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V. MICROBIOLOGY

The Role of Systemic Cell Mediated Immunity in Host Defenses against Cutaneous Candidiasis Caused By *Candida Albicans*

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Abstract

In order to investigate the increasing evidences about the role of systemic cell mediated immunity (CMI) in host defenses against Cutaneous Candidiasis caused by *Candida albicans* and its role in case of deficiency in chronicity of this disease, sera of 125 patients with Cutaneous Candidiasis and of 50 healthy control were tested. Systemic CMI was studied through counting T-lymphocytes using T- rosette formation assay, and inspecting the lymphocytes ability to response and proliferate through lymphocytes transformation assay using the mitogen PHA, two of Candida antigens (heat killed blastospores and cytoplasmic antigens) and a bacterial antigen (polysaccharide of *Rhizopium milioti*). B- Lymphocytes were also counted using B- rosette formation assay to detect the role of humoral immunity in this infection. Cutaneous Candidiasis patients had shown a defect in their systemic CMI ranging between a decrease in T- lymphocytes count and a defect in those cells` response to mitogen and/or antigens, whilst there was no decrease in B- lymphocytes percentage indicating that there is no role for humoral immunity in host defenses against this Candida infection.

Use Of Chromogenic Agar in Detection the Bacteria Causing Urinary Tract Pathogens.

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Abstract

A total of 100 midstream urine sample collected from patients with urinary tract infection (UTIs). CHROM agar Orientation, blood agar and MacConkey agar media were used for direct inoculation. The isolates were *Escherichia coli* (36), *Klebsilla pneumoniae* (14), *Proteus mirabilis* (18), *Pseudomonas aeruginosa* (23), *Acinetobacter baumannii* (5) and *Serratia marcescens* (4).

CHROM agar Orientation medium gave an excellent detection of all the urine pathogens that were detected by the reference media (Blood agar and MacCokey agar).

The sensitivity of the isolates has been tested against (8) antibiotics showed isolates version resistance with different percentage against antibiotics. All isolates show high resistance to Cefotaxime, Ceftazidime and Amikacin. All isolates were highly sensitive to Aztronam, Imipenem, Ciprofloxacin, Ofloxacin and P-ofloxacin.

Antibiogram Study on Nosocomial *Klebsiella* Spp. Isolated From Sulaimani Hospitals

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Abstract

The aim of this study was come from that in the last 10 years, the extensive spread of multiple antibiotic-resistant *Klebsiella* spp. strains, and become a major threat to the hospital patients. For that between October and December 2004, two hundred and ten samples were collected from (Patients, hospital staff and hospital environment) of seven hospitals in Sulaimani governorate; Depending on biotyping method forty-eight (48/210) of samples (22.9%) were gave *Klebsiella* positive result and classified into four species, the most predominant species among them was belong to *Klebsiella pneumoniae* with 39 isolates (81.24%), followed by *K. oxytoca* 4 isolates (8.33%), *K. ornithinolytica* 4 isolates (8.33%) and one isolate for *K. ozaenae* (2.1%). Distribution of *Klebsiella* spp. among clinical specimens were showed that the burn specimens highly contaminated with this bacterium 20/35 (57.1 %), followed by urine specimens and intensive care unit (ICU) 6/25 (24%) for each of them, wound specimens 3/15 (20%), blood specimens 2/15(13.3%), and sputum specimens 2/20 (10%), whereas stool was free from this bacterium. On the other hand results of the environmental samples of hospital revealed floor occupied the first location of contamination with *Klebsiella* spp. 5/10 (50%), followed by bathrooms, beds, tools [2/10 (20%), 1/10 (10%), 1/10 (10%)] respectively, on the contrary to these sites the obtained samples from hospital staff, and air samples exhibited free from *Klebsiella* spp. For antibiotic susceptibility test we depended of disc diffusion method and the results of most common used antibiotics showed that all *Klebsiella* spp. were completely resistant to ampicillin and amoxillin (100%), and highly resistance to trimethoprim (81.2%), rifampicin (79.1%), and cephalexin (60.4%), moderate resistance to cefuroxime (58.3%), and streptomycin (56.2%), while nitrofurantion was the most effective antibiotic against *Klebsiella* spp. followed by nalidixic acid, chloramphenicol, gentamicin, and

tetracycline respectively. The present finding revealed a high occurrence rate of multi-drug resistance of *Klebsiella* spp. in patients attending the Sulaimani hospitals.

