened for antidiabetic activity with their effect on weight gain was also studied. All of the synthesized compounds have been confirmed by elemental analyses, FT-IR, ^{1}H NMR, Mass spectral data. Antidiabetic activity results revealed that compound 4j possess promising activity comparable with the standard drug pioglitazone and leading a new approach for treating type II diabetes.
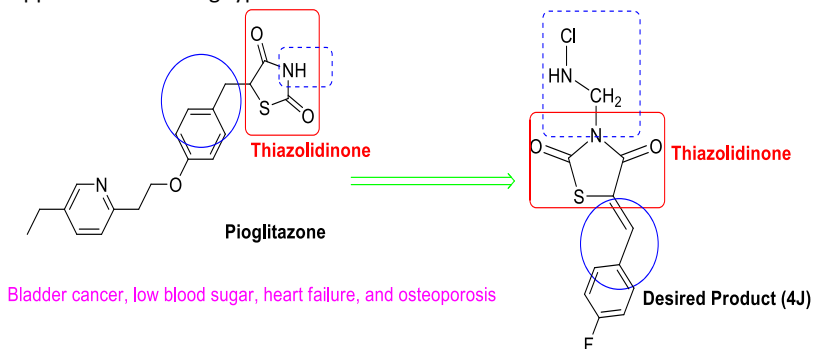
Figure 1. Chemical structure of established chemotherapeutic Antidiabetic agent (Pioglitazone) and rationally designed template for targeted compound(4J)

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ICPAMS-24P11	
Title	Formulation of pimpinella anisum seed oil loaded solid lipid nanoparticles as a promise nanocarriers for the treatment of skin acne.
Researcher/s	Gazala Parveen[*1], Mujeeb Ur Rahman[1], Shahid Jamil[1], G. Jeyabalan[2]
Affiliation	College of Pharmacy, Knowledge University, Erbil 44001, Iraq.

Abstract:

Acne vulgaris is common dermatological problems affecting adolescents and young adults. Although it doesn't have serious medical complications but its psychosocial effects often dissatisfy young adults a lot. Solid lipid nanoparticles (SLNs) represent a new and optimistic approach for drug delivery in anti-acne applications.The dual antimicrobial and antiinflammatory

effects of Pimpinella anisum seed oil evoke us to formulate the solid lipid nanoparticles of mentioned oil and evaluate their antiacne effect against P. acne using erythromycin as standard. The oil loaded solid lipid nanoparticles were prepared using w/o/w type double emulsification method & its drug polymer compatibility was analyzed by FT-IR & HPLC. Surface morphology (by TET) showed that the particles has evident round and homogeneous shading, the particle size of Pimpinella anisum seed oil loaded SLNs ranging approximately from 234-353nm. Zeta potential of -48mV also confirmed the stability of colloidal dispersion. The G4 formulation of SLN showed maximum entrapment (78%) due to high affinity of drug with lipid matrix. During the period of storage, the formulation showed no change in colour, creaming and phase separation. The G4 formulations showed significantly less drug release over other formulations & showed significant activity at concentration of 50 µg/mL &100 µg/mL but on further increase no significant change in zone of inhibition was observed. Our results support potential of SLNs as a novel carrier for topical delivery of Pimpinella anisum seed oil in topical therapeutic approaches. This study opens the new lines for drug delivery which better supports the anti-acne research. Further investigations with larger subjects are required encompassing age and genders are necessary.

ICPAMS-24P12	
Title	The formulation and evaluation of salicylic acid hydrogel based on hydrotropic enhancement technique
Researcher/s	Sara Assif Younis[*1], Nozad Rashid Hussein[2]
Affiliation	[1]Department of Pharmaceutics, College of Pharmacy, Al-Qalam University College, Kirkuk 36001, Iraq [2]Department of Pharmaceutics, College of Pharmacy, Hawler Medical University, Erbil 44001, Kurdistan Region-Iraq

Abstract:

Background and objective: Salicylic acid has keratolytic activities and it is used to treat dandruff and seborrheic dermatitis. The use of hydrotropic phenomenon in pharmaceutical preparations during development of newer methods, execution of solubility studies for water insoluble drug molecules and dosage forms were as a motivation to generate this research on salicylic acid. An effort was made to formulate an antidandruff hair gel that can provide keratolytic activity for an extra hour. Thus, the approach can be a boost to the pharmaceutical industry and a step toward green chemistry.

Methods Preformulation study was performed to exclude any unwanted chemical interaction between salicylic acid (SA) and excipients using FTIR. Solubility of salicylic acid was determined separately in sodium acetate and sodium citrate solutions at a concentration of 1, 3 and 5% w/v using distilled water as a solvent. An optimum gel formulation was developed and it was used to prepared SA gel formulation. Characterizations were performed in term of physical appearance, viscosity, pH and spreadability, in-vitro studies were performed in physiological pH, ex-vivo diffusion studies were performed utilizing rats' skin.

Results: FTIR did not show any chemical interaction between the drug and carriers. The hydrotropic solution of sodium citrate with the concentrations 5% increased the solubility of salicylic acid by 28 folds, while the sodium acetate solutions with the concentration 5% increased the solubility of salicylic acid by 19 folds. The optimum gel formula (F1) had the drug content 97% with a slow dissolution rate and minimum diffusion through the skin.

Conclusion: Sodium citrate significantly improved the solubility of salicylic acid and the hydrogels formulated using Carbopol 971 as gelling agents decreased the diffusion rate of salicylic acid from gel formula.

ICPAMS-24P13	
Title	Development of modified release dry oral suspension of aceclofenac and paracteamol loaded microspheres for pain management in osteoarthritis
Researcher/s	Shahid Jamil*[1], Gazala Parveen[1], MujeebUrRahman[1], Kanchan Kohli[2,3]
Affiliation	[1]Department of Pharmacy, College of Pharmacy, Knowledge University, Kirkuk road, Kurdistan region, 44001 Erbil, Iraq [2]Lloyd Institute of Management & Technology (Pharm.), Knowledge Park II, Greater Noida, Uttar Pradesh-201306, India. [3]Department of Pharmaceutics, School of Pharmaceutical Education & Research (SPER), Jamia Hamdard, Hamdard Nagar-62, New Delhi, India

Abstract:

A reconstitutable suspension of Aceclofenac and Paracetamol loaded microspheres was created using Sodium alginate and Eudragit RS/RL 100 as release modifier polymers for osteoarthritis pain management. Microspheres were prepared via w/o emulsification and w/o/o double emulsion solvent diffusion techniques, characterized for yield, encapsulation efficiency, particle size distribution, surface morphology, and in-vitro drug release profile. The optimized Aceclofenac formulation consisted of core alginate microspheres with 5% polymer and 250 mg Aceclofenac at 25ºC, coated with Eudragit RS/RL polymer (4% of Eudragit RS/RL with core to coat ratio of 1:2), yielding 88.1% with 90.2% entrapment efficiency. The optimized Paracetamol formulation comprised Eudragit microspheres with a drug to polymer ratio of 1:2 and a polymer ratio of RS to RL of 2:1, yielding 85% with 98% entrapment efficiency. Particle size ranged appropriately. The suspension exhibited good characteristics like viscosity, sedimentation volume, redispersibility, and palatability, with in vitro drug release profiles indicating sustained release facilitated by RS/RL Eudragit polymers. This novel dosage form targets osteoarthritis in elderly patients requiring large doses, fulfilling its therapeutic objective.

ICPAMS-24P14	
Title	Enhancing nanomedicine with doped carbon quantum dots: a comprehensive review
Researcher/s	Hazha Omar Othman[1,2] , Kovan Dilawer Issa[3], Diyar Salahuddin Ali[1,4*], Rebwar Omar Hassan[1,5], Esra Tariq Anwer[2], Muhammad Ahmad Qadir[2], Dana Sulaiman Ismail[2] , Diyar Nawzad omer[2] , and Slim Smaoui[6]
Affiliation	[1]Chemistry Department, College of Science, Salahaddin University-Erbil, Erbil, Iraq.
	[2]Department of Pharmaceutics, Faculty of Pharmacy, Tishk International University, Erbil, Iraq
	[3]Medical Analysis Department, Applied Science Faculty, Tishk International University, Erbil, Iraq
	[4]Department of Pharmacy, College of Pharmacy, Knowledge University, Erbil, Iraq
	[5]Department of Radiological Imaging Technology, College of Health Technology, Cihan University-Erbil, Iraq
	[6]Laboratory of Microbial Biotechnology and Engineering Enzymes (LMBEE), Center of Biotechnology of Sfax (CBS), University of Sfax, Road of Sidi Mansour Km 6, P. O. Box 1177, Sfax, 3018, Tunisia

Abstract:

Carbon quantum dots (CQDs) are being considered for use in various biomedical applications because of their beneficial characteristics such as fluorescence, biocompatibility, cost-effective production, water solubility, small size, low toxicity, easy modification, and ability to be combined with other nanoparticles. CQDs have become a popular option in various biomedical uses, including nanocarriers for medicines, antimicrobial agents, therapeutic genes, and photosensitizers. Their capabilities have been verified on several diagnostic platforms, including cellular and bacterial bioimaging. Additionally, they have been utilized in the development of theragnostic nanomedicine. Enhancing the properties of carbon quantum dots by doping them with groups makes them more effective for applications, particularly in biomedicine. Our review is about the importance and effectiveness of these types of nanoparticles in biomedicine.

Session no.03	Pharmaceutical Toxicology, Clinical pharmacy & Pharmacology
Hall no.	127
Session date	8/5/2024
Session time	12:00- 1:30 pm
Chairman	Asst. Prof. Dr. Shahid Jamil
Coordinator	Assist lect. Sahand Hawro
	1:30- 2:30 Closing and recommendations

ICPAMS-24P15	
Title	Biosynthesis of gold nanoparticles with four different lactobacillu sspecies
Researcher/s	Sara Bahram Miran, Fattma Abodi Ali
Affiliation	Tishk International University, Hawler Medical University

Abstract:

Background: Exopolysaccharide production by many lactic acid bacteria of diverse genera and species has been widely explored. In this study, the biosynthesis of gold nanoparticles using cell-free culture supernatant of bacterial species was explored.

Methods: A total of 500 saliva samples were obtained from the oral cavity and cultured. The biosynthesis of gold nanoparticles was achieved by reducing chloroauric acid using the cell free culture supernatant of Lactobacillus species. Characterizations of gold nanoparticles were identified using Ultraviolet-Visible Spectroscopy, Fourier Transform Infrared Spectroscopy, Particle Size Analyzer (Dynamic Light Scattering), Zeta Potential, X-Ray Powder Diffraction, Transmission Electron Microscopy, Energy Dispersive X-Ray Analysis, and Atomic Force Microscopy.

