برعاية معالي وزير التعليم العالي
والبحث العلمي
والسيد رئيس جامعة بغداد

يقيم
معهد الهندسة الوراثية والتقنيات
الاحيائية للدراسات العليا

# المؤتمر العلمي الدولي الرابع
# للتقنيات الحيوية المتقدمة

# The Forth International Conference for Advanced Biotechnology (FICAB)

تحت شعار
(( التقنيات الحيوية ... نحو افق جديد ))

في رحاب جامعة بغداد
٢٩-٣٠ نيسان ٢٠١٩

## محاور المؤتمر

- التقنيات الحيوية الصناعية وتشمل:
  - التقنيات الحيوية الميكروبية.
  - المواد الحيوية الفعالة.
  - الصناعات الحيوية.
  - النانوتكنولوجي.
  - الانزيمات.
  - التقنيات الحيوية البينية.
- التقنيات الحيوية الزراعية وتشمل:
  - زراعة الانسجة النباتية.
  - المحاصيل المعدلة وراثياً.
  - المستخلصات النباتية،
  - التقنيات الحيوية الحيوانية.
- التقنيات الحيوية الطبية وتشمل:
  - بحوث السرطان.
  - الخلايا الجذعية.
  - التشخيص الجزيئي للأمراض.

## اللجنة التحضيرية

| | |
|---|---|
| أ.د. عبدالحسين مويت الفيصل | رئيسا |
| أ.د. أسماعيل عبدالرضا اللامي | عضوا |
| أ.م.د. أسماعيل حسين عزيز | عضوا |
| أ.م.د. سيف داود الاحمر | عضوا |
| أ.م.د. قيس قاسم غيمه | عضوا |
| أ.م.د. باسمه قاسم السعدي | عضوا |
| أ.م.د. مأرب رشيد نزيه العبيدي | عضوا |
| أ.م.د. أشواق باسم الهاشمي | عضوا |
| أ.م.د. رافد عبدالواحد الموسوي | عضوا |

## اللجنة العلمية

| | |
|---|---|
| أ.د. عصام فاضل الجميلي | رئيساً |
| أ.د. محمد أبراهيم نادر | عضوا |
| أ.د. كامل مطشر الجبوري | عضوا |
| أ.د. واثق عباس الدراغي | عضوا |
| أ.م.د. علي عبدالامير الصالحي | عضوا |
| أ.م.د. شروق محمد كاظم | عضوا |
| أ.م.د. عبدالامير محمد غريب | عضوا |

## سكرتارية اللجنة العلمية

| | |
|---|---|
| أ.م.د. ونام احد العاملي | رئيسا |
| أ.م.د. رشا عبد الحسين | عضوا |
| الآنسة أنوار مثال عبدالحسين | موظفة تنظيم |

## وسائل الاتصال

نستقبل خلاصات البحوث والبحوث الكاملة واستفسارات الباحثين عن طريق:

- البريد الالكتروني التالي:
  igebconf2017@yahoo.com
- رقم الموبايل : 07707869435

- آخر موعد لتقديم خلاصات البحوث يوم ٣٠ كانون الاول ٢٠١٨
- آخر موعد لاستلام البحوث الكاملة الكترونياً ٣٠ كانون الثاني ٢٠١٩

## تكاليف المشاركة و السكن

- المشاركة في بحث ١٠٠٠٠٠ دينار
- السكن الليلة الواحدة غرفة مزدوجة ٧٥٠٠٠ دينار
- شهادة مشاركة وتأييد لغير الباحثين ٢٥٠٠٠ دينار
- المشاركة في ورشة عمل ٥٠٠٠٠ دينار

Republic of Iraq
Ministry of Higher Education
and Scientific
University of Baghdad
Institute of Genetic Engineering
and Biotechnology for Post Graduate Studies

# Abstracts

## THE 4th INTERNATIONAL CONFERENCE FOR ADVANCED BIOTECHNOLOGY (FICAB)

## Biotechnology Towards a New Horizon

## 29 - 30 April 2019

﴿ وَفِي أَنفُسِكُمْ أَفَلَا تُبْصِرُونَ ﴾

صَدَقَ اللهُ العَلِيُّ العَظِيم

الذاريات: آية (21)

# كلمة السيد العميد ...

انه لمن دواعي سرورنا اقامة المؤتمر العلمي الدولي الرابع 2019 الذي يهتم بمجالات التقانات الاحيائية المتقدمة كبادرة علمية من معهد الهندسة الوراثية والتقانات الاحيائية لتوطين التكنولوجيا و تطويرها من أجل توسيع رقعة البحث العلمي و نقله الى مستويات تطبيقية يمكن الاستفادة منها لمواجهة مشاكل المجتمع الصحية والاقتصادية والصناعية وكذلك من أجل توفير بيئة علمية سليمة وواسعة من أجل تبادل الخبرات والافكار العلمية و تقييم ما وصلنا اليه من جهود علمية ومدى عمقها مقارنة مع ما يجري حولنا من دول ابهرت العالم بتطورها العلمي. تمنياتنا للجميع بالتوفيق والنجاح وشكرنا وتقديرنا لجميع الباحثين الذين لبوا دعوتنا للمشاركة بالمؤتمر وخصوصاً من جاء منهم من دول شقيقة وجارة للعراق وشكرنا لجميع من بذل جهداً من منتسبي المعهد من أجل ان يظهر المؤتمر بما هو عليه وشكرنا الكبير لرئاسة جامعة بغداد ممثلة بالسيد رئيس الجامعة أ.د. علاء عبدالحسين لدعمها اللانهائي للمؤتمر وكذلك لرابطة المصارف الاهلية وشركة التقدم العلمي لدعمهما المالي و قيامهما بتغطية جزء مهم من تكاليف عقد المؤتمر، أخيراً شكرنا لجميع من تقدم الينا بعون لعقد المؤتمر ولو بشق كلمة.

**و من الله التوفيق...**

**أ.د. عبدالحسين مويت الفيصل**

**رئيس المؤتمر وعميد المعهد**

**2019**

## رئيس المؤتمر

## الاستاذ الدكتور عبد الحسين مويت الفيصل

## عميد معهد الهندسة الوراثية والتقنيات الاحيائية للدراسات العليا – جامعة بغداد

### اللجنة التحضيرية

| | | |
|---|---|---|
| **1-** | أ.د. عبدالحسين مويت الفيصل | رئيسا |
| **2-** | أ.د. اسماعيل عبدالرضا اللامي | عضوا |
| **3-** | أ.م.د. أسماعيل حسين عزيز | عضوا |
| **4-** | أ.م.د. سيف داود الاحمر | عضوا |
| **5-** | أ.م.د. قيس قاسم غيمه العبودي | عضوا |
| **6-** | أ.م.د. باسمة قاسم السعدي | عضوا |
| **7-** | أ.م.د. مآرب نزيه رشيد العبيدي | عضوا |
| **8-** | أ.م.د. أشواق باسم جاسم الهاشمي | عضوا |
| **9-** | أ.م.د. رافد عبدالواحد الموسوي | عضوا |

### اللجنة العلمية

| | | |
|---|---|---|
| **1-** | أ.د. عصام فاضل الجميلي | رئيسا |
| **2-** | أ.د. محمد ابراهيم نادر الطائي | عضوا |
| **3-** | أ.د. كامل مطشر الجبوري | عضوا |
| **4-** | أ.د. واثق عباس الدراغي | عضوا |
| **5-** | أ.م.د. علي عبدالامير الصالحي | عضوا |
| **6-** | أ.م.د. شروق محمد كاظم الشديدي | عضوا |
| **7-** | أ.م.د. عبدالامير محمد غريب | عضوا |

### سكرتارية اللجنة العلمية

| | | |
|---|---|---|
| **1-** | أ.م.د. وئام احمد العاملي | رئيسا |
| **2-** | أ.م.د. رشا عبد الحسين ماهود | عضوا |
| **3-** | الآنسة أنوار مثال عبد الحسين | موظفة تنظيم |



# منهاج المؤتمر العلمي الدولي الرابع للتقنيات الحيوية المتقدمة

# للفترة من 29-30 نيسان 2019 في قاعة جامعة بغداد

- **8:30 -9:30 /** التسجيل للمشاركين في اعمال المؤتمر
- **9:30 /** افتتاح المؤتمر تلاوة عطرة من القران الكريم ومن ثم قراءة سورة الفاتحة على ارواح شهداء العراق الابرار، وبعدها الاستماع الى النشيد الوطني العراقي.
- **9:40 /** كلمة عمادة معهد الهندسة الوراثية والتقنيات الاحيائية للدارسات العليا
- **9:55 /** كلمة السيد رئيس جامعة بغداد
- **10:10 /** فقرة تكريم التدريسين
- **10:30 /** محاضرة للاستاذ الزائر الدكتور عادل الصاوي
- **10:45/** محاضرة للاستاذة الزائرة الدكتورة غالية أبو الشامات
- **11:00 – 11:30 /** استراحة
- **11:30 /** بدء جلسات المؤتمر العلمية في قاعات المكتبة وفق الجدول المرفق طياً .

**الجلسات اليوم الاول 29 /4/2019**

**القاعة الاولى**

**رئيس الجلسة : أ.د. غالية محي الدين ابو الشامات**

**مقرر الجلسة : أ.د. اسماعيل عبد الرضا**

| اسماء الباحثيين | عنوان البحث | الوقت |
|---|---|---|
| Jawdat N. Gaaib, Abd AL-Hussein M. AL-Faisal | Role of *mir-let-7a* Expression in Breast Cancer Diagnosis and Prognosis | 12:00 - 12:15 |
| Rasha Saleh Nuhiar , Ali Naeem Salman , Hassan Raysan AL-Rekaby | Association of Transforming Growth Factor Beta1 gene Polymorphism with Diabetes Mellitus Risk in Iraq Patients | 12:15 - 12:30 |
| Batool Mutar Mahdi | ROLE OF HUMAN LEUKOCYTE ANTIGENS HLA-A IN GASTROESOPHAGEAL REFLUX DISEASE LIABILITY | 12:30 - 12:45 |
| Owayes M.H. Al-Hassani | Detection of AGT Gene Polymorphism in Patient with Hypertension in Mosul City | 12:45 - 1:00 |
| Maysaa G. Jumaah | Expression and clinical significance of the Chemokine Receptor CXCR2 in ovarian cancer | 1:00 - 1:15 |
| Mohanad Yasir Al-Radeef | *Association between Allelic Variations of -174G/C Polymorphism of Interleukin-6 Gene and Chronic Kidney Disease-Mineral and Bone Disorder in Iraqi Patients* | 1:15 - 1:30 |
| Abbas M. Ammari , Saife D. Al-Ahmer , Azhar Al Attraqhchi | Molecular Study of *Malassezia furfur* Isolated from Pityriasis Versicolor Patients | 1:30 - 1:45 |
| Ruqaya M. J. Awadh , Shakir H. Mohammed Al-Alwany | Assessment of Co- Infection of Human Cytomegalovirus DNA and Epstein Barr-Virus (ZEBRA-Genes) in Tissues of Ovarian Tumors | 1:45 - 2:00 |
| Redhaa AbdAlrazaaq AbdAlredha, Hawraa Wahab Al-Kaim, Ali Hussein Al-Marzoqi | Crucial Role of IL-6 in Hepatitis Infection: Gene Polymorphism Effect of IL-6 C174G on progression of hepatitis C and B in Iraqi patients | 2:00 - 2:15 |
| Mahdi Saber Al-Deresawi , Sabah Bresam , Abdul Hussein M. AlFaisal | Compound *FGFR*3 mutations associated with grads of bladder carcinoma | 2:15 - 2:30 |

**الجلسات اليوم الاول 29 /2019/4**

**القاعة الثانية :**

**رئيس الجلسة : أ.د. سمر أنيس النحاس**

**مقرر الجلسة : أ.د. محمد ابراهيم نادر**

| اسماء الباحثيين | عنوان البحث | الوقت |
|---|---|---|
| Ahmad Nasser, Reza Azizian, Mohsen tabasi, Farid Azizi Jalilian, Mohsen Jafari | Genotyping of *Mycobacterium tuberculosis* isolated from suspected patients in Tehran through 2014-2016 | 12:00-12:15 |
| Ayman Albanna | Using Real-time PCR to investigate some of antibiotic resistance genes from *Streptococcus agalactiae* strains that isolated from ewe mastitis cases in Nineveh province | 12:15-12:30 |
| Salam Jumaah Hammad , Serena Cavallero , Fatima Shihab Al-Nasiri and Stefano D'Amelio | Comparative study among lactophenol blue, lactophenol solution and proteinase-K lytic solution for rostellar hooks morphometry of *Echinococcus granulosus* protoscolices | 12:30-12:45 |
| Ayat Al-Laaeiby[1] , Steven Bates[2] , Michael J. Kershaw[2], Christopher R. Thornton | *In vivo* and *In vitro* study of melanin role in the *Lomentospora prolificans* response to immune system defences | 12:45-1:00 |
| Mohammad Ibrahim Khalil | Identification of *Cladosporium* sp. Fungi by *in- silico* RFLP-PCR | 1:00-1:15 |
| Akram Radhi Salim , Bassad A. Al- Aboody | Molecular detection and prevalence of, *Cryptosporidium parvum*, among patients with diarrhea at Al-Rifai city/Thi-Qar province | 1:15-1:30 |
| Sanaa Basheer Kadhem | Microbial Levan from *Arthrobacter globiformis* strain KX 146411.1: Characterization and enhancement of production | 1:30-1:45 |
| Arqam Alomari , Mark Allen | Clone, purify and 1D Nuclear Magnetic Resonance Spectroscopy of the BRCT domain of *E. coli* DNA ligase LigA | 1:45-2:00 |
| Mohammed R. Mohaisen | Molecular Characterization Of The Activity And Requirements Of A Novel And Promiscuous Bacteriophage Integrase | 2:00-2:15 |

**الجلسات اليوم الاول 29 /2019/4**

**القاعة الثالثة:**

**رئيس الجلسة : أ.د. سيد مسعود هوشمند**

**مقرر الجلسة : أ.د. عصام فاضل الجميلي**

| اسماء الباحثيين | عنوان البحث | الوقت |
|---|---|---|
| Sabaa Taher Mohamed, Haydar Hassan Ghadi, Nidaa Mohammed Sulaiman, Sura Basil Kamal and Hassan Ali Aja | Effect of *Fusarium graminarum* silver-nanoparticles on IL-10 and INF-γ cytokines levels in the mice by *Leishmania donovani in vivo* | 12:00-12:15 |
| Aqeel Hadi Abdul Wahid , Ahmed Usef Lafta , Ali Husain Mohamed | Single Nucleotide Polymorphism (SNP) diversity of Date palm Analysis: sex discriminate, Phylogenetic tree, DNA Fingerprinting and Haplotype groups | 12:15-12:30 |
| Zahraa H. Al-Qiam, Ali H. Al-Saadi, Ali A. Al-Kazaz and Mona Al-Terehi. | Association between Ankylosing Spondylitis and the miR-146a Polymorphisms a samples of Iraqi patients | 12:30-12:45 |
| May Attallah Mohammad Al-Jammas,Mekdad R. Al-Juwarey , Intissar N. Al-Azzawi, Abdul Majeed A. Hamadi , Alaa Maqi | Banking of Human Umbilical Cord Blood Stem Cells in Iraq | 12:45-1:00 |
| Zainab Nasser Nabat Bareq A.ALateef | Bacteriological and Immunological study of patients with Tonsillitis in Hila city | 1:00-1:15 |
| Mays J. Khamees , Luma T. Ahmed | The Detection of *Aspergillus flavus* in The Milk by Molecular Method in Diyala Province | 1:15-1:30 |
| Alaa J. Mahrath , Sulman Mohammad , Samir Swadi | New Alternative Nutrition Suggested From Herbal Plant Roots, PART II | 1:30-1:45 |
| Guy Cabral , Zahraa Kamaz | The impact of HIV TAT and gp120 in neuroinflammatory response during HIV active infection | 1:45-2:00 |