The Genera *Podospora* and *Schizothecium* from Kurdistan Region of Iraq

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Abstract

The genera *Podospora* and *Schizothecium* have previously been treated as congeneric due to similarities in several morphological characters. Recent studies based on molecular data revealed that the two genera should be considered as distinct. Ten species of *Podospora* and four species of *Schizothecium* have been identified from dung samples of herbivore animals collected from different sites in Kurdistan region of Iraq. The identified species include *Podospora communis*, *P. dactylina*, *P. dasypogon*, *P. decipiens*, *P. euphratica*, *P. globosa*, *P. pauciseta*, *P. pleiospora*, *P. prethopodiales*, *P. setosa*, *Schizothecium conicum*, *S. miniglutinans*, *S. tetrasporum* and *S. vesticola*. Species of *P. dactylina*, *P. dasypogon*, *P. pauciseta*, *P. Pleiospora*, *Schizothecium conicum* and *S. tetrasporum* are recorded for the first time in Iraq. A brief description along with photographs have been provided for each species.

Taxonomic Study on Penicilli from Soil in Kurdistan Region of Iraq.

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Abstract

A taxonomic study on the genus *Penicillium* of the family Trichocomaceae (Eurotiales):Ascomycota inhabiting soils in Kurdistan region of Iraq was carried out using phenotypical and cultural characteristics. Twelve taxa have been identified . The identified species were *P.aurantiigriseum*, *P.brevicompactum*, *P.camemberti*, *P.citrinum*, *P.corylophilum*, *P.digitatum*, *P.echinulatum*, *P.funiculosum*, *P.glabrum*, *P.roqueforti*, *P.rugulosum* and *P.variabile*. A total of five species have been reported for the first time from Iraqi soil. The new records include *P.aurantiigriseum*, *P.camemberti*, *P.corylophilum*, *P.echinulatum*, and *P.variabile*. A brief description based on cultural and morphological characteristics is provided for each species. A dichotomous key is provided to facilitate the identification of the reported species.

Preliminary Study on the Effects of Benzene and UV-B Light Upon *Staphylococcus Aureus* DNA

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Abstract

Spectroscopic study of the effects of Benzene and UV-B light on *Staphylococcus aureus* DNA (local isolate) revealed that λ_{\max} (the wavelength at maximum absorbance) of the control treatment (DNA + TE buffer only) has not affected significantly, while the λ_{\max} of the other treatments were significantly ($p < 0.01$) changed according to the times of exposure to UV-B light and various concentration of Benzene ,with a significantly change on DNA absorbance ($p < 0.01$) for all treatments and replicates after two hours and that combined in a positive changes in the numbers of absorbance peaks in DNA spectrum.

The agarose gel electrophoresis showed sharp band for control treatment, while the treated samples appeared as smear like or unclear foggy bands patterns marking the configuration and conformation changes in the bacterial DNA due to exposure to UV-B light and Benzene which confirmed the spectroscopic study.

***Campylobacter* Enteritis: Bacteriological And Immunological Studies**

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Abstract

Although *Campylobacter jejuni* is an important etiologic agent of acute childhood diarrhea during the last decade, most laboratories in our country could not isolate *Campylobacter* in routine work due to various difficulties. So present study designed to study the isolation of *C.jejuni* from children depending on most appropriate media and other bacterial aspects. Also to evaluate the histochemical tests in the diagnosis of *C.jejuni*.

The efficiency of six types of culture media for primary isolation was evaluated, determined the biotype of *Campylobacter*, IFAT and ELISA tests for diagnosis of *Campylobacter* infection.

Among 150 stool samples, 31 isolates (20.4 %) were identified as *C.jejuni* by modified Grams stain, motility, oxidase and catalase test. Tow new isolates were encountered for the first time in this study, one isolate named (CJM6) which selected due to its virulence. The second isolate named (CJSL98), which was found to be B-hemolytic All isolates were biotypes according to Lior scheme, revealed that biotype I was the most common (74.19%), compared to biotype II(9.67%) and III(16.135) which were less frequently. Both newly modified CCDA and CSM media yielding the highest isolation rate of *Campylobacter* reaching 100%(31/31) without any contamination, the filtration system yielded 98%(30/31) without contamination, compared to 54% (20/31)on SK, 26%(8/31) on BZ media with heavily contamination, but 32%(10/31) on PS media with mild contamination. Biphasic media proved to be efficient to provide heavy growth, active motility, which maintained it's viability and characteristic form of three months when stored at 4-8 c^o. Indirect immunofluorescent technique proved to be accurate and very sensitive for detecting *C.jejuni* in bacterial smear and formalin fixed tissue by using 1:20 diluent of conjugate with 1:10 diluent of immune serum. Application of indirect ELISA was found to be simple and sensitive

method to determine the pathological properties of *Campylobacter* strains.