Results: The samples contained 19 oral bacteria, including Lactobacillus fermentum, Lactobacillus plantarum, Lactobacillus casei, and Lactobacillus paracasei, that extracellularly produced gold nanoparticles when exposed to chloroauric acid in an alkaline medium. The optimal conditions for nanoparticle synthesis were determined as follows: incubation period of 24 hours, pH 8, and a concentration ratio of 1:10. The peak wavelengths observed in the Ultraviolet-visible spectra were 536 nm, 540 nm, 531 nm, and 545 nm, with average particle sizes of 25.44 nm, 27.6 nm, 29 nm, and 76.6 nm, respectively. Atomic Force Microscopy revealed spherical gold nanoparticles with varying surface topography, with L. casei exhibiting the roughest surface. Energy Dispersive X-Ray Analysis confirmed the presence of elemental gold nanoparticles.

Conclusion: The involvement of Lactobacillus species in the biosynthesis of gold nanoparticles suggests the potential utility of this method over chemical and physical approaches due to its cost-effectiveness and eco-friendliness.

ICPAMS-24P16	
Title	**Comparative study of different treatment modalities for breast cancer in erbil city**
Researcher/s	**Asmaa Abdulmajeed Ahmed**
Affiliation	**Pharmacy Department, College of Pharmacy, Knowledge University**

Abstract:

Breast cancer is a complex and heterogeneous disease with a high incidence rate between females worldwide. uncontrolled growth and spread of abnormal cells in the breast tissue is the main characteristics of this disease. Breast cancer is the major type of cancer that affect females with 40% mortality rates in the end stages of the disease with a range of 5-year survival. Triple negative breast cancer (TNBC) is heterogeneous disease with a distinct and challenging entity, TNBC is characterized by the absence of estrogen receptor (ER), progesterone receptor (PR), and human epidermal growth factor receptor 2 (HER2) expression. TNBC has some limited treatment choices less than other types of BC. Currently, breast cancer treatment include chemotherapy with some biological & immunotherapy drugs. Among the various subtypes of breast cancer TNBC treatment is less optional & more complicated than the BC. Although the chemotherapy is one of the treatment choices with addition of either biologic or target drugs such as PDL-1. The contemporary data show that the breast cancer now a days having the higher prevalent rate among other cancers due to the higher rates of new diagnosed cases during the past years. In general, the aim of this article is to provides comprehensive overview and comparative survey of pharmacotherpeutic modalities used for treatment of breast caner.

ICPAMS-24P17	
Title	Effects of antidiabetic agents on alzheimer's disease biomarkers in experimentally induced hyperglycemic rat model by streptozocin
Researcher/s	Shatw Kh. Ali
Affiliation	Department of Pharmacy, Knowledge University, Erbil, Iraq

Abstract:

Alzheimer's disease is the most common cause of dementia in the elderly population. It is characterized by the accumulation of amyloid ß and intraneuronal neurofibrillary tangles in the brain. Increasing evidence shows that the disturbance of insulin signalling in the brain may contribute to the pathophysiology of Alzheimer's disease. In type 1 diabetes, these disruptions are caused by hypoinsulinemia, but in type 2 diabetes, they are caused by insulin resistance and decreased insulin secretion. Multiple studies have shown that diabetes is connected with an increased risk of acquiring Alzheimer's disease. The aim of this study was to investigate the impact of anti-diabetic agents on Alzheimer's disease progression and the levels of Alzheimer's biomarkers in a hyperglycaemic rat model, which was induced by intraperitoneal injection of streptozocin to produce insulin-deficient diabetes.

Method :Thirty-six male Wistar albino rats were allocated into six groups of six rats each. Group I was the negative control group. Intraperitoneal injections of streptozocin (42mg/kg) were used once for the five experimental groups. Group II served as the positive control group. The rats in Groups III, IV, V, and VI received metformin (300mg/kg), donepezil (10mg/kg), insulin glargine (3 unit/animal), and glibenclamide (10mg/kg), respectively, for 21 days. Results : Inducing hyperglycaemia in rats significantly increased the levels of serum glucose, haemoglobin A1c, total cholesterol, triglycerides, high-density lipoprotein, interleukin 6, tumour necrosis factor alpha, amyloid ß 42, total plasma tau, and neurofilament light. A significant increase was also found in brain amyloid ß 42, nitric oxide, acetylcholinesterase, malondialdehyde, ß secretase, and phosphorylated microtubule-associated protein tau. The greatest statistically significant reductions in serum glucose, haemoglobin A1c, triglycerides, amyloid ß 42, total plasma tau, brain amyloid ß 42, acetylcholinesterase, and malondialdehyde were observed in rats treated with metformin. In contrast, rats treated with donepezil demonstrated the greatest statistically significant reduction in serum tumour necrosis factor alpha, brain nitric oxide, and ß secretase. The levels of neurofilament light and phosphorylated microtubule-associated protein tau in the brains of rats treated with insulin glargine were significantly lower than the other treatment groups. The total cholesterol and low-density lipoprotein levels in rats treated with glibenclamide exhibited the most statistically significant reductions of all the treatment groups.

ICPAMS-24P18	
Title	The impacts of dapagliflozin and eplerenone on cardiac biomarkers in Rats with Experimentally Induced Heart Failure
Researcher/s	Skala Mamand Jawhar[1], Zana Ahmed Mustafa[2]
Affiliation	[1]College of Pharmacy, Knowledge University, Erbil, Iraq.
	[2]Medical Technical Institute, Erbil Polytechnic University, Erbil, Iraq

Abstract:

Objective: This study was conducted to evaluate the effect of sodium-glucose co transporter inhibitor dapagliflozin alone and in combination with eplerenone on the cardiac biomarkers such as brain natriuretic peptide, N-terminal-pro hormone brain natriuretic peptide, troponin I, aldosterone hormone, along with renal function test including blood urea nitrogen, serum creatinine, and electrolytes in the treatment of rats with experimentally induced heart failure.

Method: Thirty Wister albino rats were randomly divided into five groups each of six rats, the first group served as a control group. The heart failure model was induced experimentally by intraperitoneal injection of isoprenaline 5mg/kg/day for one week for the rest of the experimental rat groups. The second group was a positive control. The third, fourth, and fifth groups received oral daily doses of dapagliflozin 10 mg/kg/day, eplerenone 100 mg/kg/day, and dapagliflozin-eplerenone 10,100 mg/kg/day respectively for four weeks.

Results: Induction of heart failure in rats has significantly raised circulating, brain natriuretic peptide, N-terminal-pro hormone brain natriuretic peptide, aldosterone, troponin I. Also, there was a significant alteration in renal function, in terms of blood urea nitrogen, serum creatinine, and electrolytes. Rats treated with dapagliflozin showed statistically significant decreases in brain natriuretic peptide, N-terminal-pro hormone brain natriuretic peptide, aldosterone, troponin I, blood urea nitrogen, and serum creatinine. Conclusion: The present study suggests that treatment with dapagliflozin preserves heart function in a heart failure rat model. Reducing the myocardial stretch might indicate the prominent role of dapagliflozin in improving the progression of heart failure. Moreover, the impact of dapagliflozin on renal function further contributes to cardiovascular benefits.

ICPAMS-24P19	
Title	Correlation of cyp2c19 single nucleotide polymorphism with clopidogrel resistance in coronary heart disease patients after percutaneous coronary intervention in erbil.
Researcher/s	Rawa Nadhim Jalal[1], Kawa Fareq Dizaye[2]
Affiliation	[1]College of Pharmacy, Knowledge University, Erbil, Iraq [2]Department of Basic Sciences, College of Medicine, Hawler Medical University, Erbil, Iraq

Abstract:

Background and objectives: Clopidogrel benefit has been limited by the inter-individual variations. Genetic polymorphism in CYP2C19 enzyme, has been found responsible on such variations and carriers of CYP2C19 loss of function alleles are associated with greater risks of adverse clinical outcomes after percutaneous coronary intervention (PCI). Therefore, the present study investigated the CYP2C19 genetic polymorphism among patients with coronary heart disease (CHD) undergoing PCI in Erbil and studied the correlation between these polymorphisms and clinical outcomes.

Methods: the current study was conducted on 70 patients with CHD undergoing PCI and taking 75mg clopidogrel therapy. Genotyping for CYP2C19 polymorphisms was performed for all the patients and clopidogrel therapy was switched to prasugrel (10mg) or ticagrelor (90mg) in patients found to be intermediate metabolizers (IM). The patients were then followed up for major adverse cardiovascular events (MACE) and bleeding outcomes four months post-PCI.

Results: only the CYP2C19*1, CYP2C19*17, and CYP2C19*2 alleles were identified among the studied participants. The patients were categorized to four phenotypes: normal, intermediate, rapid, and ultra-rapid metabolizers. No significant difference was found in the incidence of MACEs or bleeding events between clopidogrel and prasugrel/ticagrelor-treated patients at four months post-PCI.

Conclusion: It was concluded that although there is CYP2C19 polymorphism among people in Erbil, no correlation was found between different CYP2C19 genotypes and the incidence of adverse events and bleeding after PCI, in addition, conventional and genotype-guided therapy did not differ significantly in reducing MACEs and increasing bleeding risk. However, onducting a study on a larger sample size with a longer follow-up duration in the future, might yield better results.

ICPAMS-24P20	
Title	Role of cinnamon supplementation on glycemic markers, lipid profile, and weight status in type ii diabetes patients: a systematic review
Researcher/s	Dr. Sazan Mazin Talaat
Affiliation	College of Pharmacy, Knowledge University, Erbil 44001, Iraq

Abstract:

Type II diabetes has been on the rise for the past few decades and the current management plan of diabetes is challenging to individuals in keeping their blood glucose levels within normal limits. There is constant search of new ways to tackle these challenges. Cinnamon is suggested to have antihyperglycemic and lipid lowering effect and has been proposed to be utilized in type II diabetes. The aim behind this review was to explore the role of cinnamon in improving the glycemic status, lipid profile, and weight status of patients with type II diabetes. PubMed and ScienceDirect databases were searched for eligible studies conducted until February 2022, the outcomes measured were glycemic markers as primary outcome and lipid profile and weight status as secondary outcomes. A total of ten trials involving 861 patients were included. Five studies demonstrated reductions in glycemic markers (ranging between -0.56 and -1.9 mmol/L for fasting blood sugar and between -0.21% and -0.93% for glycated hemoglobin) while the remaining four did not show any significant reduction. The most improvements in glycemic markers were seen in patients with poorly controlled diabetes and patients with higher BMI (body mass index) values. The majority of the studies did not record improvement in lipid profile. Changes in weight status was only observed in the overweight patient category (BMI between 25 and 30). Overall, there is no coherent evidence to decide about antihyperglycemic, lipid lowering, and weight reducing effects of cinnamon in type II diabetes. Further trials are needed to reach a definitive verdict.