# منهاج اليوم الثاني 2019/4/30

## القاعة الرئيسية :

**9:15 -9:00**
**محاضرة الاستاذ الدكتور سيد مسعود هوشمند**
**Birth to Birth**

**9:45 -9:30**
**محاضرة الاستاذ الدكتور رضا عزيزيان**
**Bacteriophage(Phage) application in medicine and industry**

**10:00 - 9:45**
**محاضرة الاستاذة الدكتورة سمر أنيس النحاس**
**Characterization of Leishmania species isolated from cutaneous Human Samples from Central Region of Syria by RFLPAnalysis**

**10:15 -10:00**
**استراحة**

**الجلسات اليوم الثاني 30 /2019/4**

**القاعة الاولى:**

**رئيس الجلسة : الاستاذة الدكتور عادل الصاوي**

**مقرر الجلسة أ.د. كامل مطشر الجبوري**

| اسماء الباحثيين | عنوان البحث | الوقت |
|---|---|---|
| Dina Y. Mohammed and Ahmed S. Dwaish | Antifungal Activity and Qualitative Phytochemical Analysis of *Ulothrix sp*. | 10:15 - 10:30 |
| Mohammed A. Mohammed , Ayoob O. Alfalahi , Ashwaq S. Abed , Zahra N. Hashem | Callus Induction and Plant Regeneration From Immature Embryos of Two Wheat Cultivars (*Triticum aestivum* L.) | 10:30-10:45 |
| Sahira Nsayef Muslim , Alaa Naseer Mohammed Ali , Saba Saadoon Khazaal , Baydaa Hussein Alwan | Synthesis and characterization of $SiO_2$ nanoparticles conjugated chitosan and using it for enhancement antibacterial activity of chitosan extracted from *Aspergillus flavus* | 10:45-11:00 |
| Hashim M. Zehraw , Zynab Muotaz , Muamer Taleb , Bydaa Mukhlif , Saad Abed Al-Jabbar | Extraction and Evaluation the Activity of *Urtica dioica* as Bleeding Stop Material | 11:00-11:15 |
| Iqbal Fadhil Alwan , Ammar Mawla Hamood | Effect of Water Extract of Cordia myxa L ., On Liver Enzyme And MDA antioxidant on Enzymes , GST Male White, Mice treated with Carbon Tetrachloride | 11:15-11:30 |
| Talal A. Abdulkareem, Raed I. Khalil, Aysar H. Salman, Faris F. Ibrahim, Omar H. Al-Zaidi, Wafaa E. Lateef | Effect of adding *Ferula hermonis* roots alcoholic extract and some antioxidants to Tris extender on post-cryopreserved total number of motile sperms, normal morphology sperm and hypoosmotic sperms of Holstein bulls during different cooling and cryopreservation periods | 11:30-11:45 |
| Ismail H. Aziz , Hassan Kadhim Nemar | New technique to detect single nucleotide polymorphisms (SNPs) | 11:45-12:00 |
| Athraa S. Ahmed, Shaimaa H. Jaber, Barakat A. F. Kamel* and Kafi M. Dawood | Synthesis and Antibacterial Activity of ZnO Nanoparticles using the Precipitate and Irradiation Methods | 12:00-12:15 |
| Yasameen Hasan Ali | Evaluation of antibacterial activity of Nigella sativa seed oil to multidrug resistant Enterococci | 12:15-12:30 |
| Nidhal Mohammed Salih Al Janabi Samah Rashed Hammadi Al Badri | Effect of Temperature and pH on Antioxidant Effectiveness of *Capparis spinosa* leaves | 12:30-12:45 |
| Farah Tareq Yaseen and Hayder Z. Ali | Identification of *Leishmania donovani* isolate by polymerase chain reaction | 12:45-1:00 |
| Mariam K. Abdrabaa May T. Flayyih | Autolysis Activity of Vancomycin Resistance *Staphylococcus epidermidis* | 1:00-1:15 |
| Baidiaa Hafidh Mohammed , Ashraq Moiner Mohammed , Iman Hammed Al-Anbari | Study of protein Concentrate and Physical Properties for each wheat germ and defatted wheat germ in Biscuits processing | 1:15-1:30 |
| Sabah Bresam, Bashar Ouda Altae and Abdul Hussein M. AlFaisal | The distribution ofFGFR3mutations in bladder tumors of different stages | 1:30-1:45 |
| **الجلسة الختامية لقراءة التوصيات واختتام اعمال المؤتمر** | | |

**الجلسات اليوم الثاني 30 /4/ 2019**

**القاعة الثانية:**

**رئيس الجلسة : الاستاذ الدكتور رضا عزيزيان**

**مقرر الجلسة : أ.د. واثق عباس الدراغي**

| اسماء الباحثيين | عنوان البحث | الوقت |
|---|---|---|
| Azhar Ali Faraj , Balkes Fadel Hade , Amer Murhum Al-Amery | Conventional and Molecular study of *Babesia* spp. of natural infection in drought horses in some areas of Baghdad city, Iraq | 10:15 - 10:30 |
| Hind Kamal Ali | Study antioxidant and functional properties of protein hydrolysate prepared from *silurus glanis* skin using papain enzyme | 10:30-10:45 |
| Rafal Ismael Ali Al-Halboosi , Essam Fadel Al-Jumaili , Abdul Kareem A. Alkazaz | Inhibitor activity of some coumarin derivatives on glycosyltransferases produce from *Streptococcus pneumoniae* P3 | 10:45-11:00 |
| Ali F. Merjan , Baidaa M Abbas , Ali Y Al Husseini | *Pseudomonas fluorescence* compatibility with chemical pesticide Carboxin 75 and Raxil 2DS to control corn seedling blight causing by *Fusarium graminearum*, *F. moniliforme and F. poliferatum .* | 11:00-11:15 |
| Duaa Hammoud , Hameed M. Jasim | Detection of Tn*917* conferring erythromycin resistance In clinical isolates of *Streptococcus pneumonoiae* | 11:15-11:30 |
| Balqees Yehya Soofy Khalid Daham Ahmed | Isolation and Identification of lactobacillus using Biochemical and Molecular Methods | 11:30-11:45 |
| Abdul Mushin M. Shami | Effect of proteins extracted from *Annona squamosa* leaves against pathogenic bacteria with antioxidants | 11:45-12:00 |
| Huda S. Alagely , Ashwak B. AL-hashimy , Kalid R. Majeed | Characterization of five types of Staphylococcal Cassette Chromosomal *mec* genes in methicillin-resistant *Staphylococcus aureus* (MRSA) isolates from Iraqi patients | 12:00-12:15 |
| Mohamed Majid Abed, Esmael Kelil Haji, Noor Zaki , Zafer Secgin, Yılmaz Kaya | Copia like Retrotransposon Analyses in Seven Varieties of *Solanum tuberosum* L. From Iraq | 12:15-12:30 |
| Haider Turky AL-Mousawi Mohammed I. AL-Taee Maarib N. Rasheed, Qabas Nima AL-Hajjar | Molecular and Nanotechnical study for Antibiofilm formation and *CsuE* Gene Expression Activities of Synthesized Iron Oxide Nanoparticles Against Multidrug-Resistant *Acinetobacter baumannii* Isolates | 12:30-12:45 |
| Rafed Abbas Kadhum and Wathiq Abbas Aldrghi | Detection of *FOXM1* Expression and Strands Breaks Levels as a marker of Oxidative DNA Damage in Individuals Exposed to Low Dose of ionizing radiation" | 12:45-1:00 |
| Furqan M. Al-Asady[1] , Dalia A. Al-Saray[2] | Screening for Antibacterial Activity of *Streptomyces spp.* isolated from Babylon, Iraq | 1:00-1:15 |
| Balkes Fadel Hade | Molecular Detection and Phylogenic Analysis to Larvae Virulence Gene in Toxocariasis VLM Syndrome | 1:15-1:30 |
| **الجلسة الختامية لقراءة التوصيات واختتام اعمال المؤتمر** | | |

**الجلسات اليوم الثاني 30 /4/ 2019**

**القاعة الثالثة:**

**رئيس الجلسة : أ.د. أمنة نعمة ثويني**

**مقرر الجلسة : أ.م. سيف داود الاحمر**

| اسماء الباحثيين | عنوان البحث | الوقت |
|---|---|---|
| Rasmiya A. Aburesha , Rabab K. Seger | Measurement of IL-18, IFN-ɣ levels in Iraqi typhoid fever patients | 10:15 - 10:30 |
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# Autolysis Activity of Vancomycin Resistance *Staphylococcus epidermidis*

***Mariam K. Abdrabaa[1] , May T. Flayyih[2]***

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## Abstract

Out of one hundred clinical samples were taken from different sources which include burns, blood cultures, wounds and nasal swabs infections ; 90 isolates developed growth on mannitol salt agar. Among these, 40 (44.4%) were Coagulase positive (*Staphylococcus aureus*) isolates, 50 (55.5%) belong to coagulase negative staphylococci in which *Staphylococcus epidermidis* isolates were 30(60%).The effect of vancomycin resistant on cell autolysis activity of *S. epidermidis* was detected by whole cell autolytic assay . Three isolates of *S. epidermidis* ,vancomycin sensitive (VSSE),vancomycin resistance (VRSE) and vancomycin intermediate( VISE ) were tested. The results revealed that was significant difference among three isolates , the VSSE isolate (*S.epidermidis* NO. 22) have the highest autolytic activity in the presence of antibiotic , followed by the VRSE isolate (*S. epidermidis* NO.1) and the VISE isolate (*S. epidermidis* NO.14) which was the lowest autolytic activity with the presence of antibiotic. The result of transmission electron microscope (TEM) showed that the VRSE isolates (*S.epidermidis* NO. 1) have thicker cell wall followed by VISE (*S.epidermidis* NO. 14) isolates .However , the VSSE (*S.epidermidis* NO. 22) didn't showed any cell wall thickening.

**Keywords:** *S. epidermidis***,** vancomycin resistant, autolysin,VRSE ,VISE**,** VSSE**.**

# Screening for Antibacterial Activity of *Streptomyces spp.* Isolated from Babylon, Iraq

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## Abstract

Bacteria that related to *Streptomyces* genus are extremely recorded as important origin of antibiotics and other significant new bioactive metabolites like antifungal, antitumor, antihelminthic and even herbicides. *Streptomyces* are the biggest source for antibiotics production, they constitute about more than 75% in antibiotic productivity, and these antibiotics have a significant application in the commercial and therapeutic fields. The study included screening on the most potent antibacterial producing *Streptomyces* isolates. 41 *Streptomyces* isolates were screened for antibacterial activity toward *S. aureus* and *E. coli*, six isolates were selected (SMI-02, SMI-03, SMI-04, SMI-05, SMI-10 and SMI-16) which showed more antibacterial effect as related to other. Secondary screening revealed that two isolates (*Streptomyces* isolates SMI-04 and SMI-10) were exhibited the potent and broadest antibacterial activity toward five test bacterial isolates.

**Keywords:** Screening, Antibacterial Activity, Secondary metabolites, Antibiotics, Iraq.

# *In vivo* and *In vitro* Study of Melanin Role in the *Lomentospora prolificans* Response to Immune System Defences

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## Abstract

*Lomentospora prolificans* (formerly *Scedosporium prolificans*) is a soil born dematiaceous fungus. Phylogenetically, it was related to members of the *Pseudallescheria*/*Scedosporium* complex and classified as ascomycete. It caused infections in both immunocompromised and immunocompetent individuals however most cases were found in the immunocompromised patients in compare with scant cases in the immunocompetent individuals. Recently, the incidence of *L. prolificans* infections was augmented and coincided in parallel with the increase of immunocompromised patients such as ADIS, cystic fibrosis and cancer patients. The innate immune system is the first line of defence against opportunistic fungal pathogens however human pathogenic fungi developed mechanisms to circumvent invading by immune system such as pigmentation. To determine the protective role that melanin plays in *L. prolificans* against immune system defences, phagocytosis and fungicidal activity of macrophage were investigated. Moreover, two transformants of the wild-type *L. prolificans* strain 3.1 and melanin-deficient albino mutant Δ*Lppks1*::*hph* expressing the green fluorescent protein (GFP) were generated to visualise the phagocytosis process. The deception role that melanin plays against macrophage phagocytosis was investigated by determining the phagocytic index (Pi) and phagocytosis percentage (P%) of the melanised and albino GFP transformants and establish the role of melanin in pathogen survival by assessing metabolic activities following phagocytosis. Finally, we used the model invertebrate *Galleria mellonella* (Wax moth) to study the role of melanin in host infections by the pathogen. Taken together, our results showed that melanin plays no role in the protection of the pathogen from immune cell recognition and killing by alveolar macrophages, with similar degrees of engulfment, and spore viabilities, of mutant and wild-type strains after phagocytosis. Contrary to expectations, the albino PKS-deficient mutant was significantly more virulent than the melanised wild-type strain during pathogenicity studies in the invertebrate infection model *Galleria mellonella*, with levels of virulence restored to near wild-type levels in the complemented strain Δ*Lppks1*::*hph*:PKS.

**Keywords:** GFP; *Galleria mellonella* (Wax moth), innate immune system, *Lomentospora prolificans*; melanin; pathogenic fungi.

# Identification of *Cladosporium* sp. Fungi by *In- silico* RFLP-PCR

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## Abstract

*Cladosporium sp.* playing an important role in human health, it is one of the pathogenic fungi which causing allergy and asthma and most frequently isolated from airborne spores. In this study a set of universal PCR primers designed for identification the pathogenic fungi *Cladosporium sp*. according to conserved region 5.8S, 18S and 28S subunit ribosomal RNA gene in *Cladosporium* species. In silico RFLP-PCR were used to identification twenty-four *Cladosporium* strain. The results showed that the universal primer have the specificity to amplify the conserved region in 24 species as a band in virtual agarose gel, also showed the RFLP method able to identify three *Cladosporium* species by specific and unique restriction enzymes for each one, these species are *Cl. halotorenas* by the two unique enzymes *BsaXI* and *MobII*, the other species is *Cl. colrandse* by two enzymes *BccI* and *BtsCI*, while the third species is *Cl. aciculare* by one enzyme *BceAI*, each enzyme forming two band in virtual agarose gel as a results of cutting the DNA by the enzyme, where the rest twenty – two species are sharing more than one restriction enzymes. This method effort an active and rapid method for identifying *Cladosporium* genus and three species by computational bases methods before applying it in the lab for more accuracy, efficiency and specificity of designed primer to get good results in a short time.

**Keywords:** *Cladosporium* , Fungi , *in- silico* , RFLP .

# Role of microRNA-122 in Predicting Chronic Liver Diseases Among Iraqi Patients with HCV

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[2]*Consultant gastroenterologist*

## Abstract

MicroRNAs (miRNAs) have been repeatedly shown to play important roles in liver pathologies, including hepatitis, liver cirrhosis, and liver cancer. miR-122 is a liver-specific microRNA that positively regulates hepatitis C virus (HCV) RNA abundance and is essential for production of infectious HCV. The present study aimed to determine the ratio of HCV genotype in the studied sample of Iraqi HCV positive patients and to assess the expression level of miRNA‑122 in the plasma as a diagnostic marker of liver injury in chronic hepatitis C, liver cirrhosis, and hepatocellular carcinoma (HCC). A total of 80 participants who were divided into three groups were included in the study. Group I included 25 healthy individuals without hepatitis C infection or any other disease who served as a control. Group II included 35 patients with chronic hepatitis C infection. Group III included 20 patients with (cirrhosis, HCC) who attended to the Gastroenterology and Hepatology Teaching Hospital in Baghdad during the period from June/2017 to February/2018 were included in this study. HCV Genotype and miRNA‑122 in the plasma were measured using real‑time PCR. This study showed that the mean Log fold change value of miR-122 in plasma of HCV patients was higher in comparison to controls and statistically significant difference between them (P-value = 0.001), while the mean Log fold change value of miR-122 in plasma of Patients groups with (cirrhosis, HCC) a non-significant as compared with controls (P-value = 0.557). Moreover, the most prevalence genotype in this study was genotype 4 then 1a .In conclusion measurements of serum miRNA‑122 may be useful in the evaluation of HCV patients, by permitting with a plasma test.