Present study show high isolation rate during summer months represent an importance of such organism among the diarrheal causative agents in child under two years. Combination of newly modified CCDA, CSM and filtration system yielding highest recovery rate for primary isolation without contamination. Immunohistochemical tests (IFAT and ELISA) have been most candidate method for laboratory diagnosis of such disease.

Detection of *Toxoplasma Gondii* in Poultry Slaughterhouse by Using Species-Specific PCR Technique

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Abstract

One hundred and fifty blood samples from two commercial Hammdania and Shallalat poultry slaughterhouses (75 for each one) were collected during the period between January to June 2008 ,for detection of *Toxoplasma gondii* antibodies. Latex agglutination test was used for primary detection of *Toxoplasma gondii* infection , then confirmed by polymerase chain reaction technique . Using Latex agglutination test, 52 (69.3 %) and 43(57.3 %) serum samples were positive for samples collected from Hammdania and Shallalat poultry slaughterhouses respectively . Titers were distributed between 1:20 and 1:320 ,with the highest being 1:160 (51.9%) ,and the lowest of 1:20 (5.8 %) in Hammdania poultry slaughterhouses while in Shallalat poultry slaughterhouses the highest titer was 1:160 (46.5 %) and the lowest titer was 1:20 (4.7 %) .All LAT positive sera (52 and 43) were confirmed by polymerase chain reaction , which revealed 29 and 23 positive samples respectively by giving a band of 325 bp ,using specific primers in *Toxoplasma gondii* 325 kit .

Public health significance and hygienic precautions in dealing with poultry meat during slaughtering and processing were discussed.

Identification of Aflatoxigenic and Ochratoxigenic *Aspergillus* Strains Isolated From Soil and Agricultural Commodities in Duhok

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Abstract

Three species of *Aspergillus* section *Flavi* (*Aspergillus flavus*, *A. parasiticus* and *A. oryzae*) and five species of *Aspergillus* section *Nigri* (*A. awamori*, *A. carbonarius*, *A. foetidus*, *A. japonicus* and *A. niger*) have been isolated and identified from several agricultural commodities (Cheese, dried fruits, seeds) and from soil samples collected from Duhok governorate . Aflatoxigenic and Ochratoxigenic strains of *Aspergillus* were detected by culture-based methods. These include fluorescence upon exposure to UV long –wavelength (365 nm) light and pigment production after exposure to ammonium hydroxide. The ratio of aflatoxigenic isolates of *A. flavus* was higher than non-aflatoxigenic strains. All tested strains of *A. parasiticus* showed aflatoxigenic potential . *A. carbonarius* was the only species of *Aspergillus* section *Nigri* showed a positive ability for Ochratoxin A production. Workers in under-developing countries may use cultural assay for inexpensively identifying aflatoxigenic and Ochratoxigenic *Aspergillus* contaminated food and feeds.

Bactericidal Activity of Ethanol, Ether and Alkaloid Extracts Of *Nigella Sativa* Seeds against *Escherichia Coli* Using Soxhlet, Solvent Extraction and Reflux Methods

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Abstract

Nigella sativa considered as one of the desirable medicinal plants which has broad usage worldwide especially in the Middle East countries. This study is designed to investigate the bactericidal actions of different extracts of the seed of *Nigella sativa* each with five concentrations against *Escherichia coli*. The Ethanol, Ether and alkaloid extracts were prepared using of soxhlet apparatus, solvent extraction and reflux methods. The antibacterial action of each extract was examined using well method. The results showed that the last two concentrations (170 μ l and 200 μ l) of ethanol and Ether extracted by soxhlet method showed significant and highest bactericidal activities, while the alkaloid extracts by soxhlet had no significant actions. In solvent extraction method, the high concentrations of alkaloid extracts gave significant bactericidal activities, whereas ethanol concentrations were the best type of extract in reflux method. Reflux method recorded the best results compared to the other methods. This finding suggests that the best bactericidal extract of *Nigella sativa* against *Escherichia coli* were ethanol extracts and reflux method.