Part-2
Applied Medical Sciences

Session no.01	Mycology
Hall no.	159
Session date	7/5/2024
Session ttime	12:30-2:30 pm
Chairman	Prof. Abdullah H Al_Saadoon
Coordinator	Mr. Assad A. Ahmood
	2:30 Lunch period

ICPAMS-24S01	
Title	**Study on fungi associated with wet air coolers**
Researcher/s	**Dr. Salah Mahdi Saleem and Dr. Zean Zefenkey**
Affiliation	**Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil 44001, Iraq**

Abstract:

Wet air coolers WACs) are commonly utilized in arid and warm regions like the Middle East. An investigation comparing air conditioners with WA models revealed that WACs promoted interior humidity levels, which in turn facilitated the growth of fungus more than AC models did. The objective of the current study is to identify the fungal flora of WACs and assess their potential as a source of indoor airborne fungus.

In August 2023, a cross-sectional study was conducted in Erbil City. A fifty sawdust samples from 50 WACs were collected. Three pieces (2cmm length) of sawdust were placed on the surface of potato carrot agar medium and were incubated at a lab temperature. The developing fungi were morphologically identified. A 96% of samples were positive. 350 fungal colonies were counted related to 17 isolates beside the sterile mycelia. Aspergillus spp. had the highest occurrence and frequency rates (98% and 33.7%, respectively), followed by Cladosporium sp., (O=50% and F=20.6%). Penicillium sp., Alternaria sp., and Mucor sp. showed intermediate incidence. The remaining Actinomucor sp., Aureobasidium sp., Drechslera sp., Phoma sp., Pithomyces sp., Rhizopus sp., Scopulriopsis sp., Stachybotrys sp., and Trichoderma sp. had O ≤ % 8% and frequency≤ 5.1%.

Results showed that the sawdust of WAC provides a suitable environment for fungal survival accumulation, and reproduction. All isolates are more or less an agent of human diseases The subject need further studies to explain its relationship with indoor airborne fungi.

ICPAMS-24S03	
Title	**Phenotypic and molecular studies of fungi isolated from patients with otomycosis in maysan/iraq**
Researcher/s	**Azhar Lilo Sayyid[1], Ali A Kasim[1*], Sadiq Musa Ahmed[2]**
Affiliation	**[1]Department of Biology, College of Science, University of Misan, Maysan, Iraq** **[2]Department of Surgery, College of Medical, University of Misan, Maysan, Iraq**

Abstract:

Otomycosis is a superficial fungal infection of the external ear caused by various species of fungi especially Aspergillus spp. and Candida spp. A total of 109 (94.8%) patients were diagnosed clinically to have otomycosis, and the females affected more than males 60 (55%), 49 (44%) respectively. Age group (21- 30) appeared the highest infection rate (33.2%), whereas (11-20) showed the lowest (2.8%). A total of 112 isolates were identified: 72 filamentous fungi, and 40 yeasts. Aspergillus showed the most dominant (4 species, 57 isolates, 50.8% of a total isolates), followed by Candida (5 species, 40 isolates, 35.7% of a total isolates). A. niger was the most common species (41 isolates, 35.7 occurrence and36.6 frequency), followed by C. parapsilosis (15 isolates, 13.04% occurrence and 13.3% frequency), A. oryzae and Alternaria alternate showed less number of isolates (1), occurrence (0.86%) and frequency (0.89%). A. niger or A. flavuas complex, along with C. parapsilosis and C. albicans were appeared in some samples. Molecular study showed that all tested fungi yielded fragments of 500–700 bp. and the sequences of 7 tested species were 100% identical to the sequences of reference strains, except four species.

ICPAMS-24S08	
Title	**Two cases of skin mycosis due to hanseniasporaopuntiae and cutaneotrichosporon mucoides at basrah southern of iraq**
Researcher/s	**Haneen M. Abdulhafedh[1], Abdullah H. Al-Saadoon[2], Najwa M. Abu-Mejdad[1]**
Affiliation	**[1]Department of Biology, College of Science, University of Basrah, Iraq** **[2]Department of Pathological Analyses, College of Science, University of Basrah, Iraq**

Abstract:

Mycoses of the skin are a group of infections that affect the skin and its appendages, mainly caused by dermatophytic fungi, and may be caused by yeasts or rearly by non-dermatophytic molds. Skin swabs collected from 60 patients attending the Dermatology Clinics at Madinah Central Hospital and Al-Fayhaa General Hospital in Basrah province from October 2021 to March 2022 were surveyed for the presence of dermatomycoses. Direct microscopical examination was carried out with 15% KOH, and repeated cultures were performed on Sabouraud dextrose agar with chloramphenicol showed the same colonies. In this paper,we present two interesting cases in which Hanseniaspora opuntiae HAM17 and Cutaneotrichosporon mucoides HAM14 can be distinctly identified as causative agent of cutaneous mycoses. In the first case, we describe a new etiologic agent, Hanseniaspora opuntiae HAM17, which was implicated in a cutaneous infection in a 45-year-old woman with a history of diabetes mellitus, and to the best of our knowledege, it represents the fourth clinical case due to this fungus in the world. The second case involved cutaneous mycosis due to Cutaneotrichosporon mucoides HAM14 in a 23-year-old woman showed inflammatory lesions similar to acne on the back, and she was suffering from hormonal disorders. This case and the etiologic agent are reported for the first time in Iraq. The isolated yeast species were examined and purified for phenotypic identification and genetical analysis using the primers ITS1-ITS4. Sequences were deposited into Japanese Genbank as new strains under accession numbers LC722487 and LC722484.

ICPAMS-24S20	
Title	**Isolation and identification of fungi from diabetic foot**
Researcher/s	**Suadded A. Alani[1], Alyaa, A. Albadr[1] and Ahlam, A. Ali[2]**
Affiliation	**[1]Biology Department, Science College, Basrah University, Basrah, Iraq** **[2]Patrick G Johnston Centre for Cancer Research, Queens University Belfast, UK**

Abstract:

The main complications that associated with Diabetic foot is microbial infections. Precent study has included isolation and identification of fungi from patients who suffer from diabetic foot, antifungal susceptibility was performed as well. Fungal identification and antifungal susceptibility results was confirmed by using Vitek 2 technique. 80 samples were collected from diabetic foot ulcers,18 positive samples were recorded. Candida was prevalent. Five antifungals were tested, all isolates were susceptible except C. krusei was showed resistance against fluconazole and moderate resistance against flucytosine.

ICPAMS-24S36	
Title	The pathological changes associated with the genus of Streptococcus in immune modified model of rats
Researcher/s	Agharid A.Alrasheed[1], Mariam Ahmad Zaydan[2], Hassan H.K.Al-Bayati[1] Muthanna Sultan[2], Qusai Saleh Jumaa[1], Bashar Sadeq Noomi[1], Nihad Jafar Abdulhussain
Affiliation	[1]Department of Microbiology, College of Veterinary Medicine, University of Tikrit, Tikrit - Iraq [2]Department of Pathology, College of Veterinary Medicine, University of Tikrit, Tikrit - Iraq

Abstract:

The aims of this study determined to investigate the pathological Changes induced by streptococcus pyogen associated with modified imne model of rats, Twenty different samples of urine and feces were collected from patients infected with Streptococcus pyogenes in local hospitals of Salaheddin and Kirkuk, after conformation the samples were then followed by Vitek2 analysis. The results was showing that 98% of the samples were Streptococcus pyogenes bacteria, After confirmation , the samples were then taken to the central laboratories of Tikrit University to determine challenge dose of infection in the rats, The animal groups divided into 4 groups, each group :having 5 animals, and the fourth group was 5 animal for control, as follows The first group was injected with 0.5cc of the dose. The second group was 0.5cc. The third group was injected with 0.5 cc. After 3day the first group that was injected with 0.5 was killed. As for the second group, after 24 hours they had a strong allergic reaction with itching in all parts of the body. A third group was affected by the dose, it only affected their .rate of movement. The fourth group was considered negative as a control group.

Session no.01	Nanotechnology
Hall no.	149
Session date	7/5/2024
Session time	12:30-2:30 pm
Chairman	Prof. Dr Bashar Sadiq Noomi
Coordinator	Dr. Muthanna Sultan
	2:30 Lunch period

ICPAMS-24S04	
Title	The promoting role of zinc oxide nano particles (zo-nps) enhancing the immunogenic activity of escherichia coli lipopolysaccharides (elps) in vivo
Researcher/s	Muthanna Sultan[1], Hanen Omar Bahjat[1], Sanaa Saoud Ahmed[1], Bashar Sadeq Noom[1], Nihad Jafar Abdulhussain[1], Hassan H.K.Al-Bayati[2]
Affiliation	[1]Department of Microbiology, College of Veterinary Medicine, University of Tikrit, Tikrit - Iraq [2]Department of Pathology, College of Veterinary Medicine, University of Tikrit, Tikrit - Iraq

Abstract:

Escherichia .coli (E.coli) is considered one of the microorganisms that characterized as a double edge sord by their pathogenic role as well as commensal role. Lipopolysaccharides (LPS) is considered one of the endotoxins which are secreted by gram negative bacteria including E.coli. Nanoparticles (NPs) are natural metals that have the ability to access through such a different micro spaces area in the body suggesting the drug delivery function of these NPs. In this current study, after uploading the LPS on the ZnO, the results of the current study suggesting the delivery role of zinc oxide giving the rise for LPS to access through more larger area surfaces in the body which leading to significant immune response of different parameters in the body including body temperature, pyrogenic activity, Antibody titration as well as the level of the proinflammatory cytokines (TNF α) compared to LPS alone. Taken together, our data indicated a significant role for the Nanoparticles particularly zinc oxide promoting the antigenic and pathogenic role of LPS compared to LPS alone, this may suggest the future role that these nanoparticles may be playing through delivering other natural compounds or drug in a consistent dose which may increasing the role of NPs in the field of drug delivery and drug safety which leading to   improve the outcome of the treatment.