**Keywords:** Hepatitis C virus, liver cirrhosis, HCC, genotype and miR-122.

# Identification of *Leishmania donovani* Isolates by Polymerase Chain Reaction

***Farah Tareq Yaseen*[1] , *Hayder Z. Ali*[2]**

[1]*Medical laboratory techniques department, Al-Farabi University College*
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## Abstract

Leishmaniasis is endemic of Iraq in both cutaneous and visceral form. The available tools for diagnosis and detection of *Leishmania* are nonspecific and may interfere with other species. In this study, Polymerase Chain Reaction (PCR) has been used to identify Iraqi isolate of visceral leishmaniasis (MHOM/IQ/2005/MRU15) which a previously diagnosed by classical serological tests. PCR amplification was carried out using species-specific primers of *Leishmania donovani.* Four primer pairs of mini-circle DNA and ITS-1 were used.13A/13B, which is used to identify *Leishmania* as a genus, NM12, LITSR/L5.8S and BHUL18S, were used to detect the sub species of *L. donovani.* The result of PCR amplification of 13A/13B kDNA revealed that a band of ~ 120 bp. NM12, LITSR/L5.8S and BHUL18S primer pairs demonstrated bands of 204 bp, 320 bp and 311 bp, respectively. The results of this study are recommended to be used for identification of visceral leishmaniasis identification instead of time consuming and non-specific classical methods.

**Keywords:** Visceral leishmaniasis, Molecular diagnosis, species-specific primer.

# Role of *mir-let-7a* Expression in Breast Cancer Diagnosis and Prognosis

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## Abstract

Breast cancer is the most frequent carcinoma in females and the second most common cause of cancer related mortality in women. Early detection of breast cancer is widely reported to be one of the most effective ways leading to better prognosis and lower death rate. For marker discovery, the analysis of miRNA expression signatures in peripheral human blood has been widely used showing to be a promising technique. The *let-7* family is one of the first tumor suppressor miRNAs to be identified. The aim of the present study is detecting the expression levels of *miR-let 7a* gene expression in the peripheral blood of breast cancer patients in comparison with benign and healthy controls as a tool for screening and diagnosis the early stage breast cancers, and estimating the diagnostic and prognostic values of these levels in association with tumor size and lymph node status. The marker was determined in peripheral blood (PB) of 55 patients with Invasive Ductal Carcinoma and samples from 20 healthy donors, and 10 women with newly diagnosed benign breast tumors were served as control group using reverse transcriptase polymerase chain reaction (RT-PCR). *miR-let 7a* gene expression was detected in 30 (54.5%) of peripheral blood of breast cancer patients studied, 1(10%) of the benign tumors but not in any of healthy individuals. It showed statistically significant relations with size of the tumor, and Lymph node involvement. On the other hand, it was statistically non- significant for age of breast cancer patients. The present study results suggest that mammaglobin is a specific molecular marker for detection of breast cancer, discrimination between benign and malignant breast tumors, and it might be of value as a prognostic marker.

**Keywords:** Cancer breast, *let-7a*, RT-PCR, Prognostic factors.

# Molecular Detection and Prevalence of *Cryptosporidium parvum*, Among Patients with Diarrhea at Al-Rifai City/Thi-Qar Province

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## Abstract

*Cryptosporidium parvum* as genus of apicomplexan parasitic protozoa is well known as a worldwide protozoan parasite in both human and a wide range of animals and considered as one of the major causes of severe life-threatening diarrhea in immunodeficient people and self- limiting in healthy individuals. This study aimed to determine the prevalence of *C.parvum* in stool samples of diarrheic patients , this study is carried out in Thi –Qar Province / Al-Rifeadistrict in Al-Rifai general Hospital which included collection of stool samples from diarrheic patients at a period extended from October / 2017 – January / 2018 , (603) stool samples taken from patients with different ages to both sexes examined by microscopic examination and PCR technique**.** The results showed the percentage of positive samples *C. parvum* by microscopic examination was (5.1%) and negativesampleswas(94.9%),the highest infected patients found (58%) in males and lowest infected patients found (42%) in females,the highest infected patients found (64.5%) in Rural area and lowest infected patients found (35.5%) in Urbanarea, inage groupthe highest infected patients was (35.5%) inAge groupLess than (1-10years)and lowest infected patients found (9.7%) in age group (21-30) years. Results of PCR was positive sample 20 with percentage 10.4% and 172 negative samples, the percentage was (89.6%).the highest infected patients found (65%) in males and lowest infected patients found (35%) in females,the highest infected patients found (55%) in Rural area and lowest infected patients found (45%) in Urbanarea, .Age group was the highest infected patients found (45%) in age group (1-10years) and lowest infected patients found (5 %) in age group (31-40) years**.**

**Keywords:** *Cryptosporidium parvum* ,polymerase chain reaction (PCR) ,protozoa, Cryptosporidiosis.

# Microbial Levan from *Arthrobacter globiformis* Strain KX 146411.1: Characterization and Enhancement of Production

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## Abstract

Levan producing bacteria was isolated from rhizosphere soil. The molecular identification of this isolate was conducted using 16S rRNA, which resulted in a sequenced region of 1295 base pairs. The sequence alignment in the gene bank indicated that this isolate has a high percentage of similarity (98%) to the retrieved consensus sequence of *Arthrobacter globiformis* strain JCM 1332. The produced levan was characterized using TLC. The effects of nutritional and physical factors on this isolate's levan production were investigated. The results demonstrated that the optimal sources for carbon and nitrogen during levan production were sucrose and casein, yielding 7.8 g/l and 8.24 g/l of levan, respectively. The highest levan yield 8.6, 7.8, 8.6, 8.53 and 8.27 g/l were obtained at 300 g/l sucrose, pH of 7.8, 33°C, 72 h period of incubation and 150 rpm respectively.

**Keywards:** *Arthrobacter globiformis* , strain KX 146411.1 , levan , 16S rRNA .

# Clone, purify and 1D Nuclear Magnetic Resonance Spectroscopy of the BRCT Domain of *E. coli* DNA Ligase LigA

***Arqam Alomari*[1] , *Mark Allen*[2]**

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## Abstract

DNA ligases are essential enzymes in all domains of life. The role of these enzymes are to bind DNA ends, nicked DNA and join broken nucleic acid strands. The tertiary structure of *E. coli* DNA ligase LigA has four main domains: nucleotidyltransferase, oligomer-binding, Helix-hairpin-Helix and BRCT domain. One of the main objectives of my previous study was to explore the potential DNA ligase LigA as possible antibiotic targets by using a molecular docking programme called Molecular Operating Environment (MOE) (*in silico*) just in the first three domains of the tertiary structure of NAD+-dependent DNA ligase of *E. coli* LigA protein. Fortunately, it was found that four compounds out of the eight (5-Azacytidine, Geneticin , Chlorhexidine and Imidazolidinyl Urea) did inhibit the activity of *E. coli* LigA protein *in silico*, *in vitro* and then *in vivo* experiments after purify the native LigA protein. Importantly, the tertiary structure of this small BRCT domain has not been solves before. It does not appear in the crystal structure of 2OWO (PDB) that solved by Nandakumar *et al*., 2007. In this paper, the project was carried out to clone, express and purify the 88 amino acid of the forth domain (BRCT) and doing initial NMR experiment (1D NMR spectrum) to check the folding of this domain. It was found and determined that the BRCT domain of *E. coli* DNA ligase LigA is folded accurately, which is increased and supported the possibility as antibiotic target in all domains of *E. coli* LigA protein in the future.

**Keyword:** DNA ligases, LigA of *E. coli*, BRCT domain.

# Association of Transforming Growth Factor Beta1 Gene Polymorphism with Diabetes Mellitus Risk in Iraq Patients

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## Abstract

Diabetes mellitus (DM) refers to a group of multifactorial metabolic disorders characterized by elevated blood glucose levels (hyperglycemia) that result from defects in the body's ability to produce and/or insufficiency of insulin action .This study was to investigate the correlation between TGFβ1 polymorphism and Diabetes Mellitus .The present study carried out in the labs of college of education for pure science and Center for Diabetes and Endocrinology of the Health Directorate in Thi- Qar province, the period of research was extended from January- July 2017. To test for the association of Polymorphisms in promoter region (G-800A) and (C-509T ) of transforming growth factor- β 1 (TGF-β1) gene with diabetes mellitus in Iraqian patients. The study included a total of 120 patients with type I and II diabetes and their age between 1-51 years. in addition to 52 healthy controls . DNA has been isolated and RFLP-PCR was performed by using primers specific for genotypes of two region of the TGF β1 gene (C509T)and (G800A) . The results showed that only C509T polymorphism of the TGFβ1 gene is significantly different in genotype distribution in allelic frequencies between DM patients and control subjects and association with clinical characteristics. Thus this SNP seems to be related to DM susceptibility. This study supports the involvement of TGFβ1 gene polymorphism in the incidence of DM in Thi-Qar population.

**Keywords:** Diabetes Mellitus, (TGF-β1) , (G800A), (C509T).

# Role of Human Leukocyte Antigens HLA-A in Gastroesophageal Reflux Disease Liability

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## Abstract

Gastro-oesophageal reflux disease had multi factorial causes both genetic and environmental. One of the genetic causes is HLA alleles. Human Leukocyte Antigens considered as a good marker for population genetic analyses and disease association. This study aimed to investigate the association between human leucocyte antigen genes HLA-A that inherited from both parents and its role in Gastro-oesophageal reflux disease. Forty Iraqi Arab Muslims patients with a history of heartburn, epigastric pain and dyspepsia were prospectively recruited from Gastrocolonoscope Unit at Al-Kindy Teaching Hospital (Baghdad-Iraq) between January 2014 and July 2016. They were compared with 100 Iraqi Arab Muslims controls. Both groups had done upper gastroesophageal endoscopic examinations and HLA-A genotyping using sequence specific oligoneucleotide primer (SOPP). DNA extraction were done from two mL of venous blood using QIAmp DNA blood Mini Kit, QIAGEN INC- Germany. Then, concentration and purification product of DNA was estimated using Nanodrop –South Korea. DNA was verified by electrophoresis in a 2% agarose gel containing ethidium bromide and was visualized under UV light. Lastly, Locus- and allele-specific amplification of genomic patients and control DNA was performed for HLA-A. DNA Amplification and Hybridization was performed using a sequence-specific oligonucleotide probes (SSOP) by HLA-A amplification and hybridization kits (SSO HLA type DRB1 plus and Mastermix for HLA-A Amp plus kits -Innogenetics-Belgium) by AutoLipa – 48 Innogenetics-Belgum. The results were interpreted using LiRas version-5.0 software- Innogenetics-Belgium. The frequencies of HLA-A*11:01 was significant higher in control group( Odd ratio=0.0812, 95% confidence interval was 0.0106-0.6228, P – value =0.0157) compared with patients with Gastro-oesophageal reflux disease which had a protective effect against the development of this disease. Other HLA-A alleles showed no significant difference between two groups. Sex had no effect in disease developing regarding HLA-A alleles. As a conclusions this study identified HLA-A*11:01 had a protective role against Gastro-oesophageal reflux disease development.

**Keywords:** Leukocyte , HLA-A , Gastroesophageal Reflux , Sex.

# Callus Induction and Plant Regeneration from Immature Embryos of Two Wheat Cultivars (*Triticum aestivum* L.)

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*[4]Ministray of Science and Technology*

## Abstract

This study was conducted in the Plant Tissue Culture Laboratories of Genetic Engineering Institute/Baghdad University at the aim of inducing callus and regenerated plants from immature embryos of two wheat cultivars. Immature embryos were excised and cultured on Murashige and Skoog (MS) medium for callus induction. MS and doubled MS components were used with the addition of different growth regulators combinations to induce callus from immature embryos of the studied cultivars. The medium MS with 2 mg $L^{-1}$ 2,4-D gave the highest callus fresh and dry weights compared with the other medium. Tamooz 2 was significantly higher in both, fresh and dry weight of the induced callus than cv. Al-Iraq. Plants regeneration was induced on MS media supplemented with BA of (0, 1, 2, 3, 4 mg $l^{-1}$). The control treatment (0 BA) was the best medium for regeneration.

**Keywords:** Wheat, Callus induction, Immature embryos, Plant regeneration.

# Detection of AGT Gene Polymorphism in Patient with Hypertension in Mosul City

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## Abstract

Polymorphisms in the promoter region of the angiotensinogen (AGT) gene may affect AGT transcription and level of blood pressure. We determined the frequency of the AGT polymorphism in sample of Iraqi patients with primary hypertension. Using a molecular epidemiology approach, we also determined the relationship between primary hypertension and environmental-AGT polymorphism interactions of this study was to investigate the association between genetic polymorphisms of AGT M235T genes and Hypertension in Mosul city. Venous blood samples were collected from each subject in two separate test tubes: one was used for biochemical analysis. The other was collected in EDTA tube for DNA extraction. Genomic DNA was isolated from whole-blood samples of all the patients and control subjects. DNA concentration and purity were determined measuring by Bio drop , and detected the optimum DNA concentration for PCR analysis. The quality of the DNA was determined using agarose gel electrophoresis stained with ethidium bromide, samples were stored at -20 °C until further use. The current study showed increase biochemical parameters in female patients compare with male patients. Regarding AGT/M235T gene polymorphism, In the present study, AGT/MT genotyping revealed that 47.5 % of patients, AGT/MM homozygous had 42.6 % and AGT/TT homozygous had 9.8 % in patients with Hypertension.

**Keywords:** Polymorphism, AGT, Hypertension, DNA.

# Expression and Clinical Significance of the Chemokine Receptor CXCR2 in Ovarian Cancer

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## Abstract

The present study aimed to shed light on the role the of the Chemokine Receptor CXCR2 in the pathogenesis and progression of ovarian cancer. A total of 23 Paraffin-embedded tissue blocks from patients with different stages of newly diagnosed ovarian cancer were provided by certain Iraqi hospitals as well as 7 samples of patients with benign ovarian tumors tissues as a control group were used in this study. In the present study, the CXCR2expression was assessed by means of an envision immunohistochemistery technique using the Novolink$^{TM}$ Polymer Detection Systems for both benign and malignant ovarian tumors. The results showed that 6(85.7%) of benign ovarian tumors and 22(95.7%) of ovarian cancer samples were positive for CXCR-2 which showed significant differences (P value0.048<0.5). CXCR2 was not expressed in 1(14.3%) of benign tumors and 1(4.3%) of ovarian cancer sections. Weak (+) CXCR-2 expression was observed in 2(28.5%) of benign tumors and 5(21.7%) of ovarian cancer sections which showed no significant differences. No significant differences were observed in the median CXCR-2 expression (++) between samples of benign tumors 3(42.8)% and samples of ovarian cancer 5(21.73%). The highest vascular signal intensity of CXCR-2 expression (+++) was observed in 1(14.3%) of benign tumors and 12(52.1%) of ovarian cancer sections, which showed high significant differences (P value **<0.01). In correlation with stages the results showed that18(94.44%) of samples with stage I and 4(100%) of samples with stage III were positive for CXCR2, which showed no significant differences (NS) with differences I signal intensity. In conclusion this study investigated that the percentages of sections with positive expression were higher in ovarian cancer tissue sections than the sections of benign ovarian tumors, and the signal intensity of staining was stronger in late stages of ovarian cancer tissue indicate role of CXCR2 expression in ovarian tumor progression, and maybe reveals the diagnostic value of this receptor for early diagnosis of ovarian cancer, and also provide the evidence for the ability of tumor cells to metastasize and then tumor angiogenesis and invasiveness.