Antibacterial Activity of the Isolated Oils from Some Plants

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Abstract

This study had been comprised the isolation of oils and calculating their percentages from (13) plants belong to (7) different families by continuous soxhlet and steam distillation methods. Antibacterial activity of these isolated oils and minimum inhibitory concentration (MIC) had been measured against five strains of gram positive and gram negative bacteria. Different responses were observed depending on the plant species, the method of isolation and the bacterial strain

Bacteriological Study and Antibacterial Activity of Honey against Some Pathogenic Bacteria Isolated From Burn Infections

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Abstract

This study was conducted at Emergency Management Center (EMC) in Erbil city to analyze (Isolation and Identification) the bacterial isolates from infected burn wounds of patients admitted to the burns unit and to determine the sensitivity pattern of the cultured bacteria to some commonly used antibiotics and different honeys as antibacterial agent. A total of 50 samples (surface swab) were analyzed, 45 positive samples yielding 73 isolates, of which 59 (80.82%) were Gram-negative bacteria and 14 (19.18%) Gram-positive bacteria. The mean age was 21.51 years (range: 1-45 years) and infection was most prevalent in age group 21-25 (37.77%). Among the patients, 32 (71.11%) were female and 13 (28.89%) male with highest percentage of staying in the hospital occur for (6-10) days. Flame 35 (77.78%) was the most common cause of burn injuries and 25 (55.56%) of a total patients had third degree burns. The most common bacterial isolates were *Pseudomonas aeruginosa* 33 (45.21%), *Klebsiella pneumoniae* 23 (31.51%), *Staphylococcus aureus* 11 (15.06%), *Staphylococcus epidermidis* 3 (4.11%), *Proteus mirabilis* 2 (2.74%) and *Escherichia coli* 1 (1.37%). The results of the antibiotics susceptibility showed that Gram-negative bacteria were highly sensitive to Amikacin 76.65%, Chloramphenicol 75.79%, Gentamicin 69.70% and Ciprofloxacin 68.87% while Gram-positive bacteria were more sensitive to Vancomycin 100% and Clindamycin 90.90%. Different honey samples investigated for their *in vitro* antibacterial activity against antibiotic resistant bacterial isolates showed that excellent antibacterial activity against Gram-negative and Gram-positive bacteria at 20% concentration for Qandel and Peshtashan honey (except *K. pneumoniae* and *S. aureus*, the MIC was at 30% concentration of Peshtashan honey) while 30% concentration for Sunbulah honey.

The Study of Prevalence UTI Infection in Children Suffering From Hepatitis A

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Abstract

This study included the isolation and identification of bacteria causing UTI in children attending Alkhansa' Hospital who were suffering from hepatitis A. A total of 60 urine samples were collected from children of both sexes and of various age groups. The isolated bacteria were diagnosed by using biochemical and physiological tests. The sensitivity of the isolated bacteria to various antibiotics were determined. . The study showed that 83%of children infected with hepatitis A virus have UTI infection, with the highest occurrence of the disease in the first five years of age, The majority of the infected patients were females. The most common isolated microorganism were *E.coli* (58%), *Klebsiella pneumoniae* (18%),*Proteus vulgaris* (10%),*Staphylococcus aureus* (12%) and *Pseudomonas aeruginosa*(2%) .Ciproflaxacin showed the highest activity toward most of the isolated microorganisms. Other findings observed during general urine examination of these patients were 70% of them had pyuria, 58% had excessive proteinuria, and 50% had casts &epithelial cells. Due to this reason attention must be paid to the UTI infection as it is very important in patients suffering from viral hepatitis because it will help in better management of such patients and it will decrease the rates of morbidity and mortality in them .

Chemomechanical (Sodium Hypochlorite 5.2% Irrigant) Efficacy on *Enterococcus Faecalis* in Infected Pulp in Duhok, Kurdistan.

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Abstract

Bacteria have been implicated in the pathogenesis and progression of pulp and periapical diseases. The primary aim of endodontic treatment is to remove as many bacteria as possible from the root canal system and then to create an environment in which any remaining organisms cannot survive. Control and elimination of the root canal infection is achieved by the combined action of several treatment procedures.