ICPAMS-24S05	
Title	**The green synthesis of zno nanoparticles using the aqueous extract of origanum majorana for antimicrobial applications**
Researcher/s	**Hamid M. Al-Gabr, Ammar H. Aldokari, Hussein K. Salam**
Affiliation	**Biology Department, Faculty of Education and Science, Albaydha University, Albaydha, Yemen**

Abstract:

Zinc oxide nanoparticles (ZnO-NPs) have been extensively researched for their potential applications in various fields such as pharmaceuticals, cosmetics, biotechnology, sensing, photocatalysis, and photovoltaics due to their unique nanoscale properties. However, the conventional methods for producing ZnO NPs require the use of hazardous chemicals and high energy consumption, which imposes certain limitations. In contrast, the green synthesis of ZnO-NPs using plant extracts, especially Origanum majorana, has gained much attention as a promising alternative approach. Plant extracts contain phytochemicals that are biologically safe and non-toxic, making them a preferred choice. In addition, the ZnO-NPs synthesized with O. majorana extracts exhibit higher stability and can be customized in terms of shape and size, unlike the ZnO-NPs obtained by bacterial or fungal methods. The aqueous leaf extract of O. majorana contains flavonoids, tannins, and phenolic derivatives, which serve as reducing and capping agents for the biosynthesis of ZnO-NPs. These extracts also contain functional groups such as -OH and -C=O, which further enhance the physicochemical properties of the resulting ZnO-NPs and influence their ability to target specific molecules. The plant-mediated synthesis of ZnO-NPs using O. majorana leaf extract is not only fast and straightforward but also offers a wide range of functionalized nanoparticles with specific morphologies and sizes. These ZnO-NPs prepared with O. majorana have been shown to have potential applications in various fields, including antimicrobial, antioxidant, and anticancer activities. This review focuses specifically on the antimicrobial applications of ZnO-NPs synthesized using O. majorana leaf extract.

ICPAMS-24S14	
Title	**Green synthesis of silver nanoparticles using rumex nervosus and evaluation of its in vitro antibacterial, and cytotoxic activity**
Researcher/s	**Ansam Wadia Faid Alshameri**
Affiliation	**Biological Sciences Department, Faculty of Science, Thamar University, Yemen**

Abstract:

In the present study, we have reported the low-cost, green synthesis of silver nanoparticles using Rumex nervosus (Rn) leaf extract. The biological synthesis of Rn-AgNPs employing plant extracts has become an optimistic substitute for the conventional chemical method of synthesis. Initially, the synthesis of Rn-AgNPs was explained by the optical study of the color change in the mixture. The biosynthesized AgNPs were characterized by UV-visible absorption spectroscopy, FTIR analysis, EDX, zeta potential, and DLS. TEM revealed that most of the Rn-AgNPs are spherical/oblong in shape with the average particle size falling in the range of 20-70 nm. The green synthesized Rn-AgNPs showed potent antibacterial and antibiofilm activity against the gram-negative (Escherichia coli) and gram-positive (Staphylococcus aureus) bacteria. The cytotoxicity assays of as-formed AgNPs exhibited minimal toxicity to human RBCs and PBMCs. Hence, these nanoparticles are considered non-toxic for use as drugs in biomedicine.

ICPAMS-24S15	
Title	**Green silver nano particles synthesized and crude methanolic extracts of carthamus tinctorius l. flower against candida albicans**
Researcher/s	**Sahar Hassannejad joined and Shaymaa Farouq**
Affiliation	**Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil 44001, Iraq**

Abstract:

Green synthesis of metal nanoparticles using plant extracts offers a safe and attractive alternate to the chemical methods. Carthamus tinctorius L. (Safflower) of family Asteraceae is a medicinal plant with great potential. Its extract and oil have many therapeutic uses and having great pharmacological importance. The present study, was conducted to investigate the effect of the crude secondary metabolite's compounds and green synthetized silver nanoparticles from flowers of (Carthamus tinctorius L.) against Candida albicans, isolated from stored medicinal plants seeds collected from different local markets in the province of Erbil 2023 in Iraq. Sabouraud dextrose agar (SDA) culture media used as a selective medium for growth of fungi. Crude methanolic extracts (concentration)and silver nanoparticles (50 ppm concentration) was prepared in the microbiology laboratory of Knowledge university and disc diffusion method was performed to determine the efficacy of both extracts on Candida albicans. Our results estimated that the efficacy of nanoparticles synthesized from safflower extracts show the best antifungal efficacy while the crude extracts show approximately similar effects as control on Candida albicans.

Session no.01	Molecular Biology
Hall no.	119
Session date	7/5/2024
Session time	12:30-2:30 pm
Chairman	Dr.Abdelrahman S. Ibramim
Coordinator	Mr. Rawaz R.Hasan
	2:30 Lunch period

ICPAMS-24S07	
Title	**Molecular and phylogenetic analysis of babesia gibsoni in dogs and it's infested ticks in nineveh province, iraq**
Researcher/s	**W.A.Alobaidii[1] ,S.Y.Albaroodi[1], D.A. Almashhadany[2]**
Affiliation	**[1]Department of Microbiology, College of Veterinary Medicine, Mosul of University, Mosul, Iraq** **[2]Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil, Iraq**

Abstract:

Through this study 50 different dogs in sex, age (6 months-2 years) source clinical manifestation and breeds. These animals were examined and the clinical signs apparent on them were recorded, and that information was recorded in the clinical examination card, when they were returned to the hospital. Blood sample was collected from cephalic vein of dogs ,the blood was transferred to anticoagulant EDTA tubes,in addition 130 ticks were collected directly from animals, kept in well-ventilated jars, and transported to the laboratory. then stored in 70% alcohol at − 20 °C till DNA extraction .

The results Polymerase chain reaction which can be used to detect the DNA of B.gibsoni showed 20 positive blood sample , and 80 ticks which give positive to B.gibsoni DNA ,   high prevalance of infection with animals which suffer from general weakness and enlargement of lymph nodes , the oldest animal showed high prevalence of infection with B .gibsoni when compare with youngest once , male dogs showed high prevalance than female, the native dogs recorded high prevalence than imported once , the largest breeds showed high prevlance than small breeds. At a final reaction volume of 672 bp, and after recording positive results in many samples, 10 positive samples were selected. After that, the genetic sequencing was performed for each sample. In Marcrogen Laboratory, Korea, determine the similarity of the genetic sequences. The results of the genetic sequencing of the small subunit ribosomal RNA gene of the B.gibsoni showed the presence of a genetic sequence of samples sent, where it was found that there were only one isolates out of the total blood samples sent for genetic sequences. They were registered in the gene bank with a serial number (WABG10) and another isolates from ticks (WABG22) the results of the multiple sequence alignment of the ssRNA gene of the B.gibsoni s showed the presence of fixed regions of the sequence of the nucleotide bases of the ssRNA gene as well as the presence of common, variable and missing regions among the sequences, while the results showed a similarity between the local isolates that carry the registry number of the Bank Genes (WABG22) with many global isolates registered in the gene bank.

ICPAMS-24S11	
Title	**A fingerprint of miRNA-93 in cancer progression and therapeutic targets**
Researcher/s	**Kazhal Shekh Mohamad Ibrahim and Shahlaa M. Abdullah**
Affiliation	**Department of Medical Laboratory Sciences, College of Sciences, University of Raparin, Ranya, Kurdistan Region of Iraq**

Abstract:

MicroRNAs (miRNAs) are small non-coding ribonucleic acids (RNAs) that can greatly influence cellular activity by interacting with mRNAs either individually or through RISC. This wide range of activity shown by miRNAs makes them highly sensitive, and any dysfunction on their part can cause many diseases, including cancer. MiR-93 is one such miRNA that has been found to be associated with various types of cancers, including hepatocellular carcinoma, breast cancer, gastric cancer, and lung cancer. This review article focuses on the role played by miR-93 in several common cancers to shed more light on miRNA and its association with cancer. The article discusses the oncogenic or tumour-suppressing function of miR-93 in different types of cancers and elucidates the various pathways through which miR-93 exerts its oncogenic or tumour-suppressing activities. The article also highlights potential therapeutic targets that can be developed based on the understanding of the underlying mechanism of cancer and the role of miRNAs in this disease.

ICPAMS-24S16	
Title	Screening of bean genotypes against bean common mosaic virus (BCMV) by artificial inoculation and molecular confirmation
Researcher/s	Abdulrahman Smail IBRAHIM[1], Mustafa USTA[2], Suat ŞENSOY[3]
Affiliation	[1]Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil 44001, Iraq. [1,3]Faculty of Agriculture, Department of Horticulture, Yuzuncu Yil University, Van, Türkiye [2]Department of Plant Protection, Faculty of Agriculture, Yuzuncu Yıl University, Van, Türkiye

Abstract:

Bean mosaic virus (BCMV) is a widespread plant pathogen that causes significant bean yield losses in several bean-growing regions worldwide. The use of resistant common bean varieties to BCMV is considered the most efficient and feasible approach to control its effects. Numerous genes and molecular markers associated with resistance to these pathogens have been discovered and used extensively in breeding studies around the world. Screening bean genotypes for resistance to these viruses is a critical step in developing resistant varieties. The goals of the study are to identify virus sources in the region and artificially inoculate Lake Van basin bean genotypes with BCMV. The recovered BCMV strain NL- 4 was inoculated with 45 bean cultivars, most of which originated from the Lake Van basin in Turkey. Differentiation between resistant and susceptible was based on visual symptoms, and of the 45 genotypes, 29 were found to be resistant to NL-4, while 16 genotypes were susceptible (8 of them moderately susceptible and 8 of them highly susceptible).

ICPAMS-24S21	
Title	Molecular diagnosis and phylogenetic analysis of chrysomya bezziana in baghdad city, iraq
Researcher/s	Dhifaf A. Kadhem Al-khazraji[1], Amer Murhum Abd AL-Amery[2]
Affiliation	[1]Ministry of Iraqi Agriculture, Department of Central Veterinary Laboratory & Researches [2]Department of Parasitology, College of Veterinary Medicine, University of Baghdad, Iraq

Abstract:

Third instar larvae of biophagous Chrysomya bezziana (Villeneuve) have been collected from Iraqi fields during period 2017and 2018, in which alive sheep of myiasis cases were the target animals, 21 cases with rate of infestation 45.65%, that were diagnosed according to morphology under dissecting microscope as Ch. bezziana out of 46 total cases. A molecular-based method of using two genes were done in this study in order to confirm of Ch. bezziana larvae that were gotten from various sites on the body of target animals including head, till buttocks and other wounds in which a conventional polymerase chain reaction (PCR) technique was designed to target the ribosomal DNA internal transcribed spacer 2 (rDNA ITS2); and mitochondrial DNA (mtDNA) cytochrome b gene of Ch. bezziana. After DNA extraction and PCR amplification, the results showed 100% accuracy of twenty-one Ch. bezziana larvae of both amplified DNA genes products; belonged to each larva. The 3 'terminal 761 nucleotides of the mitochondrial cytochrome b gene product were sequenced for 12 larvae of Old-World Screw worm Fly (OWSF) and phylogenetic analysis have been done in order to know genetic divergence and the identity with neighboring strains.