**Keywords:** Ovarian cancer, Immunohistochemistery, IL-8, Chemokines receptors, CXCR2.

# Association between Allelic Variations of -174G/C Polymorphism of Interleukin-6 Gene and Chronic Kidney Disease-Mineral and Bone Disorder in Iraqi Patients

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## Abstract

This study designed to examine association between-174G/C polymorphism of interleukin-6 gene and phosphate, calcium, vitamin $D_3$, and parathyroid hormone levels in Iraqi patient with chronic kidney disease on maintenance hemodialysis. Seventy chronic renal failure patients (patients group) and 20 heathy subjects (control group) were genotyped for interleukin-6 polymorphism and genotyping was performed by conventional polymerase chain reaction-restriction fragment length polymorphism. No significant differences in phosphate levels were observed in patients and control with different interleukin-6 genotypes. Control had non-significant differences in calcium levels, while patients with GG and CG genotypes displayed significant elevation with time. Conversely, control and patients with GG and CC genotypes had significant elevation in vitamin $D_3$ levels with time. Regarding parathyroid hormone, control had non-significant differences, while patients with GG and CC genotypes displayed significant elevation with time. Patients with GG genotype displayed significant changes in calcium, vitamin $D_3$ and parathyroid hormone levels with time.

**Keywords:** *Interleukin-6, Genetic polymorphism, CKD-MBD, Hemodialysis.*

# Single Nucleotide Polymorphism (SNP) Diversity of Date Palm Analysis: Sex Discriminate, Phylogenetic Tree, DNA Fingerprinting and Haplotype Groups

*Aqeel Hadi Abdul Wahid* , *Ahmed Usef Lafta* , *Ali Husain Mohamed*

*College of Agriculture – University of Basra*

## Abstract

The date palm is one of the most important fruit types in the Arabian Peninsula and the Islamic nation because of its suitability to the environmental conditions and its psychological status among the Arab people. The palm tree is a Dioecious plant so many varieties have emerged. It was important to find the genetic diversity and DNA fingerprint in early stages. therefor in this paper used Three specific primers of SNPs used to sex discriminate on three Male- and three female- date palm by specific haplotypes were identified by screening SNPs, then find the fingerprint and genetic diversity for this date palm cultivars.

**Keywords:** SNP, Phylogenetic tree, DNA Fingerprinting, Haplotype.

# Extraction and Evaluation the Activity of *Urtica dioica* as Bleeding Stop Material

***Hashim M. Zehraw , Zynab Muotaz , Muamer Taleb , Bydaa Mukhlif , Saad Abed Al-Jabbar***

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## Abstract

*Urtica dioica* From the medicinal herbs group, with many uses, the extract of the plant was prepared in order to study effect on the process of stopping hemorrhage of various pathological causes, collection of plants in the pre-blooming phase of the Jadiriyah area, Baghdad, Iraq. Prepare a sample of it by way of alcohol extraction for all parts of the plant. The substances and active groups were identified using chemical analysis. The results showed the presence of the necessary phytol in the blood clotting process as well as the glycosides, tannins, proteins, flavonoids and others. Some antioxidant, anti-inflammatory and anticancer compounds were found using gas chromatography technique. High-performance liquid chromatography was used as the important morphine was identified in the manufacture of a number of vitamins. The trace sample showed a high concentration of sodium and iron and a low concentration of zinc. The tested sample passed the toxicity test carried out on laboratory animals and proved its non toxic in the doses used. The results of the treatment of blood hemorrhage in mice found that the plant extract had an effect on reducing the duration of bleeding cessation to 1.14 seconds compared to the non-treated group (3.21) seconds, about 60% less, the hemoglobin level in rabbits was reduced to a significant level ($P < 0.01$) to 13.2 g / dl compared with the control (14.5) g / dl and decreased packed cell volume (PCV) to 41 ml compared to 46 ml with control. It is noted that the number of white blood cells decreased with a significant value ($P < 0.01$) to $5900 \times 10^3$ µl compared with control $8200 \times 10^3$ µl and found a decrease ($P < 0.01$) at the time of bleeding by 50% after treatment with the extract and reduced the coagulation time by one third and with a significant value $P < 0.01$).

**Keywords:** *Urtica dioica*, Hemorrhage, phytol, Morin.

# Effect of Water Extract of Cordia myxa L ., on Liver Enzymes , GST Enzyme and MDA Antioxidant on Male White, Mice Treated with Carbon Tetrachloride

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## Abstract

The effects of water extract of (cardia myxa L.) plant against ( liver enzymes) (ALT) Alanine aminotransferase ,Asparatate aminotransferase (AST), andAlkaline phosphatase (ALP), glutathione –S-transitions (GST) enzyme and Malondialdhyde (MDA) on the albino mice ,treated with carbon tetrachloride were studied , 32 male albino mice Swiss albino, (5-8)weeks age and (20-25gm weight) . The purity of the Cordal myxa L. extract was determined by the High pressure liquid chromatography (HPLC) as well as the optical diagnosis of the wavelength of the extract by UV. Visible. Conducted tests on the overlap between the three concentration (150,300,400 mg/kgm) of water extract of (cordia myxa L) and 3.2mg/kg of carbon tetrachloride with interaction included two types of treatment (pre-$ccl_4$and post-$ccl_4$) through oral dosage and for a period of 14 days. The result of the study shows that the concentration 400mg /kgm is the best concentration of water extract there was used and study suggests that use the concentrations of this because that water extract there was and suggests that concentrations of this because that the plant is used for human consumption broadly.

**Keywords:** Carbon tetrachloride, water extract plant, cordial myxal, liver enzyme, antioxidant.

# Effect of Adding *Ferula hermonis* Roots Alcoholic Extract and Some Antioxidants to Tris Extender on Post-Cryopreserved Total Number of Motile Sperms, Normal Morphology Sperm and Hypoosmotic Sperms of Holstein Bulls During Different Cooling and Cryopreservation Periods

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## Abstract

This study was undertaken to explore the adding effect of alcoholic extract of *Ferula hermonis* roots and some antioxidants to Tris extender on post-cryopreserved total number of motile sperms (TMS), normal morphology sperm (TNMS) and hypoosmotic sperms (THOS) of Holstein bulls for different preservation periods (cooling at 5°C, 2, 30 and 60 days post cryopreservation, PC). Eight Holstein bulls of 2.5-3 years of age were used in this study. Semen was collected via artificial vagina in one ejaculate per bull per week for the 7-week experimental period. Pooled semen was equally divided into eight treatments using Tris extender. The alcoholic extract of *Ferula hermonis* roots (0.03 ml / 50 ml extender; $T_2$), L-Carnitine (0.06g / 50 ml extender; $T_3$), reduced glutathione (0.03 g / 50 ml extender; $T_4$), vitamin C (0.2 g / 50 ml extender; $T_5$), L-Carnitine; 0.06g / 50 ml extender + alcoholic extract of *Ferula hermonis* roots; 0.03 ml / 50 ml extender ($T_6$), reduced glutathione; 0.03 g / 50 ml extender + alcoholic extract of *Ferula hermonis* roots; 0.03 ml / 50 ml extender ($T_7$) and vitamin C; 0.2 g / 50 ml extender + alcoholic extract of *Ferula hermonis* roots; 0.03 ml / 50 ml extender ($T_8$) were added to Tris extender and comparisons in response were made with the control group (Tris extender, $T_1$).The total phenolic compound of the extract was 124.38 ± 5.05 mg GAE / g extract and the extract with 0.01 and 0.03 % did not hemolyze the red blood cells and had not poisoning effect on blood cells. The $T_2$ and $T_3$ groups exhibited greater ($P \leq 0.05$) TMS as compared with the $T_1$ group at cooling period. The $T_2$ group was only superior ($P \leq 0.05$) at 30 and 60 days PC as compared with T1 group in similar character. On the other hand, $T_2$ group had significantly ($P \leq 0.05$) greater TNMS in comparison with the other groups at cooling and 30 days PC periods. Lesser ($P \leq 0.05$) THOS was recorded in $T_2$ group as compared with the others at all preservation periods. In conclusion, the adding of alcoholic extract of *Ferula hermonis* roots (0.03 ml / 50 ml extender) and L-Carnitine (0.06g / 50 ml extender) to Tris extender had an obvious influence in increasing TMS and TNMS as well as decreasing THOS of Holstein bulls at different preservation periods as compared with the control ($T_1$) group. This may contribute to a positive enhancement in conception and pregnancy rates of the inseminated cows, and consequently increase the owner's economic income.

**Keywords:** L-Carnitine, *Ferula hermonis*, semen quality, Holstein bulls.

# Antifungal Activity and Qualitative Phytochemical Analysis of *Ulothrix sp*.

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## Abstract

The ethanolic hot extract of Filamentous species of alga *Ulothrix sp* collected from Baghdad University –Iraq, belong to Division: Chlorophyta, was tested for antifungal activity in vitro at different concentrations (25,50 and 100) mg/ml. Antifungal activity was performed by evaluated the percentage inhibition growth method against some fungus isolates (*Aspergillus niger , Fusarium oxysporum, Penicillium sp.* and *Rhizoctonia solani* ) The results indicated that the hot ethanol extract of *Ulothrix sp* was highest effect (91.8 %) inhibition growth at concentration 100 mg/ml against *Rhizoctonia solani* and the lowest effect was (22.4%) at concentration 25 mg/ml against *Aspergillus niger*. Primary chemical analyses of active compounds showed that the active chemical compounds for hot ethanolic alga (*Ulothrix sp*) extract was contains alkaloids, phenols ,Terpenes , Steroids, Flavones, Resins ,Saponines and tannins. Finally the result of GC mass analysis for *Ulothrix sp* extracts proved the presence of many antimicrobial activity compounds. Present study showed that algae have antifungal activity, so it can be developed as a novel source of active compounds for human and plants in all applications in the near future. Bacterial species. Extracts of *Cladophora glomerata* species were prepared in acetone, hot and cold aqueous extracts. Four different concentrations (w/vol.) 12.5 ,25 ,50 and 100 mg/ml were made in each of the above mentioned extracts. Extracts were loaded on agar plates, containing test bacteria, *staphylococcus aureus, staphylococcus epidermidis , Bacillus substilis , Escherichia coli , Klebseilla sp. and pseudomonas aeruginosa,*. Hot and cold aqueous extracts were inefficiency in all bacterial species ,while the hot acetone extract was efficiency for making extract that showed good zone of inhibition in bacterial species maximum up to 18 mm than the lower value was 7.5 mm. Chemical analyses showed that the active chemical compounds for hot acetone extract alga (*Cladophora glomerata*) extract was contains alkaloids, phenols, Tannins , Flavones, Resins and tannins. The acetone extract was further chemically characterized by using GC–MS in order to be tentative identify the compounds responsible for such activities. The main compositions were Methadone, Benzonitrile, bromobutyloxychalcone, Benzeneethanamine and Cyclodecasiloxane compounds which had antimicrobial activity. These results indicate that the acetone extract of *C. glomerata* exhibited appreciable antimicrobial activity and could be a source of valuable bioactive materials for health products.

**Keywords:** Antifungal, *Ulothrix sp*., Chlorophyta, Fungi.

# Synthesis and Antibacterial Activity of ZnO Nanoparticles Using the Precipitate and Irradiation Methods

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## Abstract

In this study, ZnO NPS were synthesized in two methods: the precipitate and irradiation methods. X-Ray powder Diffraction, Transmission and Scanning Electron Microscopy were used to study the crystal structure and surface morphology of the synthesized NPS, which showed that the average particle size of ZnO NPS synthesized by irradiation method was better than which synthesized by precipitate method. The antibacterial activity against *staphylococcus epidermidis* and *E.coli* bacteria were studied and showed that ZnO NPs prepared by Irradiation method have higher antibacterial activity against *S.epidermidis* and *E.coli* than ZnO NPs prepared by precipitate method because of ZnO NPs prepared by Irradiation method smaller than ZnO NPs prepared by precipitate method. In current study, we concluded that irradiation method is better than precipitate method in the preparation of ZnO NPS and in the inhibition of the work of types of bacteria such as (*staphylococcus epidermidis* and *E.coli*).

**Keywords**: ZnO NPS, X-ray, TEM, SEM and antibacterial activity.

# Molecular Requirements for A Novel Bacteriophage Integrase Activity Using an *In vitro* Recombination Assay

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## Abstract

The Shiga toxin-encoding bacteriophage is temperate phage can infect *E. coli* bacterial and follow either lytic or lysogenic replication/infection strategies in its host. When the phage genome is integrated into the host chromosome, it becomes a prophage and gives its host the ability of producing Shiga toxin. This toxigenic bacteriophage host can cause severe, life threatening illness, and Shiga toxin (Stx) is responsible for the severe nature of EHEC infection, a subset of pathogenic STEC. Unusually, our model Stx phage, Φ24B, can integrate into at least four distinct sites within the *E. coli* genome that shared no easily identifiable recognition sequence pattern. The identification of what are actually required for phage and bacterial DNAs recombination has been tested using an *in vitro* recombination assay. This assay enabled the simple manipulation of bacterial attachment site (attB) and phage attachment site (attP) sequences.

**Keywords:** Shiga toxin, Stx, *E. coli*, STEC, DNA.

# The Association of Estrogen , Progesterone Receptors and Her2 with the Age in Breast Cancer Patients

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## Abstract

Breast cancer is the most common malignancy in women in the western world and a major cause of morbidity and mortality. Breast cancer is a tumor cancer originating from breast tissue, most commonly from the inner lining of milk ducts or the lobules that supply the ducts with milk. Estrogens, particularly in conjunction with progesterone, are mitogenic to breast epithelial cells and their effects may be determined by the level of ER and P R expressed in the breast cell. To analysis the estrogen and progesteron hormone receptors and Her2 over expression in relation to each other and to other clinical and pathological criteria of breast cancer. In this study 350 breast cancer patients diagnosed pathologically as having breast cancer collected from midle and south of Iraq. From May 2016 to April 2017. Tissue sample present in the paraffin embedded blocks belonging to patients and control group were used for assessment of estrogen, progesterone receptors and Her2status. The immunohistochemical study showed statistically significant differences between the two groups regarding the expression of ER, PR and HER2/neu. The association of Her2 with ER and PR in benign and malignant breast tumours were evaluated in regards to the age of the patients. Patients of ages less than 45 years were found to express oestrogen and progesterone receptors lower than those of patients with more than 45 years, while Her2 was higher in the first group than those of patients with more than 45 years. As a conclusion from the above results patients in young age were found to be estrogen and progesterone receptors negative ,while Her2 was positive.

**Keywords:** Breast Cancer, progesteron, HER2, ER, PR.

# Assessment of Co-Infection of Human Cytomegalovirus DNA and Epstein Barr-Virus (ZEBRA-Genes) in Tissues of Ovarian Tumors

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## Abstract

Infection by Epstein Barr-Virus (EBV) begins with a short replication phase. The virus remains in a latent phase, only entering the lytic phase in response to a cascade of transcriptional signals. These signals are triggered by the ZEBRA protein (BZFL1) along with Rta (BRLF1). Human cytomegalovirus (HCMV) is responsible for a lifelong persistent infection which ranged from 50% to 90% in adult population, and is related to either socioeconomic status or geographic location. HCMV infection might lead to buildup tumor cells via the protection of certain tumor cells from apoptosis and modulating angiogenesis. The study was designed to determine ZEBRA-EBV gene and DNA-HCMV infections in tissues from ovarian tumors. An 150 ovarian tissues were examined for ZEBRA-EBV gene with DNA-HCMV. Those samples belonged to (45) patients diagnosed with ovarian cancer ; (45) from benign ovarian tumors and (20) patients with borderline ovarian tumors as well as (20) apparently normal ovarian tissues. The detection of ZEBRA-EBV gene and DNA-HCMV were done by chromogenic *In situ* hybridization (CISH). The positive results of ZEBRA - EBV -CISH detection in malignant ovarian tumors, where 64.4% (29 out of 45 tissues) showed positive signals. While ,in the benign ovarian tumors group were 37.8 % (17 out of 45 tissues) ,followed by borderline ovarian tumors & the apparently healthy ovarian control tissues were 30%( 6 out of 20 cases) and 7.5%( 3 out of 40 cases) ,respectively . The present study shows the positive results of HCMV-CISH detection in malignant ovarian tumors, where 55.6% (25 out of 45 cases) showed positive signals, while, 44.4% negative signals which represented 20 out of 45 cases in this group. While, in the benign ovarian tumor group was 35.6% (16 out of 45 cases). Negative signals which in benign group represented 29 out of 45 cases constituted 64.4% .Whereas ,the positive results in borderline ovarian tumor group were 40% (8 out of 20 tissues), followed by the apparently healthy ovarian control tissues was 12.5% (5 out of 40 tissues). We concluded from this study, ZEBRA -EBV genes as well as HCMV-DNA positive signals in malignant ,borderline and benign tumors tissues ,they suggest an important role for these viruses in the development of ovarian tumors in Iraqi patients.