The aim of this study was to investigate the antimicrobial efficacy of the sodium hypochlorite NaOCl 5.2% on isolated *Enterococcus faecalis* from single rooted canals.

Two hundred and fifty extracted single rooted teeth were selected for this study. The root canals were prepared and shaped with sterile reamers (#15-55) and sodium hypochlorite 5.2% was used as the chemical irrigant. Microbiological samples were collected from each tooth using sterile paper points before and after the treatment for the isolation and identification of *Enterococcus faecalis*.

Twenty two (8.8%) isolates out of 250 single rooted canals were treated with chemomechanical treatment, 14 (63.6%) cases of *Enterococcus faecalis* was eradicated by sodium hypochlorite (NaOCl 5.2%) compared to 8 (36.4%) cases that were resistant.

According to the results of this in vitro study, chemomechanical method was found to be effective in the elimination of *Enterococcus faecalis* from infected single rooted canals.

Molecular Fingerprinting And Phylogenetic Diversity Of *Staphylococcus Aureus* Isolated From Dr. Khalid General Hospital In Koya

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Abstract

Molecular fingerprinting of 7 different isolates of *Staphylococcus aureus* out of 73 isolates from Dr. Khalid General Hospital in Koya city which represented different sources of infections including urine, throat, burns, nose, wounds, skin infections and hospital environments was performed by RAPD-PCR to determine genetic relationships and phylogenetic diversity among these isolates. Antibiotic sensitivity profile of *S. aureus* isolates towards (12) antibiotics including (Ciprofloxacin, Erythromycin, PenicillinG, Cephotaxime, Amoxicillin/Clavulanic acid, Cephalothin, Lincomycin, Oxacillin, Fucidic Acid, Rifampicin, Trimethoprim and Vancomycin) was also investigated. The results revealed that 98.63% of these isolates had had resistance at least to three antibiotics and 24.65% of them were resistant to vancomycin. DNA polymorphisms were scored within amplified fragments on agarose gel electrophoresis stained by ethidium bromide. Eleven out of 21 operon random primers gave successful amplification results in repeated experiments and showed polymorphism among the isolates tested and generating 739 bands (DNA fragments), 199 of which were polymorphic with sizes ranging between 410 and 21226bp. The highest number of polymorphic bands (22 bands) was produced by primer OPI-14. The primer efficiency ranged from 7.98 (primer OPC-08 and OPJ- 13) to 11.09 (primer OPB-07) and the discriminatory value ranged from 7.03% (primer OPB-07) to 11.05% (primer OPI-14). Genetic distance among the 7 different isolates ranged between 0.4673 and 0.7580. The lowest genetic distance was found between isolate causing nose infections and the isolate causing wound infections, where as the highest genetic distance was found between isolate causing burn infections and hospital environments. Cluster analysis and phylogenetic diversity among different *S. aureus* isolates

were determined by converting RAPD data into a Jaccard similarity matrix and analyzed by Unweighted Pair Group Method of Arithmetic (UPGMA) to produce a phylogenetic tree. All the isolates were classified completely into three major groups representing (Sa-1, Sa-2 and Sa-3) with six different subgroups. The DNA fingerprint defined for each race of *S. aureus* could be useful in epidemiological studies, medical diagnosis and the identification of new strains and their origins.

Determination of the Incidence of Superficial Mycosis in Iraqi Patients Admitted To Al-Kadhymyah Teaching Hospital Dermatology Department

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Abstract

Back ground: Skin constitutes the main site of recognizable fungal infections in humans, and these infections can be divided into superficial and deep mycoses. Superficial fungus infections fall into three broad categories: the dermatophytes (ringworm). They are classified in three genera: Microsporum, Trichophyton, and Epidermophyton, tinea versicolor, and cutaneous candidiasis (yeast infection). Fungi grow best in moist, damp, dark places with poor ventilation and on skin that is irritated, weakend, or continuously moist. In this study different pathogenic superficial fungi have been isolated from different patients and from different loci, Dermatophytes were the chief agent, followed by *Candida albicans*, then by different miscellaneous fungi with different percentages in both immunocompetent and immunocompromised patients.

Aims of the study:To determine the incidence of superficial mycosis in local area in Baghdad.

Materials and methods:Different samples(skin, hair, and nail) took from (80)patients admit Dermatology department of Al-Kadhymiyah Teaching Hospital .