ICPAMS-24S30	
Title	**Isolation and molecular diagnosis of *staphylococcus aureus* from eye infections in domestic cats in mosul city**
Researcher/s	**Nagham Duraid Najm and Ihsan Muneer Ahmed**
Affiliation	**Department of Microbiology, College of Veterinary Medicine, University of Mosul, Mosul, Iraq**

Abstract:

Bacterial eye infections caused by Staphylococcus aureus are considered one of the most important infections that affect cats and cause serious health problems. Accordingly, this study was designed to isolate and molecularly identify S. aureus from eye infections from cats in Mosul city. A total of 100 eye swabs were collected from different cat species that attended the pet clinics and subjected to standard bacterial isolation and identification including Gram staining, culture on sheep blood agar and mannitol salt agarin addition to biochemical tests. Further confirmation was done using polymerase chain reaction (PCR) targeting nuc gene of S. aureus as molecular confirmation. Also, antibiotic sensitivity test (AST) was performed to determine antibiotic resistance. The results of the study showed that S. aureus was successfully isolated from 41/100 (41%) of the infected cats. In addition, the male cats represented 23/41 (56.1%) while the females represented 18/41 (43.9%). Furthermore, the cats aged $\geq$ 6 months were more susceptible to eye infections and recorded 29/41 (70.7) than cats aged $\leq$ 6 months and recorded 12/41 (29.3%). Also, PCR confirms S. aureus in all isolates with 279 bp for the nuc gene. The AST results showed the development of significant antibiotic resistance mainly against azithromycin, vancomycin, tobramycin, and ampicillin. In conclusion, eye infections caused by S. aureus are of significant importance in pet cats and the development of antibiotic resistance might have a human health impact, especially when these cats have close contact with humans.

Session no.01	Plant Extract and Water Pollution
Hall no	125
Session date	7/5/2024
Session time	12:30-2:30 pm
Chairman	Prof Dr. Hafith L. Al-Sadi
Coordinator	MS. Iman M. Rasool
	2:30 Lunch period

ICPAMS-24S10	
Title	Comparison of the effects of aloe vera gel and mebo ointment on the healing burn wounds in rabbit.
Researcher/s	Hesham Ali Al-Mahdi
Affiliation	Department of Public Health, Faculty of Agriculture & Veterinary Medicine

Abstract:

Burn trauma represents a type of injury that can be caused by heat, freezing, electricity, chemicals, radiation or friction. Although several studies have highlighted the beneficial effects of italic on burn wounds, limited clinical evidence exists in this regard. This study aimed to evaluate the impact of the italic gel and Mebo ointment on healing of burn in. This clinical trial study was conducted at Applied College of Science and Technology, Pharmacy Laboratory, Dhamar City, between the periods from February to March 2023. Twenty rabbits were randomly assigned to four groups as 1st, 2nd, 3rd and 4th, each group 5 rabbits. A deep second-degree burn on back of each rabbit was created with a standard burning procedure. 1st group was received italic (250mgl/kg), 2nd, 3rd groups received Mebo, Alo Vera gel plus Mebo(250mg/Kg) mixture respectively, 4th group acts as undertreated control. To determine the speed burn healing in all experimental groups' animals, of burn diameter was taken on the 1st, 3rd, 5th and 9th days post treatment. Results revealed that, although the wounds in all experimental groups healed up completely within nine days, the healing process the in experimental rabbits was faster in 1st group followed by 2nd and 3rd groups. Furthermore, of burn diameter was gel exhibited more effectiveness compared Mebo ointment and Aloe vera plus Mebo mixture. Statistically, significant differences ($P < 0.05$) were observed among treatment groups and control. In Conclusions, Aloe vera gel accelerates the healing process of burn wounds in rabbits, thus it could be used as promising drug for treatment of burns in human and animals.

ICPAMS-24S18	
Title	**Potential role of okra (Abelmoschus esculentus) mucilage in the pharmaceutical fields**
Researcher/s	**Hafidh I. Al-Sadi, Nawfal AM. Numan, Laith H. Samien, Fatima A. Tawfiq**
Affiliation	**College of Pharmacy, The university of Mashreq, Baghdad 10023, Iraq**

Abstract:

Mucilages have shown high demand in food and in other industrial applications such as film coatings, emulsifiers, disintegrants, binders, suspending and gelling agents. They are biodegradable, biocompatible, non-toxic, economical, and easily available. The natural polysaccharides found in plant mucilage have high antioxidant activity and thus prevent cell damage induced by reactive oxygen species. In addition, they increase the levels of superoxide dismutase (SOD) enhancing the antioxidant mechanism. Okra (Abelmoschus esculentus) mucilage has shown functional health properties, such as antitumor, antioxidant, antimicrobial, hypoglycemic, and antiulcerogenic activities, as well as the capacity to bind cholesterol and bile acids, removing toxins from the liver. It is a highly viscous polysaccharide that is mostly composed of monosaccharides D-galactose, L-rhamnose, and galacturonic acid, as well as proteins and minerals. Due to uts rheological properties, okra mucilage may be used as an alternative in the pharmaceutical industry and has attracted a great attention of researchers as diluents, binders, disintegrants in in tablets, thickeners in oral liquids, protective colloids, gelling agents and suppository bases. Generally, the plant mucilage could also be used as a film coating for microencapsulation, administration of osmotic and ophthalmological drugs, oral films, and drug delivery. This review paper aims to highlight the methods of extraction of okra mucilage, properties of this mucilage, and use of okra mucilage in the pharmaceutical fields.

ICPAMS-24S22	
Title	**Antibacterial activity of sesame oil against some pathogenic bacteria**
Researcher/s	**Alwan Qader Ahmed[1] and Iman Mohammed Rasool[2]**
Affiliation	**[1]Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil 44001, Iraq.** **[2]Department of Medical Microbiology, College of Science, Knowledge University, Erbil 44001, Iraq.**

Abstract:

Background: This study aimed to evaluate the antibacterial activity of sesame oil against three bacterial species.

Methods: The selected essential oils were screened against two-gram negative bacteria (Escherichia coli and Klebsiella pneumoniae) and one-gram positive bacteria (Staphylococcus aureus) at four different concentrations (25%, 50%, 75%, 100%) using disc diffusion method.

Results: The sesame oil shows the best antimicrobial activity with a zone of inhibition range of 13 -25 mm and also equal to standard Kenamycin (19-40 mm) and also it shows the highest zone of inhibition against Staphylococcus aureus

Conclusion: From this study, it has been concluded that sesame oil exhibited potent antimicrobial activity with selected microbial strains.

ICPAMS-24S31	
Title	Effect of some natural products against pathogenic bacteria
Researcher/s	Kashma Aswad Othman[1], Fattma A. Ali[2], Jihad Abdulrazzaq Sulaiman[3], Bayan Kakamand Jalal[1], Niga Aram Jalal[1], Dyari Hazhar Muhammed[1], Kasia Aswad Othman[2], Ali Asos Yaseen[4]
Affiliation	[1]Department of Medical Microbiology, Faculty of Science and Health, Koya University, Koya KOY45, Kurdistan Region - F.R. Iraq [2]College of Health Sciences, Hawler Medical University, Erbil, Iraq [3]College of Dentistry, Hawler Medical University, Erbil, Iraq [4]Microbiology unit, Maternity Hospital, Erbil, Iraq

Abstract:

Background: an elevation of multidrug resistant bacteria put the world in alert and search for novel antibacterial agents against such a life threating microbe. Natural products and their derivatives have emerged as a promising therapy option for a variety of infectious disease, notably in the fight against drug-resistant microbial strains, the utilization of naturally occurring antimicrobial compounds is becoming more important in plant chemotherapy, with greater significant values.

Methods and Objective:This study investigates antibacterial activity of different extracts from plant sources such as Pomegranate peel, Clove, Rosemary oil, Lemon peel oil and Basil oil and Pestacia atlantica oils that are available in Kurdistan markets and used by peoples as an alternative medicine for treatment of bacterial infection. For example, H. pylori infection and skin infection. In order to screen the activity of each product, disk diffusion method was used by culturing the pathogenic bacteria's such as Salmonella typhi, Escherichia coli (ATCC 25218) and Staphylococcus aureus (ATCC 25923) on Mueller Hinton Agar (MHA), then putted the disks that impregnated with each natural product on cultured medias. Most of the natural products have shown an antibacterial activity against the tested bacterial pathogen by producing a clear zone around the disks.

Results: the result of test shown that the basil essential oil and pomegranate peel extract were more.

ICPAMS-24S35	
Title	**Efficiency of dodonaea viscose to phytoremediation of heavy metals contaminated soil**
Researcher/s	**Shilan Farhad Mamand**
Affiliation	**Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil 44001, Iraq**

Abstract:

Purpose –Study was designed to investigate of Dodonaea viscose efficiency to intake, transport, and storage of Cadmium, Zinc and Copper metals from contaminated soils.

Design/methodology/approach – In current study, to assess phytoremediation of Dodonaea viscose, plants were cultivated in pot experiments for six months after receiving different treatments with Cd, Zn, and Cu . Metals concentrations in soil and plant parts was measures by using XRF instrument. Also, various parameters, such as the Bioaccumulation Factor (BF), Translocation Factor (TF) and Contamination Factor (CF) were determined.

Findings – The results indicated that D. viscose absorbed metals from the soil in the following order: root > shoot > soil and three metals are effectively restricted in the root. For BF: Zn >Cu > Cd was the order in which D. viscose absorbed heavy metals from soil to their parts. Also, D. viscose result showed that the TF for the metals Cd, Zn, and Cu were less than one. For CF results the highest values were recorded under D4, for Cd in root 31.0 ±1.86 mg.kg-1 and the lowest levels was 0.276 ±0.08 mg.kg-1 under D1, for Zn in soil.