**Keywords:** Ovarian Tumors, ZEBRA –EBV*; HCMV, CISH.*

# Thyroid Adenoma and Mutagenic Effects of Coblet-60 in Male Dog

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## Abstract

The present study was done to investigate the changes in thyroid gland by 2 doses of gamma radiation (Coblet-60) and analysis mutagenic effects in male dogs blood. Eighteen male dogs (≥1years old 11-12 kg B.W) of different breeds Mixed and Tan black) were divided into 3 groups,1st group consist 6 dogs (control group), 2nd group (6male) exposure to acute dose 150 gray coblet for (5.97) second at period (0,3,7) days, 3rd group (6male dogs) exposure to dose 50 gray coblet for (1.98) second at period (0,3,7) days (chronic dose). Results showed significant increase at acute dose (2nd group) in micronuclei and chromosomal aberration (breaks, dicentric, acentric and ring) with increase in insister chromatid exchanges special at day 7.while chronic dose(3rd group) indicated sister ring)with significant increase in micronuclei and chromosomal aberration (breaks, dicentric, acentric and ring) with increase in insister chromatid exchanges special at day15 and 30 than 2nd group. Pathological examination present thyroid adenoma characterized by small slit –like follicles with columinon cells and scanty colloid papillary proliferation of epithelial cells forming sheets or cords hyperplastic cells with a palisading fashion.

**Keywords:** Thyroid, radiation, dog, micronuclei, chromosomes.

# Synthesis and Characterization of $SiO_2$ Nanoparticles Conjugated Chitosan and Using it for Enhancement Antibacterial Activity of Chitosan Extracted from *Aspergillus flavus*

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## Abstract

The biological methods for extraction of chitosan were used as alternative procedures for chemical methods. In biological methods the chitosan was extracted from *A. flavus* by using of *Lactobacillus paracasei* for demineralization and *Bacillus subtilis* for deproteinization. The yield of extracted chitosan reached to 53.8%. $SiO_2$ nanoparticles was prepared by laser ablation and examined by transmission electron microscopy (TEM), X-ray diffraction pattern and UV-Visible absorption spectroscopy. Conjugation of $SiO_2$ nanoparticles to chitosan by pulses method was prepared and characterized by TEM, X-ray diffraction pattern and UV-Visible spectrum. $SiO_2$ nanoparticles conjugated purified chitosan by pulses method showed higher effectiveness and higher significant level against all tested UTI causing in comparison with ciprofloxacin antibiotic, $SiO_2$ nanoparticles alone and purified chitosan alone. So that we can conclude that $SiO_2$ nanoparticles conjugated purified chitosan may be useful antibacterial agent for the treatment of urinary tract infection.

**Keywords:** $SiO_2$, *L. paracasei*, *B. subtilis*, *A. flavus*.

# Effect of *Fusarium graminarum* Silver-Nanoparticles on IL-10 and INF-γ Cytokines Levels in the Mice by *Leishmania donovani in vivo*

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## Abstract

Leishmaniasis remains one of the fatal diseases worldwide, and the conventional antileishmanial therapies are toxic and most are expensive. Biological silver nanoparticles possess broad-spectrum antimicrobial activities and could be a future alternative to current antimicrobial agents. In the present study an approach was made to synthesize silver nanoparticles (AgNps) using a *Fusarium graminarum* fungus. The present study it investigates the efficiency of silver nanoparticles against Leishmania donovani compared with pentostam drug *in vivo* by measuring the levels of immune cytokines (IL-10 and IFN-γ) in serum infected mice and treatment with AgNPs (0.1 ml / day) and comparisons with pentostam drug (0.01ml / day) after 21 days of treatment. The results showed that the level of IFN-γ in treating with AgNPs increased significantly in third weeks, compared to the pentostam group. When treated with pentostam/AgNPs together, there is a gradual decrease in the level of IFN-γ, compared with negative control. Also a significant increase occurs in the IL-10 level within 21 days when mice were treated with AgNPs compared with pentostam. It could be conclude that silver nanoparticles induce pro and anti-inflammatory cytokines also it safety, nontoxic and has a good anti-parasitic activity, it can be used as antileishmanial drug or can be used as supportive treatment of visceral leishmaniasis.

**Keywords:** *F. graminarum*, silver, nanoparticles, IL-10, INF-γ.

# New Alternative Nutrition Suggested from Herbal Plant Roots, Part II

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## Abstract

It's well known that population explosion the hall world ,and especially in Arab world were the reason behind the great raises in the processed and natural food , like livestock , wealth plant etc. Therefore this application a trial to prove alternative nutrition for human in difficult conditions specially in natural disaster and wars. The application included many stages. First stage; water extraction from Herbal plant and calculate their concentration. Second stage; determination the composition extract qualitatively like carbohydrate, protein, Fats and minerals by Biochemical methods. Third stage ; applied a specific dose extract on animal lab (rodent)rats though out three groups for six weeks and studies the psychological behaviors like general appearance , sensorimotor behavior immobility and its reflexes , locomotion, skilled movement, and species-specific behaviors. Fourth stage: Blood test, as glucose level ,lipid profile tests, kidney functions tests .Final stage : Histopathology Tests for Kidney, Liver and Intestine. All the Biochemical results showed within normal values with no any significant changes. This gave the extract the power and ability to be one of the good supplement product for the near future .

**Keywords:** Nutrition , Alternative foods , Herbal Plant.

# Isolation and Identification of Lactobacillus Using Biochemical and Molecular Methods

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## Abstract

The present study includes isolation of fifteen isolates of lactic acid bacteria (LAB) from animals milk (cows, sheeps and human's milk). These isolates were identified using morphological and biochemical tests, the results revealed that all the isolates belong to the *Lactobacillus* genus. In addition, the genetic variations were analyzed among these bacterial isolates by polymerase chain reaction technique random ampilification of polymorphic DNA (RAPD PCR) and the results, showed that diversity among these isolates exist at high level which may be related to the source of these bacteria.

**Keywords:** lactic acid, Bacteria, RAPD-PCR, *Lactobacillus*.

# *Pseudomonas fluorescence* Compatibility with Chemical Pesticide Carboxin 75 and Raxil 2DS to Control Corn Seedling Blight Causing by *Fusarium graminearum*, *F. moniliforme* and *F. poliferatum*

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## Abstract

This study was carried out for the purpose of detection and compatibility of *Pseudomans fluorescens* and fungicides to control *Fusarium graminearum* (F.g), *Fusarium moniliforme* and *F. poliferatum* (f.p). The pathogenicity in filter blotter test indicated that the seed decay symptoms were reduce from corn seeds to 52 for the fungus (F.g ), 55 for ( F.m ) and ( F.p) . $4.5 \times 10^6$ was the lowest concentration showed inhibition of fungi growth of 77.5, 77.5, 85% sequentially. No toxic effects of chemical pesticides were recorded on the growth of P.f bacteria when mean concentration were used, the results showed a high degree of compatibility of P.f bacteria with half effective concentration of chemical pesticides to suppressing pathogenic fungi, as well as an increase in plant growth parameters.

**Keywords:** *P. fluorescens*, C 75, Raxil 2DS, corn fungi.

# The Association of Vitamin D Deficiency and Insufficiency with Genetic Polymorphism (*CYP27B1* SNP *rs10877012*) in Iraqi Samples

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## Abstract

Vitamin D comprises a group of fat-soluble secosteroid found naturally only in a few foods, responsible for increasing intestinal absorption of calcium, magnesium, and phosphate, in addition to other biological effects.In humans, the two majorphysiologically forms are vitamin D2 (ergocalciferol) and vitamin $D_3$ (cholecalciferol). Vitamin D2 is obtained from dairy products whereas Vitamin D3 is produced in the skin after exposure to ultraviolet light. Vitamin D from the diet or skin synthesis is biologically inactive; enzymatic conversion (hydroxylation) in the liver and kidney is required for activation.Blood Sample were collected 100 individual to determine (test) vitamin D state and these sample divided into three group, the first group 80 sample, were collected randomly from people have normal vitamin D level, and 20 sample as control samples which were divide into two group, 11 sample from people with normal level of vitamin and 9 patient have deficiency in their level of vitamin D. These samples were tested using ELISA to determine the level of 25(OH)D. Genomic DNA was extracted from these samples and analyzed using real time PCR. The results from ELISA groups were 29% sample with vitamin D deficiency in normal people (they did not have any idea about their vitamin D level) $44 \pm 24.06^{B}$. The negative control was $67.55 \pm 21.85^{A}$ and the positive control was $9.85 \pm 5.19^{C}$. These results show revealed the relation between the active form of vitamin D enzyme and *CYP27B1 gene which* is associated with the deficiency of vitamin D state. The genetic analysis of *CYP27B1* gene polymorphism, the results from comparison between positive control and healthy group showed the TG and GG genotypes frequencies have significant association with vit. D deficiency (*P*= 0.002; OR= 16.3; CI 95%= 0.2-9.7) and (*P*=0.02 ; OR= 11.8 ; CI 95%= 0.1-10.2) respectively, while the G allele frequency was significantly associated with positive control group (*P*= 0.004; OR= 1; CI 95%= 0.5-4.2). The results of comparison between the negative control and healthy group showed no association in both genotype and allele frequencies. From these results we conclude the immunological test of plasma 25(OH)D is a useful marker to indicate the risk of clinicaldeficiency and insufficiency, while the genetic analysis we suggest it is associated with the deficiency and insufficient of vitamin D level but the study wasn't performed with the enough number of samples to prove this aim.

**Keywords:** Vitamin D Genetic Polymorphism, CYP 27B.

# Detection of Tn*917* Conferring Erythromycin Resistance in Clinical Isolates of *Streptococcus pneumonoiae*

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## Abstract

This study was conducted to investigate the genetic organization of *erm*-carrying Tn*917* in clinical isolates of *Streptococcus pneumonia.* A total of 15 isolates of *S. pneumoniae* isolates were examined and was found to contain Tn*917* element. Susceptibility of these isolates to different antibiotics was also examined, results showed that these isolates are resistant to penicillin in percentage of 93%, then to streptomycin and trimethoprim (87%), clindamycin (73%), kanamycin (67%), erythromycin, tetracycline and azithromycin (60%), ciprofaxin and levofloxacin (53%). Genomic DNA was extracted from *S. pneumoniae* isolates for detection Tn*917* by using specific primers to amplify *erm* gene carried by this transposable element. Results showed that five of *S. pneumoniae* isolates were found to contain Tn*917* element giving them erythromycin resistance. *erm* gene encodes this antibiotic but does not mediate resistance to other antimicrobial agents. On the other hand, nucleotide sequence for *erm* gene was determined, and compared by alignment with the *erm* gene sequence located on the same transposable elements in standard strains of *S.pneumoniae* recorded in NCBI data base. Results of alignment showed 100% identity between these sequences.

**Keywords:** *S. pneumoniae* , Tn*917*, Erythromycin resistance, antibiotics.

# The Impact of HIV TAT and gp120 in Neuroinflammatory Response During HIV Active Infection

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## Abstract

Despite the fact that acquired immune deficiency syndrome (AIDS) has been treated effectively by highly active anti-retroviral therapy (HAART), the incidence of HIV associated neurocognitive disorders is still high due to the inability of most HAART to pass through the blood-brain barrier (BBB) and target the virus. Neurocognitive disorder results from an inflammatory cascade in the brain. It is thought that the HIV-1 transactivating protein (TAT) alone or in combination with the major virus envelope glycoprotein gp120 trigger glial cells to secret chemokines that elicit the influx of more immunocytes and results in inflammatory amplification. To test this hypothesis, co-cultures of microglia and astrocytes were incubated with TAT, with gp120, and with TAT plus gp120. Chemokine expression then was estimated using an immunodot blot array. Macrophage chemotactic protein (MCP1) and TIMP metallopeptidase 1 (TIMP1), a tissue inhibitor of metalloproteinases, were present in the three coculture test groups. In addition to MCP1 and TIMP1, interleukin-8 (IL-8) was detected following coculture with TAT plus gp120. These results implicate the role of HIV- TAT and gp120 in activating brain glial cells to evoke an inflammatory response.

**Keywords:** HIV, gp120, HAART, TAT, TIMP1.

# Inhibitor Activity of Some Coumarin Derivatives on Glycosyltransferases Produce From *Streptococcus pneumoniae* P3

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## Abstract

This study was conducted with the aim to evaluate the inhibitor activity of some coumarin derivatives on glycosyltransferases produced by *Streptococcus pneumoniae* P3. The increased occurrence of *S. pneumoniae* strains resistant to β-lactam antibiotics has become a worldwide health problem. The results showed that the Coumarin and its derivatives in the concentration 100 µg/ml applied on *Streptococcus pneumoniae* P3 to estimate these affecting on the bacterial ability to produce enzyme by measuring the value of enzyme activity it decreased the enzyme activity from 178 unit/ml to (57.9 , 68.90, 72.65 and 62.34) unit/ml with inhabitation ratio 32.52 , 38.70 , 40.81 and 35.032 % respectively of Inhibitor coumarin, 7-ethyl-4-methyl coumarin, 4,7 dimethyl-6-nitro coumarin and7-hydroxy-4-methyl coumarin respectively. The study concluded that thus prompting the present more extensive investigation of coumarin derivatives. Attention is given to structure-activity relationships with emphasis on the aromatic oxygenation patterns among this class of secondary metabolites.

**Keywords**: *Streptococcus pneumoniae* , Glycosyltransferases , Coumarin, coumarin derivatives.

# Effect of Temperature and pH on Antioxidant Effectiveness of *Capparis spinosa* Leaves

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## Abstract

The *Capparis spinosa* leaves were collected for months (April, May, June, July, August and September) from the Eastern Radwaniya region in Baghdad. The aqueous and alcohol extracts were prepared and more than one method was used to estimate the stability of the extract as antioxidant toward heat and PH for the sample which exhibited highest antioxidant activity between all samples by methods used, the method of iron ion bonding , reducing power , the effectiveness of scavenging of hydrogen hydroxide and the effectiveness of free radical suppression, decreased antioxidant effectiveness when exposing the water and alcohol extract to different temperatures (5-55 ° C) for 4 hours. A decrease in the antioxidant effectiveness of the water and alcohol extract was observed in pH (3,4,5,6,7and8). A slight reduction in the antioxidant efficacy of PH7 was observed at temperature Refrigerator for 30 days and for all the tests mentioned above.

**Keywords:** *Capparis spinosa*, Antioxidant efficacy, reduction power, iron ion bonding, hydroxide hydroxide inhibiting, free radical suppression activity.

# Detection of CaMV-35S Promoter and NOS Terminator in Genetically Modified Tomato Seed in Iraqi Markets

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## Abstract

The present study was focused to detect leading elements that control gene expression in genetically modified tomato by using conventional PCR technique.These common elements in all GM. plants are CaMV-35S promoter isolated from *cauliflower mosaic virus* and T-Nos terminator from the *Agrobacterium tumefaciens*. Seventy eight tomato genotypes were collected from Iraqiinstitutions and markets. The experiment was conducted in the Institute of Genetic Engineering/University of Baghdad/ Iraq and Directorate of Seeds Testing and Certification/Ministry of Agriculture/ Iraq. The tomato DNA samples were extracted manually by C- hexadecyl- Trimethyl-Ammonium-Bromide (CTAB) method. When measuring the optical density (OD) of the tomato samples, most purity values were found to be between (1.7-1.9).Two specific primers of CaMV-35S promoter, Nos terminator supplied by Canadian Alpha DNA Company, AccuPower®PCR Pre mix PCR supplied by Korean Bioneer Company and positive control (plasmid) supplied by Dr. ShathaAyidYousif/ Directorate of Agricultural Research/ Ministry of Science and Technology/ Iraq, were used in this study. Results showed that twenty four tomato genotypes were genetically modified.The primer specific of CaMV-35S promoter recorded a PCR product of 195 bp in 15 GM tomato and 13 GM tomato genotypes contain Nos terminator were a PCR product of 180 bp which as match with results of positive control (plasmid) which contains promoter and terminatorand that four tomato genotypes contain major components CaMV-35S promoter and Nos terminator together in the same sample.