Direct(KOH, as dekeratinizer agent by microscopical method) and indirect(cultivation on Sabourauds agar, staining, and examination microscopically) diagnosis were be done as a final identification .

Results: Different pathogenic fungi were been isolated from different patients group(56 out of 80) and from different sites of the body.

Candida albicans was the chief agent causing onychomycosis among other pathogenic fungi (when the percentage of infection was 19.64%), followed by *Hendersonula* spp.(5.35%), then *Scopulariopsis* spp.(3.5%), then *Rhizopus* spp.(1.78%), and finally by *Epidermophyton floccosum*(1.78%).

The higher percentage of skin infection caused by Dermatophytes (19.64%), by each of *Trichophyton tonsurans*(5.35%),*T. mentagrophytes*(5.35%),*T. rubrum*(5.35%),and *Microsporum canis*(3.57%), other causative agents were *C.albicans*(5.35%), *Blastomyces dermatitidis*(5.35%), and *Malassezia furfur*(5.35%), while the lower percentage of skin infection caused by *Rhizopus* spp.(1.78%).

The higher percentage of hair infection caused by Dermatophytes(41.07%) represented by *Microsporum canis*(8.92%), followed by *Trichophyton schoenleinii* (7.14%), *Microsporum gypseum*(7.14%), and *Trichophyton rubrum*(7.14%), then by *Trichophyton mentagrophytes*(3.57%).

Percentage of nail infection was higher in female (19.64%) than this in male (12.5%), also the percentage of skin infections among female was the higher (19.64%) than this in male when the percentage was (16.07%). While the percentage of hair infection was higher in male (21.42%) than this in female when the percentage was (14.28%). Table(3).

Conclusions:

*The highest percentage of onychomycosis caused by *C.albicans*.

* The highest percentage of skin and hair infection caused by Dermatophytes.

* Superficial Blastomycosis is a serious disease occurred later in our country after occupation.

*Superficial mycoses occurred in both immunocompetent and immunocompromized individuals.

*The incidence of superficial mycoses is higher in female than this in male.

Inhibitory Effect of Pyrazolopyrimidine on Growth and Metabolism of *Leishmania Major*

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Abstract

Several purine analogues were found to be potent inhibitors of *Leishmania major* growth in vitro. especially effective were allopurinol, 4-aminopyrazolo(3,4-d)pyrimidine, 4-mercaptopyrazolo(3,4-d)pyrimidine, formycine A , formycine B , tubercidin , 6- thioguanosine, 6- methylpurine and sinefungin . the anti leishmanial effects of allopurinol , 4-aminopyrazolo(3,4-d)pyrimidine and tubercidine were variously antagonized by adenine , hypoxantheine , adenosine , inosine and p- nitrobenzylthioinosine.

**Mycobiota Associated With Sugarcane (*Saccharum
Officinarum* L.)
Cultivars in Iraq. 1. Mitosporic Fungi.**

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Abstract

The mycobiota of four sugarcane (*Saccharum officinarum* L.) cultivars (CO331, CO976, CP5-68 and Missan1) currently cultivated for sugar production at sugarcane factory at Missan governorate, Southern Iraq were surveyed by using moist chamber and cultural methods. Sixteen mitosporic fungi distributed in the genera *Alternaria* (5 species), *Bipolaris* (4 species), *Curvularia* and *Exserohilum* (3 species each) and *Drechslera* (1 species). The reported species include *Alternaria brassicicola*, *A.phragmospora*, *A.pluriseptata*, *A.radicina*, *A.tenuissima*, *Bipolaris bicolor*, *B.indica*, *B.neergardii*, *B.papendorfii*, *Curvularia lunata*, , *C.tuberculata*, *C.verruclosa*, *Drechslera gramineae*, *Exserohilum holmii*, *E.monocero sand E.pedicillatum* All the identified species are reported for the first time in Iraq on sugarcane plant. A brief description along with photographs are provided for the newly reported species.