Originality/value – As a result of the lack of vegetation cover and the contamination of the soil with heavy metals. Study of phytoremediation for soil contaminated with heavy metals, which are very few in my country, is essential to provide the possibility of applying this green technology.

Workshop	The impact of electronic waste on human health and environment
Presenters	Ms. Alwan Qader, Mrs. Shilan Farhad and Dr Abdulmunim Dherar
Hall no.	149
Time	9:30-10:00 am

Session no.02	Public Health
Hall no.	159
Session date	8/5/2024
Session tate	10:00-11:30 am
Chairman	Prof. Dr. Nethal Abdelkader
Coordinator	Dr. Hoshyar S. Ali
	11:30-12:00 Cafe Break

ICPAMS-24S13	
Title	Estimation of antioxidants of some biochemical parameters in cardiovascular patients
Researcher/s	Salma A. Abdullah[1], Yaser A.M Sulaiman[1], Firas Taher Maher[2]
Affiliation	[1]Department of Clinical Lab Science, College of Pharmacy, Tikrit University, Iraq [2]Department of Chemistry, College of Science, Tikrit University, Iraq

Abstract:

This research targeted to review the degrees of zinc, glutathione peroxidase, coenzyme Q10, anti-diuretic hormonal agent (ADH) together with vitamin E. Furthermore, an evaluation was performed on the lipid account degrees. The research checked out 90 examples consisting of 30 control individuals aged 23 to 55 as well as 60 people aged 35 to 75 years. Both the people and also controls were needed to offer a typical quantity of 5 milliliters of venous blood. The blood examples were permitted to coagulate for 10 mins at area temperature level. The lotion was ultimately based on centrifugation at a rate of 4000 changes per min for a period of 10 mins. The example was separated right into 3 tubes as well as kept at a temperature level of -20 ° C in tiny 1.5 mL epindroof tubes till it awaited evaluation. The research study disclosed a considerable decline in zinc, vitamin-E, CoQ10, together with ADH degrees in clients when contrasted to the control team ($P \leq 0.05$). The individual team exhibited dramatically reduced HDL degrees as well as considerably greater degrees of Glutathione Peroxidase ($P \leq 0.05$), cholesterol, triglycerides, LDL, plus VLDL, when contrasted to the control team.

ICPAMS-24S23	
Title	Transforming Healthcare with AI: Reviews on Deep Learning for Various Disease Diagnoses
Researcher/s	Mustafa Zuhaer Nayef Al-Dabagh[1], Hussein Ibrahim Hussein[2,3], Saifuldeen H. Abdulrahman[1], Salar Ameen Raheem
Affiliation	[1]Department of Computer Science, College of Science, Knowledge University, Erbil 44001, Iraq [2]Department of Computer Techniques Engineering, Alsafwa University College, Almamalie str, Karbala, Iraq [3]Department of Information Security, College of Information Technology, University of Babylon, Hillah, Iraq [4]Department of Information and Communication Technology Engineering, Erbil Polytechnic University, Erbil, Iraq

Abstract:

The recent advances in deep learning are very impactful in the field of medical diagnostics and bring about new, very promising opportunities in the areas of disease detection and classification. In this review paper, we will discuss the immense impact that artificial intelligence (AI), in general, and specifically, deep learning, has caused in the field of healthcare diagnostics in diseases ranging from infectious diseases, cardiovascular disorders, cancer, and many more. It has been, therefore, vivid that integrating AI, especially the deep learning approaches of Convolutional Neural Networks (CNNs) and Recurrent Neural Networks (RNNs), has furthered so much accuracy, efficiency, and patient outcomes in healthcare diagnostics. This paper illustrates that deep learning improves the detection and classification of diseases, and it also shows the role of the technology used in predicting the progress of a disease and response to treatments. The paper also highlights the challenges of privacy, interpretability, and integration into health systems among the significant opportunities to advance these areas and realize the full potential of AI.

ICPAMS-24S27	
Title	Evaluation of nutritional status, therapeutic nutrition services and health care for chronic diseases patients in some public and private hospitals in yemen
Researcher/s	Adel Ali Ahmed Omar[1] and Amin Mohammed Ahmed Alwaseai[2]
Affiliation	Biotechnology and Food Technology Department, Thamar University, Yemen Faculty of Agriculture and Veterinary Medicine, Thamar University, Yemen

Abstract:

A reconstitutable suspension of Aceclofenac and Paracetamol loaded microspheres was developed using Sodium alginate and Eudragit RS/RL 100 as release modifier polymers for osteoarthritis pain management. Microspheres were prepared through w/o emulsification and w/o/o double emulsion solvent diffusion techniques, then characterized for yield, encapsulation efficiency, particle size distribution, surface morphology, and in-vitro drug release profile. The optimized Aceclofenac formulation comprised core alginate microspheres with 5% polymer and 250 mg Aceclofenac at 25ºC, coated with Eudragit RS/RL polymer (4% of Eudragit RS/RL with core to coat ratio of 1:2). This formulation yielded 88.1% with 90.2% entrapment efficiency. Similarly, the optimized Paracetamol formulation consisted of Eudragit microspheres with a drug to polymer ratio of 1:2 and a polymer ratio of RS to RL of 2:1, yielding 85% with 98% entrapment efficiency. Particle size distribution was within the desired range. The suspension exhibited favorable characteristics such as viscosity, sedimentation volume, redispersibility, and palatability. In vitro drug release profiles demonstrated sustained release patterns facilitated by RS/RL Eudragit polymers. Over 8 hours, aceclofenac and paracetamol exhibited 72.4% and 74.5% drug release, respectively. This novel dosage form addresses the needs of osteoarthritis patients, particularly the elderly requiring larger doses. By achieving sustained release and maintaining favorable suspension properties, it fulfills its therapeutic objectives effectively.

ICPAMS-24S28	
Title	**Occurrence of vibrio parahaemolyticus in humans and fish meat from al-hodeida governorate**
Researcher/s	**Dhary Alewy Almashhadany and Rasha Naser Aziz**
Affiliation	**Department of Public Health and Zoonoses, Faculty of Veterinary Medicine, Thamar University, Dhamar, Yemen**

Abstract:

This study was carried out to determine the occurrence of V. parahaemolyticus in human and fish meat in Al-Hodeida Governorate. Two hundred twenty five (225) Samples were collected and examined, of these 75 stool samples of humans and 150 samples of fish meat were collected. Our result revealed that, the overall occurrence rate of V. parahaemolyticus in human and fish meat samples was 7.1%. The occurrence rate of V. parahaemolyticus in human was 6.7 %. The Higher percentage of infection was recorded in males (6.8%); whereas, the lower in females (6.5%). In fish meat study, the result revealed that the occurrence rate of V. parahaemolyticus in fish meat was 7.3%, and the highest occurrence rate of isolated bacteria was from Bagah 6 (20.0%), followed by Derk 4 (13.3%), then Beath 1 (3.3 %), but we didn't isolate V. parahaemolyticus from Safon and Sakalah. The results of this study revealed that V. parahaemolyticus infections are prevalent in humans and fish meat in study areas and suggested that further studies and control measures of disease are needed.

ICPAMS-24S34	
Title	Isolation of salmonella species from table eggs at dhamar city, yemen
Researcher/s	Ahmed S. Alhajj, Fateh A. Badi, Yousef A. Jaber and Abdullgabar T. AL Washali
Affiliation	Department of Public Health and Zoonoses, Faculty of Veterinary Medicine, Thamar University, Dhamar, Yemen

Abstract:

Poultry products, such as eggs, provide essential nutrients to the human body and therefore play a vital role in the human food sources. Salmonella is one of the most foodborne pathogens and has been found to be prevalent in eggs. This study was conducted to isolate the Salmonella spp in eggs at Dhamar city, Yemen. A total of 840 eggs including balady and commercial eggs which represent 140 samples every 6 eggs represent one sample (30 samples of balady eggs and 110 samples of commercial eggs) were collected randomly from markets in Dhamar city, Yemen. Shell and contents of the eggs, were evaluated for Salmonella contamination using standard culture methods.

Out of 140 samples examined 24 samples were infected with Salmonella. Shell contamination of commercial eggs and balady eggs with Salmonella were 11.8% and 6.7%, respectively. Content contamination of commercial eggs and balady eggs with Salmonella were 7.3% and 3.3%, respectively. Antibiotic susceptibilities of 24 Salmonella isolates recovered from eggs were tested. Among the 6 antibiotics studied, the highest resistance was observed to Doxycyclin, Ciprofloxacin, Gentamicin, Ceftriaxone, and Amikacin with 79%, 75%, 62.5%, 50%, and 41.7% respectively and the lowest resistance was to Azithromycin with 25%. The findings of this study were indicative of the presence of Salmonella contamination in commercial eggs and balady eggs, thus it is of great importance to observe the hygienic points, including proper and adequate cooking of eggs. Also, excessive use of antibiotics in poultry farms should be avoided to prevent the spread of resistant bacteria.

Session no.02	Physiology
hall no.	149
Session date	8/5/2024
Session time	10:00-11:30 am
Chairman	Prof Dr. Ahmad Ibraheem
Coordinator	Mr. Abdullah Othman Hasan
	11:30-12:00 Cafe Break

ICPAMS-24S17	
Title	**Effects of artificial sweeteners: aspartame-, dextrose, stevia- and sucrose-sweetened on blood glucose**
Researcher/s	**Abdullah Othman Hassan**
Affiliation	**Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil 44001, Iraq.**

Abstract:

Aspartame-, dextrose, sucrose, and Stevia (Stevia rebaudiana Bertoni) are natural and healthy alternative sweeteners to sugar and artificial sweeteners, which have become important for human diets and food manufacturers. In this study, the effects of aspartame-, dextrose, sucrose, and Stevia as tea sweeteners on the glycemic of type 2 diabetic patients were investigated.

A study was carried out in 40 type 2 diabetic patients and 20 individuals as control have no diabetes. These patients and individuals as control have to get aspartame-, dextrose, sucrose, and Stevia in tea, on different days (each day one type of Artificial Sweetener. for each one doing FBS before getting sugar(tea) and then doing RBS twice time after eating tea.

There is a non-significant difference in group control no diabetes but there are significant differences between blood glucose and Artificial Sweeteners: aspartame-, dextrose, stevia- and sucrose.

In conclusion, the consumption of calorie-free beverages sweetened like stevia, aspartame, and sucrose has minimal influences on total daily energy intake, glucose, and insulin responses compared with a sugar-sweetened in healthy and diabetic persons.