**Keywords:** Tomato, Conventional PCR, CaMV-35S promoter and T-Nos terminator.

# Use of Ozone Gas to Extension the Storage Period of Raw Milk

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## Abstract

The use of ozone gas in the treatment of raw milk for the purpose of increasing the period of storage period cooled and before the process of pasteurization, has been prepared three samples of raw milk offered to the gas at a concentration of 0.5 g / h of gas for 5 minutes for the first sample and 15 minutes for the second sample and 30 minutes For the third sample of milk, with the preparation of another sample left without weight to be adopted as a control, the four samples were stored in a refrigerator at a temperature of 7 ± 2 ° C and the correct pH and acidity were estimated. The total bacteria, And the results showed that the increase in acidity was reduced with increased exposure to ozone, and that ozone-prone samples had a longer conservation period than the non-ozone controlled control, which was counted acidically and rejected after 48 hours . The results of the microbiological tests indicated that ozone had a clear effect in reducing the growth and inhibition of the microorganisms observed in the raw milk samples before being treated with ozone. This effect increased with the exposure period up to 30 minutes and continued its effect within 48 hours of preservation. Heat 7 ± 2 °C. The best treatment for ozone gas recommended for the maintenance of milk with ozone was the treatment in which the milk was offered to a concentration of 0.5 g / h for 15 minutes as this treatment retained the qualities of appearance good in terms of color and smell better than the treatment, which showed milk for gas for 30 minutes and also acidic Up to 76 hours with microbiological qualities were much better than control treatment and treatment offered to ozone for 5 minute.

**Keywords:** GM Tomato, Conventional PCR, CaMV-35S promoter and T-Nos terminator.

# Crucial Role of IL-6 in Hepatitis Infection: Gene Polymorphism Effect of IL-6 C174G on Progression of Hepatitis C and B in Iraqi Patients

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## Abstract

Hepatitis B and Care a extraordinary worldwide medical problem then a conceivably risky heart illness brought on via liver disease infection. Various cytokines comprehensive of lymphokine half-dozen (IL-6) are appeared once keep related to the HBV illness method. IL-6 could be a pilot over the symphony protein committed on concerning 184 amino acids, then the multiplication is found among body 7p21. For consolidated people, body fluid IL-6 levels ar usually conjointly paltry once stay at intervals someone road recognized. In someone case, dysregulated combination over IL-6 has been found into incessant fiery infections, as a result of example, serum hepatitis, Crohn's wellness and rheumy suture pain. IL-6 either assumes an essential half at intervals HBV transcript then among the enchantment regarding serum hepatitis illness. this text intends consistent with pass around the piece regarding IL-6 into serum hepatitis then C wellness move then verify polymorphisms thereto quantity ar connected alongside the event concerning serum hepatitis, C disease.Interleukin-6 (IL-6), a protein preponderantly delivered by means that of initiated monocytes, has broad pleiotropic activities as influence the weather concerning AN assortment over humour cells. The elements concerning IL-6 among leading insusceptibility consistent with diseases ar today existence characterized. Amazingly, IL-6-interceded mobile or body substance air-tight reactions assume a central amount decide the tip results of infective agent illness. This composition reviews the current knowledge on the critical role of IL-6 in hepatitis B virus (HBV) infection. A total of 203 subjects with hepatitis infection (94 patients with hepatitis B virus infection and 109 patients with hepatitis C virus infection) whom admitted to Margan hospital, Center of liver diseases and gastrointestinal system were enrolled in the study. Allele specific (AS)-PCR, methods were used for assessing polymorphism of IL-10. Patients included (130 males and 73 females), with an age range (HBV: 44.6 ± 8.2), (HCV: 45.3±13.3) and (Control: 49.2 ± 9.04) years. The practical side of this study was done during the period from October 2017 to March 2018. IL-6 (174 Promoter) genetic polymorphism related to hepatitis B and C virus infection describe the Genotype frequency of polymorphisms of (IL-6) gene in Hepatitis B, C and Control, it was revealed that CG allele was higher than others 59.76% in control, 57.45% in HBV and 63.3% in HCV respectively. Results of Allele frequency showed that G allele was higher than C (78.05% in control, 70.2% HBV and 67.61% HCV).

**Keywords:** IL-6, C174G, Genetic variations, immunopathogenesis, HBV, HCV.

# The Promising Anti-Tumor Impact of Newcastle Disease Virus Expressing IL-2 and P53 Genes in Many Cancer Cell Lines *In vitro*

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## Abstract

Recombinant Newcastle disease virus (rNDV) has shown an anticancer effect in preclinical studies, but has never been tested in a lung cancer models. In this study we explored the anticancer activity of genetically modified NDV expressing IL-2-P53 (rClone30–IL-2-P53) in lung cancer model. We have cloned IL-2 and P53 genes and inserted them in the viral genome of New Castle Disease Virus to create a genetically modified rNDV- IL-2-P53 virus and tested the anti-tumor activity of the new virus in vitro on different types of cancer cell lines by MTT assay. TheIL-2 and P53 gene were successfully cloned and inserted into the viral genome by using a Mlu I and Sfi I endonucleases, viral vector was constructed correctly and successfully; sequencing results also showed that the recombinant plasmid was successfully constructed resulting in the formation of rClone30 NDV expressing both IL2 and P53 gene. In this study, P53 and IL-2 gene were successfully constructed into the NDV genome, by the use of reverse genetics technology, then successfully rescue of all recombinant rNDVclone30s and got high titer recombinant viruses.

**Keywords:** rNDV, IL-2, P53, lung cancer, MTT assay.

# The Detection of *Aspergillus flavus* in the Milk by Molecular Method in Diyala Province

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## Abstract

Since ancient times, milk and its derivatives have been one of the most popular foods. This value put the food hygienists in a real challenge to provide safe milk to consumers with maintaining its nutritional value. The consumption of milk was estimated to be every day for a lot of people as it was the source of many nutrient essential for human. The main objectives of the present study were to isolate the fungus of *Aspergillus flavus* from milk samples and detect aflatoxigenic *A. flavus.* Accordingly, a total of 100 samples of milk samples were collected randomly from location (Baqubah , Buhriz , Alkhalis , Bani sa'ad, Muadadiya and Hebheb) and different animals (cows, sheep and goat) from Diyala Province. A conventional polymerase chain reaction assay was applied for the confirmation of *A. flavus* by using published primers (ITS1 and ITS4), and the result revealed 15 samples of crud milk have toxigenic isolate of *Aspergillus flavus* which have size 600bp. sequence and phylogenetic analysis to determinate *A. flavus* strain and its origin also this was isolates seven strain and then resulted in single new strain gene , This was done by recorded new strain of *A. flavus* in Gene bank data base with accession number (MH213344) that isolated from milk in Iraq, in addition to antifungal sensitivity where done for 15 toxigenic samples and the result reveled that all of them are resistance to antifungal drugs( Nystatin , Amphotericin B , Fluconazole ) that made them more virulent effective on human health.

**Keywords:** *Aspergillus flavus***,** Milk**,** PCR**,** sequencing**.**

# G6PD Deficiency in Syria: Identification of the *Mediterranean* Mutation Amongst Hemolytic Anemia Patients

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## Abstract

Glucose-6-phosphate dehydrogenase (G6PD) deficiency is an X-linked genetic disorder. More than 400 million individuals are affected globally. The most common clinical manifestations are neonatal jaundice and acute hemolytic anemia. Numerous mutations have been described in the *G6PD* gene, many exhibit region-specific distributions. The *G6PD Mediterranean* mutation is frequently found in the Mediterranean region. However, in Syria no previous studies were conducted on G6PD deficiency disorder on its molecular basis. The aim of this study was to screen for the *Mediterranean* mutation amongst hemolytic anemia patients, as a preliminary search to determine the frequency of *G6PD* mutations in the Syrian society. A total of 265 children with hemolytic signs presented to Children's University Hospital in Damascus, were enrolled in this study. Genomic DNA was extracted from 197 patients for genotyping, and the *Mediterranean* mutation has been determined by *PCR-RFLP* method. Our result showed that 30% of cases have a positive family history for G6PD deficiency. The Male to female ratio was 1.6:1. *Mediterranean* mutation was detected in 164 case (83%) with an allele frequency of 0.65. High prevalence of *Mediterranean* mutation in our study strongly suggests the need for nationwide screening to determine the prevalence of the deficiency in the Syrian society. Further expanded studies are needed to evaluate other mutations in the *G6PD* gene.

**Keywords**: Glucose-6-phosphate dehydrogenase (G6PD) Deficiency, *Mediterranean* mutation, Hemolytic anemia.

# Copia Like Retrotransposon Analyses in Seven Varieties of *Solanum tuberosum* L. from Iraq

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## Abstract

Retrotransposons are mobile genetic elements within the genome and constitute of 50 to 90 percent of plant genomes. *Solanum tuberosum* L. is the world's most important non-grain food crop and is central to global food security. In this study, Copia like transposon movements was investigated in the green parts of seven varieties of *Solanum tuberosum* L. by using IRAP-PCR technique. Polymorphism was detected for copia like transposon between some varieties of potato. Result indicated that there was no polymorphism between var. Alimonta, Riviera, Qamarin, Borin and Silvana but, there is polymorphism in Arizona and G4 varieties. In addition, homomorphic band profiles were observed among all seven varieties.

**Keywords:** *Solanum tuberosum*, Mobile genetic Elements, Transposons, IRAP-PCR

# Molecular and Nanotechnical Study for Antibiofilm Formation and *CsuE* Gene Expression Activities of Synthesized Iron Oxide Nanoparticles Against Multidrug-Resistant *Acinetobacter baumannii* Isolates

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## Abstract

This study aimed to investigate the influence of synthesis of Iron Oxide Nanoparticles ($Fe_3O_4$NPs) by co-precipitation method on biofilm formation and *CsuE* gene expression in multidrug resistance *Acinetobacter baumannii* (MDR*A.b*) which represents one of the important causing agents of nosocomial infection. *A. baumannii* isolates used in current study and isolates from different clinical sources (wounds, burns, urine, sputum, blood and throat) that able to produce strong biofilm. Synthesis and characterisation the physical-chemical nature of $Fe_3O_4$ NPs was carried out using UV-visible spectrophotometer, fourier transform infrared (FT-IR), X-ray diffraction (XRD), Atomic force microscope (AFM) and scanning electron microscope (SEM). Results show that they were very fine crystalline sizes reaching to 11±1 nm by XRD ,with a mostly spherical in shape and average of nanoparticles size between (40- 47) nm by SEM and AFM, respectively. Minimum inhibitory concentration (MIC) and sub-MIC test of $Fe_3O_4$ NPs at concentrations (15.75 to 2000) µg/ml against *A.baumannii* isolates had been determined using tube broth method measured by optical densities values at 630 nm. The results of the experiment of the best sub-MIC with concentration of $Fe_3O_4$ NPs 125µg/ml showed a significant difference at $p>0.05$ the anti-biofilms inhibitory on polystyrene surface of microtiter plates for the bacteria isolate under study. Biofilm formation *CsuE* gene expression was investigated by using RT-qPCR technique with reference *16SrRNA* gene before and after treatment with $Fe_3O_4$ NPs. The results showed a significant difference at $p>0.05$ in Cycle threshold (Ct) values for *CsuE* gene expression of the isolates. The study concludes that the synthesized magnetic $Fe_3O_4$ NPs with 125µg/ml gave excellent antibiofilm activities and inhibitory efficiency against *A.baumannii* isolates and the potentiate to down regulate of gene expression fold for biofilm formation encoded by *CsuE* gene of *A.baumannii* leading as a result to have low biofilm production.

**Keywords:** MDR *Acinetobacter baumannii*, Iron Oxide Nanoparticles, Biofilm Formation, *CsuE* Biofilm gene and gene expression.

# Detection of *FOXM1* Expression and Strands Breaks Levels as a Marker of Oxidative DNA Damage in Individuals Exposed to Low Dose of Ionizing Radiation

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## Abstract

Radiation and different types is one of the major well known mutagenesis factors. Man is exposed to different types of radiation of which those used in diagnosis of diseases and treatment ,the exposed through work or environmental exposure is other reason. Low dose of ionizing radiation induces DNA damage on normal cells and abnormal cells. DNA repair and regulator genes are cellular weapons against DNA damage. Healthy individuals show normal functions of these genes manifested as normal gene expression of the very well-known DNA regulator genes *FOXM1*."Other biomarkers for DNA damage were used in this study, comet assay. The total number of participants in the study was 100 male individuals ( from east of Bagdad), included worker individuals exposed to low dose of ionizing radiation , individuals from slums around the source of IR (the lowest dose ), and volunteers individuals of male of different age Peripheral blood are collected and urine from all individuals. The results indicate that the level of damage in workers higher than slums individuals and related with foxm1 expression , also the expression of foxm1 increased in individuals exposed for more than 5cGy ,and increasing in slums exposed to 5cGy."The low dose of IR causing genotoxic effects due to a combination of DNA-damaging effects and reduced capacity of DNA repair". "Results of gene expression reached significant in *FOXM*1gene in exposed groups, that the comet high damage (CHD)was significantly higher in the workers and slums groups".

**Keywords:** Low -dose ionizing radiation ,foxm11 gene ,comet assay ,DNA repair gene expression, single and double strand breaks

# Influence of Fortification with Extracts of Three Varieties of Iraqi Dates on the Viability of *Lactobacillus plantarum* in Probiotic Fermented Milk Products

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## Abstract

Therapeutic fermented milk is product owing to its particular physical, nutritional, probiotic and organoleptic properties containing prebiotics as enhancers of human natural micro-flora and probiotics with their positive effects on health when consumed regularly according to WHO recommendations, This study was conducted to fortified the Milk by the extracts of three variety of Iraqi dates (Zahdi, Khastawi and Khadrawy) on four different percentage levels of treatments T1 (5), T2 (10), T3 (15) and T4 (20) comparing with T0 (without any addition) in order to know its role in the impact on the vitality and numbers of Probiotic *Lactobacillus plantarum* expressed in terms of growth intensity when used as starter culture In the manufacturing of therapeutic fermented milk and their influence as Prebiotic enhancers, The lowest number appeared in logarithmic counts of viable bacteria cell were in the treatment of control T0 (10.80), comparing with the increase in the supported products with extracts for T4 treatment, which were similar to those of al-Zahdi and al-Kashtawi (12.86), while al-Khudrawi (12.96) and what it means that there is a direct increasing in the logarithmic number of probiotic bacteria with the higher percentage addition of date extracts, and was the most effective with the Khadrawi variety, there is a correlation between the growth of *Lb. plantarum* bacteria to get the best and smooth texture of the therapeutic fermented milk products, and to maintain the probiotic bacterial number at proper required accounts, That the results obtained give a positive indication of the role of date extracts of these varieties in increasing numbers and enhancing the viability of these probiotic bacteria in fermented milk products.

**Keywords:** Prebiotic, Date Extracts, *Lb. plantarum* , Probiotic Fermented Milk.

# Study of Protein Concentrate and Physical Properties for Each Wheat Germ and Defatted Wheat Germ in Biscuits Processing

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## Abstract

The wheat germ is an important secondary product known to be important in containing high protein, oil, carbohydrates, minerals and phenolic compounds. It has been used in many industries. The aim of study is produce a defatted wheat germ and protein concentrate powdered each wheat germ powder. The results of the chemical analysis of the defatted wheat germ , protein concentrate showed that the percentage of protein in the protein concentrate compared with the defatted wheat germ was (71.5, 34.26%) respectively, the percentage of ash, moisture, fat and carbohydrates in the protein concentrate 3.5, 5.3, 0.93 and 35.37%, respectively, the defatted wheat germ increased to 5.6, 7.3, 2.25 and 68.33%, respectively. The standard biscuit was manufactured using the replacement ratio of 5, 10% of the wheat flour in the protein concentrate powder and the defatted wheat germ powder. physical properties were carried out for biscuit samples. The highest percentage of spread factor was obtained for the sample in which the protein concentrate was replaced by 10% that 148.91. The results of the sensory evaluation showed significant differences between the biscuit control sample and all samples were with in acceptable limits.