The Effect of Inulin from Jerusalem Artichoke (*Helianthus Tuberosus*) Extract on the Growth and Viability of *Lactobacillus Salivarius* in Fermented Milk

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Abstract

Inulins, naturally occurring oligosaccharides produced by many plants, have been shown to promote the growth and viability of probiotic cultures in food during cold storage. The objective of this study was to determine the effect of inulin from Jerusalem artichoke extract on the growth and viability of *Lactobacillus salivarius* in fermented milk during cold storage. Jerusalem artichoke extract contained 4.8% inulin, was added to sterilized fresh milk at 2.5% and 5% v/v (0.12 and 0.24% inulin, respectively), inoculated with 5% *Lactobacillus salivarius* (SRA01) starter, and then stored at 5°C. Bacterial growth was monitored during the incubation period (21 days). Milk samples without inulin extract were the control. Addition of inulin extract increased the population of *Lactobacillus salivarius* (SRA01) in fermented milk by 0.9 log unit when compared to control after 21 days of storage at 5°C. Adding inulin to fermented milk products could promote growth and provide protection for the *Lactobacillus salivarius* during cold storage.

Inhibitory Action Of Different Leaves Extracts Of *Rosemary Officinalis* Against Some Pathogenic Bacteria Isolated From Diarrhea Cases

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Abstract

The aims of this study is evaluation the invitro antimicrobial activity of different leaves extract of plant Rosmary (*Rosemarinus officinalis*) which contains (alcoholic hot extract 80%, alcoholic cold extract 80%, aqueous hot and cold extract) and oil extracted from the plant against some gram negative pathogenic bacteria related to Enterobacteriaceae that isolated from stool samples collected from patient suffered from diarrhea infections as follows : *Escherichia coli* ATCC25922 , *E.coli* type 1 , *E.coli* type 11 , *Aeromonas sp.* , *Shigella flexneri* , *Salmonella enteritidis* , *Pseudomonas aeruginosa* ATCC27853 , *Vibrio cholera* , *Salmonella typhimurium* .

The oil extracts of the plant leaves exhibit highest antibacterial activity against most gram negative bacteria at concentration (1:2 – 1:32) , while alcoholic hot extract showed antagonistic activity against some bacterial isolates *Salmonella typhimurium* , *Aeromonas sp.* and *Vibrio cholera* at concentrations (100 - 200 - 400) mg/ml in inhibition diameter (7 - 20) mm , and the alcoholic cold extract showed inhibitory effected at the highest concentration (400)mg/ml against *Pseudomonas aeruginosa* ATCC27853 and *E.coli* ATCC25922 .None of the aqueous hot and cold extract showed any antibacterial activity against the tested bacteria.

This study included also the detection of active compound in oil extract and other crude extracts of the leaves ,they showed positive reaction for alkaloids , flavonoides, saponin, resins, tannins and carbohydrates , while the oil extract did not gave any reaction against terpenes, sterols , coumarins , peptides and free amine groups .

Antimicrobial Susceptibility and Serotype patterns of *Salmonella typhi* and *Salmonella Paratyphi* from Blood culture in Sulamania City

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Abstract

This study includes isolation of *Salmonella typhi* and *paratyphi* from blood of clinically suspected patients with enteric fever. The typhi fever distributed in Sulaimania City at 2007 and 2008 in high rate. At 2007 out of 2640 general hospital attained patients suffering fever, 268 of them detected as typhoid, and at 2008 from 7821 attained patients, 1262 of them have typhoid disease. And in Sulaimani pediatric hospital at 2008 out of 7742 attained patients suffering fever, 1006 of them have typhoid disease.

All isolated of *Salmonella typhi* and *Salmonella paratyphi* were isolated from blood of patients and identified according to cultural, characteristic, morphological and biochemical examination. The results showed that (97.77%) of the strains were *Salmonella* serotype groups of AO1, O₂, and (2.22%) of the strains were *Salmonella* serotype AO1, O₄. antibiotic susceptibility test for all samples were conducted for fourteen locally commonly used antimicrobial agents including (gentamycin, ciprofloxacin, ceftriaxon, azethromycin, amikacin , cephalothin, cefotaxim sodium, cloramphenicol, trimethoprim, streptomycin, ampicillin, amoxicillin, refamicin and tetracycline, compared with extra HPLC sigma antimicrobials powder that have 100% activity. According to the resistance of isolates to antibiotics, the isolates were classified into 100 groups as antibiogram. All isolates showed high resistance rates for cotrimaxazol, chloramphenicol, amoxicillin, streptomycin and ampicillin(100%, 98,9%, 98,9 , 98,9% and 97,8%) respectively, and showed low resistance rates for amikacin 0%, azethromycin 0% and ceftriaxon 1.11%.