ICPAMS-24S19	
Title	From epidermis to subcutameous: decoding the layers of canine skin histology
Researcher/s	Oday A. Al-Juhaishi, Firas Abbas Hussen, Qusai Saleh Jumma, Jassim M. Suleiman, Muthana Sultan
Affiliation	College of Veterinary Medicine, University of Tikrit, Iraq.

Abstract:

The skin of dogs is a dynamic complicated system that plays a crucial role in maintaining the comprehensive health of the animal. This structure is composed of several layers, each having unique properties and functions. Specimens were used from several regions of the hindlimb and forelimb, including the medial and lateral of the arm and thigh, as well as dorsal and palmer regions of the distal limbs.

Findings showed that the epidermis is the outer layer that contains keratinocytes, melanocytes, and Langerhans cells which form the stratified layer. This layer works as a protective barrier in opposition to environmental offense and regulation of water loss. While, the dermis layer is composed of collagen and elastic fibers, and contains accessory structures such as sweat glands, hair follicles, blood vessels, and nerve endings each with a specific function. The deepest layer of skin is the hypodermis or subcutis which consists of a single or multilayer of adipose tissue for energy storage and providing insulation.

Thus, the histological organization of canine skin is an essential and fascinating aspect of veterinary pathology that continues to improve veterinary dermatology.

ICPAMS-24S35	
Title	Ameliorative effects of adansonia digitata on diabetes in albino rats: enhanced biochemical responses
Researcher/s	Dhuha W. Salih[1], Husamuldeen S. Alnajar[2] , Buthina A. Abdullah[3] and Dakheel H. Hadree[4]
Affiliation	[1,2,3,4]Department of Physiology, Biochemistry, and Pharmacology, College of Veterinary Medicine, Tikrit University, Tikrit, Iraq.

Abstract:

Objective of current explore is to determine protective effect of baobab plant (Adansonia digitata) and metformin by examining several biochemical and biochemical indicators on the kidneys and liver of rats treated with alloxan to induce diabetes. Seventy adult Albino rats divided to 7 groups: The study involved diabetic rats in different groups, each receiving different treatments. The control group received alloxan monohydrate, while the group with Baobab received 500 mg/kg orally. The group with metformin received 100 mg/kg orally. The treatments were administered orally for 15 and 30 days. The baobab intake, alone or in conjunction with metformin, on different parameters in a diabetic animal model. The results looked good. Treatment with baobab has improved renal function, as demonstrated by lower urea and creatine levels. Lipid profile research revealed a decrease in triglyceride levels as well as fluctuations in HDL and cholesterol levels, all of which have a good effect on lipid control. In conclusion D.M. in male rats increased kidney function markers and hepatic enzymes, but baobab plant treatment reduced these levels, indicating potential to mitigate adverse effects and increase beneficial fat levels.

ICPAMS-24S02	
Title	The pathological changes associated with the genus of streptococcus in immune modified model of rats
Researcher/s	Agharid A.Alrasheed[1], Mariam Ahmad Zaydan[2], Hassan H.K.Al-Bayati[1] Muthanna Sultan[2], Qusai Saleh Jumaa[1], Bashar Sadeq Noomi[1],Nihad Jafar Abdulhussain[1]
Affiliation	[1]Department of Microbiology, College of Veterinary Medicine, University of Tikrit, Tikrit, Iraq [2]Department of Pathology, College of Veterinary Medicine, University of Tikrit, Tikrit, Iraq

Abstract:

The aims of this study determined to investigate the pathological Changes induced by streptococcus pyogen associated with modified imne model of rats, twenty different samples of urine and feces were collected from patients infected with Streptococcus pyogenes in local hospitals of Salaheddin and Kirkuk, after conformation the samples were then followed by Vitek2 analysis. The results were showing that 98% of the samples were Streptococcus pyogenes bacteria, after confirmation, the samples were then taken to the central laboratories of Tikrit University to determine challenge dose of infection in the rats, The animal groups divided into 4 groups, each group: having 5 animals, and the fourth group was 5 animals for control, as follows the first group was injected with 0.5cc of the dose. The second group was 0.5cc. The third group was injected with 0.5 cc. After 3day the first group that was injected with 0.5 was killed. As for the second group, after 24 hours they had a strong allergic reaction with itching in all parts of the body. A third group was affected by the dose, it only affected their rate of movement. The fourth group was considered negative as a control group.

ICPAMS-24S29	
Title	**Pathogenesis of leishmania tropica in Balb/c mice due to the lack of endogenous interleukin-12**
Researcher/s	**Kawan, M.H[1]; Altamemy, A.K. Aakool[2] and Al-Saqur, I.M[2].**
Affiliation	**[1]Department of Parasitology, College of Veterinary Medicine, University of Baghdad, Iraq** **[2]Department of Biology, College of Science, University of Wasit, Kut, Iraq**

Abstract:

Enzyme Linkage Immunosorbent Assay (ELISA) was used to detect levels of interferon gamma (IFN-γ) in mice infected with (3 x 106) stationary phase promastigotes and treated with anti-interleukin-12 twice weekly for four weeks after first week PI. the levels of IFN-γ elevated obviously during course of infection in the (control +) group of infected mice in compared with the (control ⁻) the increase occurred at (7) days PI and reached a peak at (28) days then declined slightly in the next days to the end of the experiment, whereas group (2) that treated with anti-IL-12 showed low level of IFN-γ during course of treatment. The immuno-pathological changes in liver appeared as increasing liver weight / body due to parasite visceralizes in the liver tissues. Leishman-Donovan bodies (LD body) were observed in liver impressions and assembled of fluxing blood monocytes to form mature granulomas in liver parenchyma.

The liver/body weight correlates with the INF-γ and its concentration, this correlation obviously appeared at days (14) PI and later in groups of infected Balb/c mice, the high INF-γ concentrations associated with low liver/body weight and also correlates with granulomas lesions, the high concentrations of INF-γ associated with large number of mature granuloma in the liver but group (2) which treated with anti-IL-12 showed low concentration of INF-γ and a few focci of mature granuloma.

Session no. 03	Epidemiology
Hall no.	149
Session date	8/5/2024
Session time	12:00- 1:30
Chairman	Prof. Dr. Amer Merhim
Coordinator	Dr May H. Kawan
	1:30- 2:30 Closing and recommendations

ICPAMS-24S24	
Title	Feline dermatoses presented at veterinary clinic in malaysia, clinical cases
Researcher/s	Al-Sultan, I. Imad.[1] Al-Mashadanie, N.N.[1] Shalsh, F.J.[1] Al-Mahdi, Y. Abdullah[2]
Affiliation	[1]International Medical School (IMS), Management and Science University (MSU), ShahAlam, Malaysia [2]Industrial Microbiology Department, Ministry of Science and Technology, Baghdad ,Iraq

Abstract:

Feline skin problems can be classified into infectious cases such as bacterial, fungal, viral or parasitic; and non-infectious cases such as immune-associated, nutritional, endocrine, metabolic or traumatic injuries and miscellaneous. Most infectious feline skin diseases may pose risk of zoonosis to handlers and owners. Total 332 cats presented were examined for skin problems. In a one-year period, out of them 15.7% of the cats were presented with dermatological disorders examined at the Veterinary Clinic, Kelantan, Malaysia. In cats, the most common dermatoses were parasitic aetiologies 105 cases (31.62%), traumatic dermatoses 79 cases (23.79%), fungal dermatoses 84 cases, (25.30%), bacterial dermatoses (32 cases (9.63%), immune-associated dermatoses 17 cases (5.12%), viral dermatoses 3 cases, (0.90%), and other dermatoses 12 cases (3.61%). Parasitic skin problems overall were highly associate with cats that have access to outdoor environment which were outdoor cats (25.7%) and semi- roamer cats (38.6%) which accumulate as 67.3% from total parasitic dermatoses where there is increased risk of direct contact to infested cats. It must therefore be emphasized that the results of the study must be considering some of the following inherent biases where case material was drawn solely from the registered clinical cases, and which case distribution may vary to those available cases to the average private practitioner; individuals studied the animals emphasized on primary complaint of skin problem; and the period covered only for one year.

ICPAMS-24S26	
Title	**Bacterial study of lower respiratory tract infections and its antibiotic resistance in dhamar governorate, yemen**
Researcher/s	**Yousef A. Jaber, Fateh A. Badi, Ahmed S. AL-Hajj and Abdullgabar T. AL-Washali**
Affiliation	**Department of Public Health and Zoonoses, Faculty of Veterinary Medicine, Thamar University, Dhamar, Yemen**

Abstract:

Lower Respiratory Tract Infections are one of the most important public health concern, and that resulted from bad consequences such as disability and short life span in addition to economic burden. This study aimed to detect and identify the bacteria associated with LRTI in accordance with related risk and antibiotic resistance pattern. Prospective study was done on 130 Yemeni patients suffering of Respiratory tract infection during the period from May to Dec. 2020. The sample collected in Dhamar city from the private and public hospitals and centers. Demographic and clinical data were collected using interviewing questionnaire tool. Conventional microbiological techniques were used for isolation and identifying the bacteria, for Mycoplasma and Chlamydia, the specific antibodies ELISA test were used. The result of this study revealed that associated bacteria with LTRI were Staph. aureus (29.2%) E.coli (21.5), S.pneumoniae (10.8%), Klebsiella (10.2), S.pyogens (9.2%), Pseudomonas (4.6%), Mycobacterium (1.5%), Moraxella (1.5%), Mycoplasma pneumonia (17.7%) and Chlamydia pneumonia (10%). According to the gender the identified bacteria in male were significantly higher than female (P <0.03), conversely the M.pneumoniae were significantly higher in female than male (P<0.005). high percentage of identified bacteria were from non-educated patients in comparing to the others. The Amikacin and Gentamicin were the most effective antimicrobial, whereas the highest resistant were for penicillins. This study conclude high percentage of LTRI were associated with antimicrobial resistant bacteria, and further wider studies are recommended to evaluate the epidemiological status of LTRI along with clinical consequences.