**Keywords:** Wheat Germ, biscuit, protein concentrate.

# Study the Effect of Ionizing Radiation on a Sample of Workers Using Three Genetic End-Points

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## Abstract

The present study aims to use the molecular biological techniques in a genotoxicity investigation of low radiation doses in samples of workers in Al-Tuwaitha site, this study including 30 male blood samples, aged (32 - 59 year), as well as 20 male blood samples, aged (30 -57 year) which are non-smokers and non-alcoholics as control group . Three genetic parameter were studied by using hypoxanthine guanine phosphoribosyl transferase (*HPRT*) mutation assay, micronuclei in cytoplasm of reticulocytes cells and comet assay .The statistical analysis showed that there was significant difference ($p < 0.01$) the *HPRT* gene mutation assay between the radiation workers and controls group. The present study showed significant increasde ($p<0.01$) in micronuclei of reticulocytes cells for the radiation worker as compared with the control group. Also there were found a significant increase ($p<0.01$) in comet tail length and tail moment values in the human lymphocyte in these radiation worker of this study as compared with the control group. In conclusion, the obtained results confirmed the usefulness of the mutation frequency for *HPRT* assay, micronuclei in cytoplasm of reticulocytes and alkaline comet assay and as a sensitive additional biomarker in the regular health screening of workers occupationally exposed to low doses of ionizing radiation.

**Keywords:** Ionizing radiation , *HPRT* gene , MN in reticulocytes , Comet assay .

# Molecular Detection and Phylogenic Analysis to Larvae Virulence Gene in Toxocariasis VLM Syndrome

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## Abstract

Toxocariasis is a zoonotic parasitic disease caused by *Toxocara canis* infected egg. Larval stage of this parasite has ability to migrate through intestinal wall and invade all body organs causing a visceral larvae migrant (VLM) syndrome. Diagnosis of VLM is problematic; there were no accurate laboratory test that reveals the presence of larvae infection in paratenic hosts (human, ruminants or poultry). The eggs were isolated from adult *T. canis* uteri and cultured in 0.2M H2S04 solution for embryonation, mice were experimentally infected with emberyonated eggs. Many hisopathological changes detected in heart and kidney tissues of infected mice but it could not detected encysted larvae compared with molecular detection which confirmed infection within first three day post infection in tissue with accurate diagnosis depending on virulence larvae *tes-120* gene, PCR products were sequenced and deposed in NCBI, DDBJ and ENA with accession number LC328969 for the first time in Iraq. Phylogenic tree analyses mounted a low genetic variation (0.2) among Iraqi isolate and all other comparison isolates. In conclusion our result indicated that molecular method could diagnosis *T. canis* larvae (VLM) infection in any meat or meat products of local or imported from inside or outside Iraq country and used as an accurate microbiological laboratory test used routinely in government hospitals laboratories.

**Keywords:** Toxocariasis, larvae stage, heart, kidny, *T. canis.*

# Study of Vitamin D Receptor *CDX-II* Gene Polymorphism and Some Physiological and Biochemical Parameters in Type II Diabetic Females

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## Abstract

This study aimed to evaluate vitamin D receptor gene polymorphism role and its correlation with the development of diabetes disease in females. Vitamin D receptor gene *CdxII* polymorphism determined by Allele specific multiple (ASM- PCR), while the hormones including (Estradiol and Insulin) and the physiological parameters (Vitamin D, Cholesterol, High density lipoprotein, Triglyceride, Low density lipoprotein, very low density lipoprotein, Hemoglobin A1c, Fasting Blood Glucose, insulin resistance, insulin sensitivity, systolic and diastolic blood pressure). This case-control study was done in a period of March 2017 to October 2018, where the samples collected from Al-Sadr Teaching Hospital in Najaf Province. The number of samples was (80) females with type 2 diabetes with an average age (36-65 year). The present study divided into two main parts: physiological and molecular parts. The results showed that patients with type 2 diabetes , had significantly ( $p \leq 0.05$ ) higher cholesterol, Triglyceride, Low density lipoprotein, very low density lipoprotein, Hemoglobin A1c, insulin, insulin resistance and Fasting blood glucose levels rate than control group, while the levels rate of insulin sensitivity is decreased significantly ($p \leq 0.05$) in type 2 diabetic patients when compared with control group. The statistical analysis for the results of the Single Nucleotide Polymorphisms for vitamin D receptor *Cdx-II* gene by using (ASM-PCR) technique, showed there were significant differences between patients and control groups.

**Keywords:** *CDX-II*, Vitamin D, polymorphism, Najaf.

# Association of C-Allele Carrier Genotype of *SLCO1B1* Gene 521T>C Polymorphism and Statins Related Myopathy in a Sample of Iraqi Patients

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## Abstract

The gene *SLCO1B1* 521 T>C is a crucial gene single nucleotide polymorphism (SNP) concerning of a several medications transport enzyme OATP1B1 action variation such as statins drugs that may cause a serious side effect (myopathy), Iraq lack from recent studies about this variation related to statins side effect myopathy.The study of the *SLCO1B1* gene 521 T>C polymorphism effect on Iraqis patients taken statins differ in showing myopathy as a side effect of statin. Settings and Design considered An only treated case-control study. The study of the effect of T521C of *SLCO1B1* gene polymorphism and myopathy carried by collect venous human blood (3) ml of (96) samples divided to (48) as control and (48) as case. DNA extraction carried by (wizibiosolutions Korean kit for DNA extraction) and detection by Gel-Electrophoresis, nanodrop device used to adjust purity and concentration proper to next step, TaqMan Real-Time Polymerase Chain Reaction (TaqMan RT-PCR) carried by Real-Time PCR System . Myopathy determined by a history of the patient, clinical examination. Highly significant difference p-value (0.0001<0.01) in genotype carry C-allele between control and case. Genotype (CC) was zero in control compared with cases, all (CC) genotype 5 patients with myopathy was (100%) in case. Genotype (TC) only 5 patients represent (15.6%) was in control parallel to 27 patients represent (84.4%) in case. Genotype (TT) wild type was 43 patients (72.9%) in control compare to only 16 case patients represent (27.1%). All numbers refer to a strong correlation between genotypes carry C-allele (100%, 84.4%) and case (patients with myopathy) against control only (15.6%) of (TC) genotype without myopathy. The significant risk of myopathy of (CC) genotype compare with (TT) genotype when (n=96) odd ratio (17.2) at (95%) Cl between (5.7051 to 51.8551) and P (0.0001) indicate the risk of development of myopathy for C-allele carrier genotype. C-allele considered a risk factor for patients taken statin lead to develop of myopathy in Iraq.

**Keywords:** *SLCO1B1*, 521T>C, Polymorphism, SNP.

# Association between Ankylosing Spondylitis and the miR-146a Polymorphisms a Samples of Iraqi Patients

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## Abstract

MicroRNAs (miRNAs) are small noncoding sequence that regulate the expression of multiple target genes at the post-transcriptional level, efficiently regulating fundamental cellular processes such as proliferation, apoptosis, and development. Ankylosing spondylitis (AS) is a chronic inflammatory rheumatic illness of mysterious etiology with a strong genetic susceptibility. Important development is being made in our considerate of the pathogenetic tools involved in this illness, and the recent genome-wide association study (GWAS) consequences have related at least 60 loci to As, The present study explored the association between ankylosing spondylitis (AS) and two single nucleotide polymorphisms (SNPs), miR-146a rs2910164G>C, in Iraq population. The genetic analysis of the Single Nucleotide Polymorphisms, for miR-146a gene by using PCR-SSCP technique that there was significant difference in genotype polymorphisms between patients and control . Also this research found relationship between miR-146a and Osteoprotegerin ,interleukin 23serum level in AS patients .

**Keywords:** miRNA-146 , polymorphisms , PCR-SSCP, AS .

# Using Real-Time PCR to Investigate Some of Antibiotic Resistance Genes from *Streptococcus agalactiae* Strains that Isolated from ewe Mastitis Cases in Nineveh Province

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## Abstract

The target of this project was to examine the difficulty treatment for the many cases of mastitis in ewes in the region of Nineveh province, Iraq. Antibiotic resistance bacteria that causing mastitis in sheep farms are difficult to treat it, and considered a serious and growing health threat. A research was performed in 34 strains of *Streptococcus agalactiae*, which were isolated from ewes mastitis had been failed to treatment with conventional antibiotics, whose were defined by used minimum inhibitory concentrations (MIC) through a micro-plate assay dilution method and emphasized by define some of antibiotic genes resistance (*pbp2b*, *tetO* and *mefA* ) were determined by Real-time PCR (RT-PCR) technique. The highest percentage strains carrying Penicillin gene resistance was (69%), while in the Erythromycin and Tetracycline were (51 and 34%) respectively. In contrast, there were (11%) multi-resistant strains, which have two genes penicillin and erythromycin (~ 3%), whereas (~ 9%) of strains have penicillin and tetracycline genes.

**Keywords:** RT-PCR, resistance, *S. agalactiae*, *pbp* genes.

# Banking of Human Umbilical Cord Blood Stem Cells in Iraq

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## Abstract

Human umbilical cord blood (UCB) has recently become an alternative source for allogenic transplantation of hematopoietic stem cells / hematopoietic progenitor cells (HSCs/HPCs) for related and unrelated donors in the treatment of malignant and non-malignant diseases. It can easily be collected, cryopreserved and stored in cord blood banks (CBBs) for later uses. The collection strategy is the first step in collecting good quality UCB units. Cryopreservation and storage of UCB are critical for CBB and transplantation. This study has attempted to establish and standarize a method for unrelated CBB as well as the biological characterization of samples. The advantages and disadvantages between the in-uterus vaginal delivery (VD) and ex-uterus caesarean section (CS) were evaluated, in order to improve CBB methodology. The UCB was obtained from 34 VD and 20 CS after obstetrical and clinical charts had been reviewed. Before processing UCB units, volume was determined and samples were drawn for cell count, serologic screening for possible infectious diseases. After processing, UCB samples were drawn for MNCs counts, viability, $CD34^+$ cell percentage, colony forming units (CFUs) assay, microbiological screening and cryopreservation and storage in liquid nitrogen for 2 weeks were drawn directly from the bags. The properties of excluded UCB units before processing for their low volume were 7.4% for ex-uterus CS group only. There was no statistical difference between the two different UCB collection strategies, but for in-uterus VD group a larger volume, a higher number of white blood cells (WBC) and MNCs, a higher percentage of $CD34^+$cells and CFUs were harvested. All UCB units were negative for human immunodeficiency virus antibody (HIVAb), hepatitis B surface antigen (HBsAg), hepatitis C virus antibody (HCVAb), cytomegalovirus antibody (CMVAb) and syphilis antibody. Bacterial contamination was 14% UCB units included *Esherichia coli* 57.14%, *Enterobacter colacae* 28.57% and *Citrobacter farmeri* 14.28%, and these UCB units were excluded. Differences were statistically significant between pre and post freeze UCB units in the counts and viability of UCB MNCs, but with a smaller decrease. As a conclusions: it was concluded that the mode of collection influences the hematopoietic content of UCB donations. Collection in-uterus VD is the best approach to UCB collection and allows optimization of CBB methodology. Ex-uterus CS seems to contain similar PCs content to in-uterus VD. UCB can be stored frozen for 2 weeks and efficiently retrieved and most likely remain viable and effective for clinical transplantation.

**Keywords:** UCB, VD, CS, MNCs, CFUs.

# Evaluation of Antibacterial Activity of Nigella Sativa Seed Oil to Multidrug Resistant Enterococci

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## Abstract

The enterococci resistant to multiple antibiotics isolated and has become increasingly very common in the hospital. Due to its mi powerful of healing, Nigella sativa has got the place among the top ranked evidence based herbal medicines. The isolates of bacteria were identified and characterized by using standard microbiological technique. The Isolation of bacteria were done by cultured and comparative in vitro antibiotic susceptibility test was carried out using the disk diffusion method. Nigella sativa oil was then studied for antibacterial activity against the strains of bacteria in different concentration by well diffusion method. The undiluted oil of nigella sativa show inhibition zone in enterococcus culture media which show sensitivity of enterococcus towards nigella sativa oil and resist to antibiotics. As a conclusion: the oil seed of N. sativa was very active against Enerococcus spp. isolated from urinary tract infection. These findings emphasize that there is a requirement for further clinical trials of N. sativa for safe medical management of infection caused by Enterococcus spp.

**Keywords:** Antibacteria, N. sativa, Enterococci, urinary tract.

# Compound *FGFR*3 Mutations Associated with Grads of Bladder Carcinoma

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## Abstract

Activating mutations of fibroblast growth factor receptor-3 (*FGFR3*) have been observed in up to 70% of bladder carcinoma and implicated in the tumorigenesis of many other malignancies. The current study aimed to detect the *FGFR3* mutations and their correlation with stages of bladder carcinoma. The results revealed that *FGFR3* compound mutations in about 42.11% of all bladder carcinoma patients and 60% of them were detected in male patients and constitute as a risk factor (OR=1.194). The most frequent compound mutations were exist between g.13535 of the exon 7 and g.16137 of the exon 10 which represent 17(42%) of 40 compound mutations followed by tripled compound mutations between g.13518, g.13516 of exon 7 and g.16026 of exon 10 which represented as 12(30%) of compound mutations. Most of compound mutations were detected in G3 (18/40(45%)) and the most frequent mutations exist in G3 are the compound mutation between g.13535 of exon 7 and g.16137 of exon 10 and the triple compound mutation between g.13518, g.13516 of exon 7 and g.16026 of exon 10 which represented as 8/18(44.4%) and 5/18(27.8%) respectively. These results indicated that these two types of compound mutations could be have a role in transition of bladder carcinoma to stage 3 and could be useful as biomarker for this stage. The results also revealed that mutations g.13518+g.16024, g.13518+g.13516+g.16026 and g.13535+g.16137 were constitute as a risk factor in G3 than G2 (OR=1.364, 1.071 and 1.307 respectively).

**Keywords:** Bladder carcinoma, FGFR3, Compound mutation, cancer grads, Risk factor.

# Detection of Some Blood Protozoal Infections in Qualis at Baghdad City

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## Abstract

The aim of this study was conducted to estimate the prevalence of some blood protozoal infections of quails in some Baghdad cities (Al-Husainia, Baghdad Al-Jadeda and Al-Rashedia) by using 57 blood samples of both sexes, 9 of them were infected 9.67% which divided into 10.52% *Leukocytozoon* spp. and 5.26% *Plasmodium* spp. The infection rates of males and females were 9.67% and 23.07% respectively. A higher infection rate was recorded in Baghdad Al-Jadeda area (28.57%) and the lowest infection rate (8.33%) was found in Al-Rashediaarea. Also, a higher infection rate was recorded in May month (25%), while the lowest infection rate was found in February month (0.0%).

**Keywords:** Protozoa, Blood, *Plasmodium*, , Baghdad.

# Conventional and Molecular Study of *Babesia spp.* of Natural Infection in Drought Horses in Some Areas of Baghdad City, Iraq

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## Abstract

The present study was planned to investigate equine babesiosis in drought horses, Iraq using microscopical and molecular (PCR) techniques. 150 blood samples of horses examined for *T. equi and B. caballi* . 16.66% (25/150) were positive by microscopic examination. No significant difference was observed in infection rates between male and female horses and among different age groups. The result showed that PCR method has high rate of infection36% (9/25). Nine positive PCR products were sequenced and deposited in Genebank data base for first time in Iraq, phylogenic analysis demonstrated that 5 sequences belongs to *T. equi* (MK350319, MK346272, MK346273, MK346274 and MK36275), while 4 sequence (MK346276, MK346277, MK346278 and MK350318) belongs to *B. caballi*, and mounted a low genetic variation 0.035 and 0.05 respectively, among other comparison isolates. In conclusion PCR technique followed by phylogenic tree analysis reliable methods for epidemiological, diagnosis and identification of genetic variants studies.

**Keywords:** *Babesia*, horse, PCR, *T. equi , B. caballi* .

# Bacteriological and Immunological Study of Patients with Tonsillitis in Hila City

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## Abstract

The current study was conducted to investigate the bacterial causes of tonsil infection which including chronic and acute tonsillitis. Two hundred twelve swabs were collected from the infected people with Tonsillitis in addition to 90 blood sample of people who reviewed Al-Hilla teaching hospital and Al-Noor hospital for children from October 2013 to April 2014 and 100 blood control. Culture investigations showed 197 positive bacterial growths. The bacterial growth include 147 Gram positive and 75 isolates Gram negative isolates, Gram-positive include *Streptococcus pyogens* (20.2%), *Staphylococcus aureus* (19.3%), *Streptococcus pneumoniae* (15.3%)and *Streptococcus viridans* (11. 2%). *Streptococcus .pyogens* show high percentage of isolate 20.2% while *S. viridians* show low percentage isolate (11.2%).While Gram negative include, *H. influenzae* (17.1%),*K. pneumoniae* (8.1%), *P. aeruginosae* (2.03),*E .coli* (3.6%). *H. influenzae* show high percentage of isolate (17.1%) while *E. coli* shows low percentage of isolates (3.6%). The concentration of cytokines was revealed in this study IL-17 showed increased at in concentration especially in age group 1-10 years and reached 55.25 pg/ml compared to control group. The Heat shock protein (HSP-27) showed increase in their concentrations in tonsillitis patient than in controls particularly at age group 21-30 years which reached 22.25 pg/ml.

**Keywords:** Tonsillitis, IL-17, HSP27.

# New Technique to Detect Single Nucleotide Polymorphisms (SNPs)

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## Abstract

A new method is recommended in purpose to detect single nucleotide polymorphisms which represent the causative factor of changing gene expression, constituting for diseases and drug-resistant. DNA diagnosis is an important technology with regard to analysis of contagious disease and drug resistant medication. In this search, we improved a novel bioluminescent technique for pyrophosphate, and it was employed to single- nucleotide polymorphism (SNP) diagnosis utilizing one-base extension reaction. The procedure of this assay is including as follows. A specific probe within each aliquot owning a short 3-OH end of the base of target gene was hybridized to the single- stranded DNA template. then, (exo-) Klenow DNA polymerase and one of either a-thio-dATP, dTTP, dGTP, or dCTP were supplemented and incubated for 1 min. Pyrophosphate freed by DNA polymerase is altered to ATP by pyruvate phosphate dikinase (PPDK), and the amount of ATP is measured using the firefly luciferase reaction. This technique, which does not demand expensive equipment, can be applied to rapidly monitor one-point mutation in the gene.

**Keywords:** SNP, a-thio-dATP, PPDK, drug-resistant.

# Study Antioxidant and Functional Properties of Protein Hydrolysate Prepared from *Silurus glanis* Skin Using Papain Enzyme

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## Abstract

This study aimed to prepare protein hydrolysate from the hydrolysis of silurus *glanis* skin using papain enzyme, and study the functional properties and antioxidative activity. Crud protein extracted from the same fish skin used for comparesion. Fish skin were mixed with phosphate buffer (pH 7.0, 0.2 M) and placed on magnetic stirrer for 3, 6, 9, 12 hour at 45c° after addition of enzyme (1mg / 100gm skin).the crud protein extracted designated as (H) and the obtained hydrolysate as (P1, P2, P3 and P4). The percentages of soluble nitrogen and total nitrogen in skin were (0.14) and (3.15) % respectively. The degree of hydrolysis for the obtained hydrolysates were (33.3) ، (21.1),(1 .51) , (54.28)% for P1, P2 , P3, P4 respectively. The results of functional properties and antioxidative activity showed that the percentages of water holding capacity were (3)% for (H) and (2, 2, 1, 1 %) for P1, P2, P3 and P4 respectively. The solubility values were (12.8, 43.4, 64.7, 75, 92) % for (H, P1, P2, P3 and P4) respectively. The emulsion capacity values were (20 ml) for (H) and (12, 13, 14, 16 ml) for P1, P2, P3 and P4 respectively. It has been noticed that the reducing power values were (0.591 -1.21) , (0.540 – 1.11 ) for BHT and citric acid respectively, and (0.403 – 0.754 ) for (H ) and (0.350 - 0.570) , (0.444 – 0.992) ,(0.526 – 0.642 ) , ( 0.449 – 0.769 ) for P1, P2 , P3 and P4 respectively .

**Keywords:** Protein hydrolysate, papain, antioxidante, fish skin.

# Effect of Proteins Extracted from *Annona squamosa* Leaves Against Pathogenic Bacteria with Antioxidants

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## Abstract

*Annona squamosa* are important medicinal plants in the world which have been used in traditional medicine. The purpose of the study was to determine antibacterial and antioxidant activities of protein extracted of the leaves of *A. squamosa*. Well diffusion assay, the minimum inhibitory concentration (MIC) and the minimum bactericidal concentration (MBC) were used to test antibacterial activity against four pathogenic bacteria namely *Staphylococcus aureus, Escherichia coli, Bacillus cereus, Pseudomonas aeruginosa* and methicillin-resistant *Staphylococcus aureus* (MRSA). DPPH assay and SOD assay used to antioxidant activity. Protein extracts from *A. squamosa* have antibacterial and antioxidant activities. It could be concluded that the protein extracted of this plant had a good antibacterial and antioxidant effects. The results suggest that these plants can be a new source of antimicrobials against pathogenic bacteria.

**Keywords:** Proteins; antibacterial properties; DPPH free radical activity; SOD assay.

# Comparative Study Among Lactophenol Blue, Lactophenol Solution and Proteinase-K Lytic Solution for Rostellar Hooks Morphometry of *Echinococcus granulosus* Protoscolices

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## Abstract

*Echinococcus granulosus* is a tapeworm which life cycle includes dogs and other canines as final hosts for the intestinal tapeworm, while domestic and wild ungulates as intermediate hosts for the tissue-invading larval (metacestode) stage. *E. granulosus* has a worldwide geographical distribution. Protoscolices and rostellar hooks of *E, granulosus* are useful for diagnosis and rostellar hook morphometric features may be useful to detect *E. granulosus* and related species. The present study aimed to determine a more suitable lytic solution and obtaining a clearest vision for performing morphometric studies on the rostellar hooks of *E. granulosus* protoscolices. Five fertile hydatid cyst samples were collected from slaughtered sheep in Kirkuk slaughterhouse, Iraq during June of 2015. According to results of the present study, proteinase-K lytic solution is the best to use it in morphometry of rostellar hooks to get a clear vision for hooks and safety usage in comparison with solutions that contain lactophenol.

**Keywords:** *Echinococcus granulosus*, protoscolices rostellar hooks, lactophenol blue, lactophenol solution, proteinase-K lytic solution,

# Molecular Study of *Malassezia furfur* Isolated from Pityriasis Versicolor Patients

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## Abstract

Humans´ skin is the largest organ of the integumentary system; it has multiple layers of ectodermal tissue and guards the underlying muscles, bones, ligaments and internal organs. Pityriasis versicolor is the prototypical skin disease etiologically connected to *Malassezia* species. The large sub unit (*lsu*) gene is now perhaps the most widely sequenced DNA region in fungi. To identify *Malassezia furfur* associated with pityriasis versicolor patients and healthy control by using molecular detection methods. Sixty patients suffering from pityriasis versicolor disease who attended Imammian kadhamain Teaching Hospital and one hundred control individuals were randomly selected from (entities, primary and secondary schools) for a period of six months. Clinical diagnosis was done by consultant dermatologist. Forceps and surgical blades were used for skin scrapings collection. Direct and indirect methods were applied for diagnosis. *Malassezia furfur* was not grown on Tween 60 esculin agar, whilst it was grown on assimilation test of Tweens (20, 40, 60 and 80) containing SDA and pigment induction medium. In successful singleplex PCR reaction, the *lsu* gene product of 580 bp molecular weight was observed. Upon stratification of the *M. furfur* according to the gender in pityriasis versicolor patients and control groups. *M. furfur* was the most frequently isolated in males, with a percentage of 65% and 73.10%, respectively. As a conclusions from these findings, it was suggested that pityriasis versicolor was more infection in male than female. Also the chest was the most infected lesions associated with *Malassezia furfur*.

**Keywords:** *Malassezia furfur*, Pityriasis versicolor, singleplex PCR.

# Chromosomal Aberrations and Gene Expression Study in Breast Cancer Patients Undergoing Radiotherapy

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## Abstract

The present study aims to use the chromosomal aberrations and gene expression analysis as biomarkers for detection of the effects of ionizing radiation exposure in breast cancer patients (BC) undergoing radiotherapy about 20-30 Gy locally gamma cells, which may effect DNA of cancer patients. This study was carried out on thirty *Iraqi* women patients with breast cancer patients during radiotherapy treatment at Al-Amel National Hospital for cancer Management in Baghdad during time 2-13 years , non-smokers and non- alcoholic , aged (30 - 59 year),with stage (grade) I - III, as well as thirty apparently healthy individuals females collected randomly from population living Baghdad , aged ranged (30 - 59 year) which are non-smokers non- alcoholic as control group. Using two molecular genetic end-points parameters were studied to determine genotoxic effects of radiotherapy in peripheral blood lymphocytes of *some Iraqi breast* cancer patients and compared with control groups. Investigations were carried out by using the chromosomal aberrations (CA) and gene expression were performed on peripheral blood lymphocytes for breast cancer patients and control groups.The present study showed significant increase ($p<0.01$) in the unstable chromosomal aberration types (CA) fragment, ring and dicentric chromosomes for the breast cancer patients during radiotherapy as compared with the control group. Also,This study including twenty *Iraqi* women patients with breast cancer after radiotherapy treatment about 20-30 Gy locally exposure to gamma rays , aged ( 35 - 55 years), as well as twenty female blood samples, aged (35 - 55 years) which are non- smokers or alcoholic as control group . Total RNA was isolated from blood for BC patients and control groups.The RNA concentration was determined spectrophotometrically by measuring their absorbance that dependent on the ratio $A_{260}/A_{280}$ of the wavelength, which leads to the determination of RNA purity, which ranged from 1.79-2.1 in two groups. Complementary DNA was used in amplification of genes used in the present study, three types of specialized primer genes were selected for the genes *CDKN1A, BRCA1* and *BRCA2* which have a relation with ionizing radiation in addition to the primers for internal control (β-actin) genes. Gene expression analysis revealed statistically significant ($\Delta\Delta$Ct comparative Ct method) transcriptional changes in two genes *CDKN1*Aand *BRCA2* up-regulated while *BRCA1* gene down-regulated. In conclusion, the results indicated that there is a possibility of using the changes at the level of CA as useful biomarkers for the detection of the effect of radiotherapy in peripheral blood lymphocytes for BC cancer patients. several genes involved in cell cycle regulation and DNA repair were found to be significantly induced by radiation treatment.

**Keywords**: Radiotherapy, *Breast Cancer, CA, Gene Expression.*

# Characterization of Five Types of Staphylococcal Cassette Chromosomal *mec* Genes in Methicillin-Resistant *Staphylococcus aureus* (MRSA) Isolates from Iraqi Patients

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## Abstract

The distribution of Staphylococcal Cassette Chromosomal *mec* (SCCmec) types I, II, III, IV and V was assessed in 137 methicillin-resistant *S.aureus* (MRSA) isolates obtained from patients from different hospitals in Baghdad city. Each types responsible for certain virulence factors. It was found that 38 (27.73%) isolates of MRSA out of 137 contained SCC*mec*I, the lest percentage of SCC*mec* types in all MRSA isolates was type II, It was found that 8 (5.83%) isolates only were positive in this type. While 22 isolates (16.05%) contain SCC*mec* III. The number of isolates detected in SCC*mec* type IV were 53 (38.68%) isolates out of 137 while 86 (62.77%) for type V which represented the highest percentage with contrast with other types.

**Keywords:** *S. aureus*, virulence factors, (SCCmec) types, MRSA.

# Measurement of IL-18, IFN-γ Levels in Iraqi Typhoid Fever Patients

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## Abstract

Typhoid fever is an acute illness associated with fever caused by the *Salmonella enterica* serotype typhi bacteria. It can also be caused by *Salmonella paratyphi*, a related bacterium that usually causes a less severe illness. The aim of current study was estimated of IL-18, and IFN-γ level as a diagnostic tool. The level of IL-18, and IFN-γ was investigated in 254 blood specimens in patients with typhoid fever, 207(84.48%) bacterial isolates were obtained and isolated from three groups of patients, serum levels of IFN-γ and IL-18 during the chronic and acute phase in typhoid patients. The groups were determined according to clinical features and symptoms of disesase. The results have been shown higher levels in both IL-18, and IFN-γ (137.187±0.703, 377.357±106.585pg/ml respectively)in chronic phase while in acute phase 128.787±2.522, 137.833±23.424pg/ml respectively) with highly significant (0.01) than those in healthy control**.**

**Keywords:** IL-18; INF- γ; Typhoid fever.

# The Distribution of *FGFR3* Mutations in Bladder Tumors of Different Stages

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## Abstract

Fibroblast growth factor receptor 3 (FGFR3) could represent a promising biomarker for bladder cancer. Current study consisted of 95 subjects with bladder cancer (Transitional cells carcinoma TCC) and 50 subjects control group. Patient age ranged from 30 to 86 years while control subjects ages ranged from 30 to 50 years. Mutations of FGFR3 genes were analyzed in 101 patients with transitional cell bladder cancer included 61(67%) male and 40(44%) female. 43 of 101 patients have mutations. 15(35.7%) of mutations shown in FGFR3 exon 7 and 27(64.3%) were in exon 10. These mutations affected codons g.13509, g.13501 of exon 7 and codons g.16021, g.16025 of exon 10. *FGFR3* mutations were observed in 13(%) Ta tumors, 10(%) T1, 8(%) T2 and 11(%) T3 of 42 mutations. The occurrence of *FGFR3* mutations with respect to tumor stage revealed the presence of a *FGFR3* mutation in low stage tumors than high-stage tumors. These results indicate that a significant correlation was found between *FGFR3* mutations and low grade.

**Keywords:** *FGFR3*, TCC, Ta,T1-T3, mutations.

# Genotyping of *Mycobacterium tuberculosis* Isolated from Suspected Patients in Tehran Through 2014-2016

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## Abstract

Unlike many global efforts to eradicate tuberculosis (TB) caused by *Mycobacterium tuberculosis* remains as a life-threatening infection with a worldwide incidence of 1.5 million cases each year. However, due to the lack of information about *Mycobacterium tuberculosis* characterization, more studies are required to evaluate strain diversity and epidemiology of TB to improve the therapeutic approaches. This study aimed to genotype the *Mycobacterium tuberculosis* isolated from suspected patients in Tehran, Iran through 2015-2017. In the current study 30 isolates (Sputum, BAL, Biopsy) collected from different TB patients in Tehran from Massoud Clinical Lab, from 2015 to 2017. To find the SNPs and mutated regions, Polymerase chain reaction (PCR) was performed on all the isolates to amplify the *katG* and *gyrA* genes. Then, PCR products were sequenced and analysed. As a result, the majority of isolates were assigned to PGG2 (90%), following by PGG3 (10%) and no isolate belonging to PGG1 was found. Our findings demonstrate a remarkable epidemiological pattern of *tuberculosis* in Tehran. In group 2, isolates showed a considerably higher frequency compared to isolates in group 3, which is consistent with the other reports in Iran. However, in contrast to other studies in Iran, no isolated strains were categorized in principal PGG1.

**Keywords:** *Mycobacterium tuberculosis, Genotyping, katG, gyrA*


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