ICPAMS-24S06	
Title	COVID-19 in vaccinations patients with heart failure in east of libya (Elmarj, Dernah and Ajdabya Isolation Centers)
Researcher/s	Emad Amkhatirah[1], Abdelsalam Abdelkarem[2],Ali Ali[3],Aml Mohammed[4]
Affiliation	[1]Department of Public Health and Preventive medicine, Xiangyi School of public Health Changsha, China [2]Department of Medicine, Faculty of Medicine, University Benghazi, Libya [3]Infection Control Department, Elmarj hospital. Libya [4]Department of Medicine, Faculty of Medicine, University Benghazi, Libya

Abstract:

Hospitalized patients with heart failure (HF) who have COVID-19 are more likely to have a fatal result. The purpose of this study is to analyze COVID-19 in patients who have heart failure and have received vaccinations in the east of Libya (Elmarj, Dernah, and Ajdabya Isolation Centers). This study's examine information from 180 patients' medical records. In the months of October and December 2021, the study was carried out. Patients with COVID-19 who were receiving treatment at the isolation centers in Elmarj, Dernah, and Ajdabya were enrolled as study subjects. Regression analysis was used to assess the significance of the differences between the vaccinated and unvaccinated groups. In statistical computations, regression analysis is a method frequently used to examine the connection between many variables and forecast a variable. The findings of this research show that a variety of factors, such as gender, age, and heart failure, might affect one's risk of dying from the virus. However, COVID-19 immunization could reduce this risk. Patients with heart failure should get the COVID-19 vaccination since the benefits of prevention outweigh the risks of unfavorable effects or outcomes.

ICPAMS-24S12	
Title	Prevalence of campylobacter spp. in broiler chicken meat in slaughterhouses in dhamar province
Researcher/s	Mohammed Naji Ahmed Odhah[1], Dhary Alewy Almashhadany[2] Radi Abdullah Al-Radi[3]
Affiliation	[1,2]Department of Veterinary Public Health, Faculty of Veterinary Medicine, Thamar University, 87246 Dhamar, Yemen [3]Department of Project Management, Faculty of Built Environment, University of Malaya, 50603 Kuala Lumpur, Malaysia

Abstract:

Campylobacter species is a common pathogen that causes a variety of infections including gastrointestinal infections, septicemia, and the rise in the incidence of Campylobacter infections has been reported worldwide. A total of 600 samples including 300 of chicken meat (muscles, liver, and heart) and 300 swabs from slaughterhouses (scalding water, de-feathering machine, and working table), were collected from local poultry slaughterhouses in City Central and another three districts in Dhamar province from March to February 2022. The results revealed Campylobacter spp. in broiler chicken carcasses and used slaughterhouse tools amounting to 9.6% across all the districts. The overall isolation rate was 11.3% from the carcass, which was (3.6%) in muscles, (4.6%) in the liver, and (3%) in the heart. The percentages of contamination in swabs of scalding water (52 °C), de-feathering machine, and working table were 2.3%, 4%, and 1.6%, respectively. Isolates also showed the presence of C. jejuni IV with the highest incidence rate (47.58%) in chicken carcasses, followed by C. jejuni biotype III (41.6%) in slaughterhouses equipment, then C. jejuni biotype II (23.52%) in chicken carcasses and (29.16%) in slaughterhouse equipment. Whereas C.coli II (20.58%) was isolated from chicken carcasses, and its slaughterhouse equipment was (20.83%), while C. lari was presence in two biotype I, II in chicken carcasses at rates of (8.82%) and (2.94%) respectively, and finally, C. hepaticus (8.33%) showed the lowest contamination in slaughterhouse equipment, and no contamination was found on chicken carcasses. Concerning the antibacterial resistance assays the highest resistance was observed against Ampicillin and Trimethoprim (100%), followed by Amoxicillin (50.0%), Cephalothin and Tetracycline (46.2%), Chloramphenicol and Gentamycin (22.94%), Streptomycin (19.88%), Nalidixic Acid (18.82%), then Erythromycin with (14.71%).

Session no. 03	Bacteriology
Hall no.	159
Session date	8/5/2024
Session time	12:00- 1:30 pm
Chairman	Dr Zean Zefeneky
Coordinator	Mrs. Shaymaa Farooq Mala
	1:30- 2:30 Closing and recommendations

ICPAMS-24S09	
Title	**Qualitative characteristics of bottled water in diyala governorate to zamzam water: a comparative study**
Researcher/s	**Abed Sultan Hassan, Nadia Abd Ellatif Ali**
Affiliation	**Bilad Alrafidain University College Diyala, Iraq**

Abstract:

Studies conducted on the chemical composition of Zamzam water are conflicting especially for arsenic. Therefore, the aim of our study is to study the composition of tap and bottled Zamzam water and to compare its quality according to international guidelines of drinking water. Six Zamzam tap water samples as well as Two common types of mineral water in Diyala Governorate, namely "Rounaq" and "Naba' AlRayan," were selected for a detailed assessment of their physical, chemical, and bacteriological properties. The physical examination was conducted at Al-Rafidain University College, while the chemical and bacteriological examinations were performed at the Central Public Health Laboratory in Baghdad Governorate. The results indicated that the physical characteristics of Zamzam water were very good in terms of taste, odour, and colour, followed by Rounaq water and Naba' Al-Rayan water. Regarding the chemical examination, all the studied samples' (PH) values were slightly alkaline, with a neutral (PH=7). The results also showed that Zamzam water contained a good concentration of dissolved salts within the permissible range Significant differences were detected regarding inorganic elements at a constant temperature. Zamzam water contains significant amounts of minerals such as potassium, calcium, magnesium, sodium, sulfates, bicarbonates, and nitrates, contributing to its distinctive nutritional value. The bacteriological examination results indicated that all the studied water samples were free from bacterial and pathogenic contamination, assuring the absence of any contamination and a reduced likelihood of disease-causing agents.

ICPAMS-24S25	
Title	**Vancomycin non-susceptible staphylococcus aureus: a review of status updating in iraq**
Researcher/s	**Zean Zefenkey**
Affiliation	**Department of Medical Laboratory Science, College of Science, Knowledge University, Erbil 44001, Iraq.**

Abstract:

Staphylococcus aureus is considered one of the most severe pathogens in the world, especially, after emerging of methicillin-resistant Staphylococcus aureus that associates with high pathogenicity and mortality. Vancomycin is the first-line treatment of methicillin-resistant Staphylococcus aureus infection worldwide. Unfortunately, Vancomycin non-susceptible Staphylococcus aureus strains have also emerged, making controlling of Staphylococcus aureus infections a global health challenge. The availability of accurate epidemiological information from all over the world aids in developing the best surveillance and control programs, thus limiting the spread and evolution of infections. In this paper, we review the mechanism of vancomycin resistance in Staphylococcus aureus and focus on the emergence, epidemiological characteristics, and the latest progress in Iraq.

ICPAMS-24S32	
Title	**Antimicrobial susceptibility profile of multi resistance gram positive bacteria isolated from cancer patient in erbil governorate\iraq**
Researcher/s	**Jihad Abdulrazzaq Sulaiman[1], Fattma A. Ali[2], Ahmed Akil Khudhair Al-Daoody[2], Ali Asos Yaseen[3], Bashdar Mahmud Hussen[4]**
Affiliation	**[1]College of Dentistry, Hawler Medical University, Erbil, Iraq** **[2]College of Health Sciences, Hawler Medical University, Erbil, Iraq** **[3]Microbiology unit, Maternity Hospital, Erbil, Iraq.** **[4]Department of Clinical Analysis, College of Pharmacy, Hawler Medical University, Kurdistan Region, Erbil, Iraq**

Abstract:

The study aimed to retrospectively analyze Gram-positive bacteria isolated from cancer patients in Erbil city, focusing on epidemiology and antibiotic susceptibility patterns. A total of 720 samples from various sources were collected at Nanakali Hospital from January to December 2018. Among these, 193 cases were identified as Gram-positive bacteria through microscopic, morphological, and biochemical tests, with antibiotic susceptibility testing performed using the Vitek2 compact system against 8 antibiotics. Results indicated that Staphylococcus epidermidis was the most frequently encountered species (7.2%), followed by Staphylococcus saprophyticus (5%), Staphylococcus aureus (1.8%), and others. Gender-based analysis revealed higher isolation of Staphylococcus epidermidis in females compared to males, while other species showed varying gender distributions. Gram-positive bacteria isolates from cancer patients exhibited high resistance rates, with 60% resistance to Tetracycline, 56% to Levofloxacin, and 44.5% to Vancomycin. In summary, the study provides valuable insights into the prevalence and antibiotic resistance patterns of Gram-positive bacteria in cancer patients, highlighting the need for ongoing efforts to manage infections effectively in this vulnerable population.

ICPAMS-24S33	
Title	Virulence factors of haemophilus influenza
Researcher/s	Muna Muhammad Najeeb[1],Jihad Abdulrazzaq Sulaiman[2], Fattma A. Ali[1] , Ahmed Akil Khudhair Al-Daoody[1], Bashdar Mahmud Hussen[3], Ali Asos Yaseen[4]
Affiliation	[1]College of Health Sciences, Hawler Medical University, Erbil, Iraq [2]College of Dentistry, Hawler Medical University, Erbil, Iraq [3]Department of Clinical Analysis, College of Pharmacy, Hawler Medical University, Kurdistan Region, Erbil, Iraq [4]Microbiology Unit, Maternity Hospital, Erbil, Iraq

Abstract:

Haemophilus influenzae, a Gram-negative coccobacillus, poses a significant risk for serious infections, particularly in newborns. Understanding its virulence factors is crucial for elucidating its pathogenesis. The bacterium's ability to evade host immune detection is facilitated by its capsule, while pili aid in cell adhesion. IgA Protease specifically targets human IgA1 antibodies, contributing to immune evasion. Lipopolysaccharide (LPS) serves as an endotoxin, initiating host inflammatory responses. Beta-lactamase confers resistance to beta-lactam antibiotics. H. influenzae is categorized into six serotypes, with type b commonly associated with lower respiratory tract infections, including pneumonia, and other severe illnesses such as meningitis, epiglottitis, cellulitis, septic arthritis, and bacteremia. Types A, E, and F are also isolated, albeit less frequently, while types C and D are rare. Understanding these virulence factors is essential for developing effective strategies against H. influenzae infections. By comprehending how H. influenzae employs its arsenal of virulence factors to colonize and induce illness in hosts, researchers and clinicians can devise targeted interventions to mitigate its impact. Furthermore, the classification of H. influenzae into distinct serotypes based on capsule presence underscores the variability in its virulence and epidemiology. Type b, in particular, stands out for its association with severe respiratory infections, highlighting the importance of vaccination strategies targeting this serotype. In conclusion, H. influenzae represents a formidable pathogen capable of causing a range of serious infections, especially in vulnerable populations such as newborns. Continued research into its virulence mechanisms and epidemiology is essential for the development of effective preventive and therapeutic measures to combat its impact on public health.