



Archives of TBRI



Under the Patronage of
Prof. Wafa Kandeel
Chair and President of TBRI

A biannual scientific magazine presented by the
Technical office of Theodor Bilharz Research Institute to
spotlight the papers published by research staff of TBRI

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The introductory statement

In the scientific world, it is important to know where you are and to compare your achievements with those of your peers, not only to clearly identify yourself, but also to improve your scientific production. In the light of this, it is my pleasure as the president of Theodor Bilharz Research Institute to introduce the first edition of the scientific magazine.

Archives of TBRI

In This magazine, the publications of the research staff of our institute are presented as abstracts with all the needed details of the corresponding author to facilitate the connection and knowledge exchange between different departments of the institute. Also, the published papers in the first half of 2021 are classified according to their quartiles. This step was carried out to highlight the publication quality of TBRI according to the international standards, aiming at encouraging the researchers to publish in high ranked journals to improve the ranking of TBRI amongst other research centers and universities of Egypt.

I am so grateful to **Prof. Eman El-Ahwany**, the head of the Technical Office of TBRI who adopted the idea that was suggested by **Dr. Abdel-Wanes Antar Abdel-Aziz**, Medicinal Chemistry Lab, to produce this valuable magazine.

Prof. Wafaa Kandeel

President of Thoedor Bilharz Research Institute

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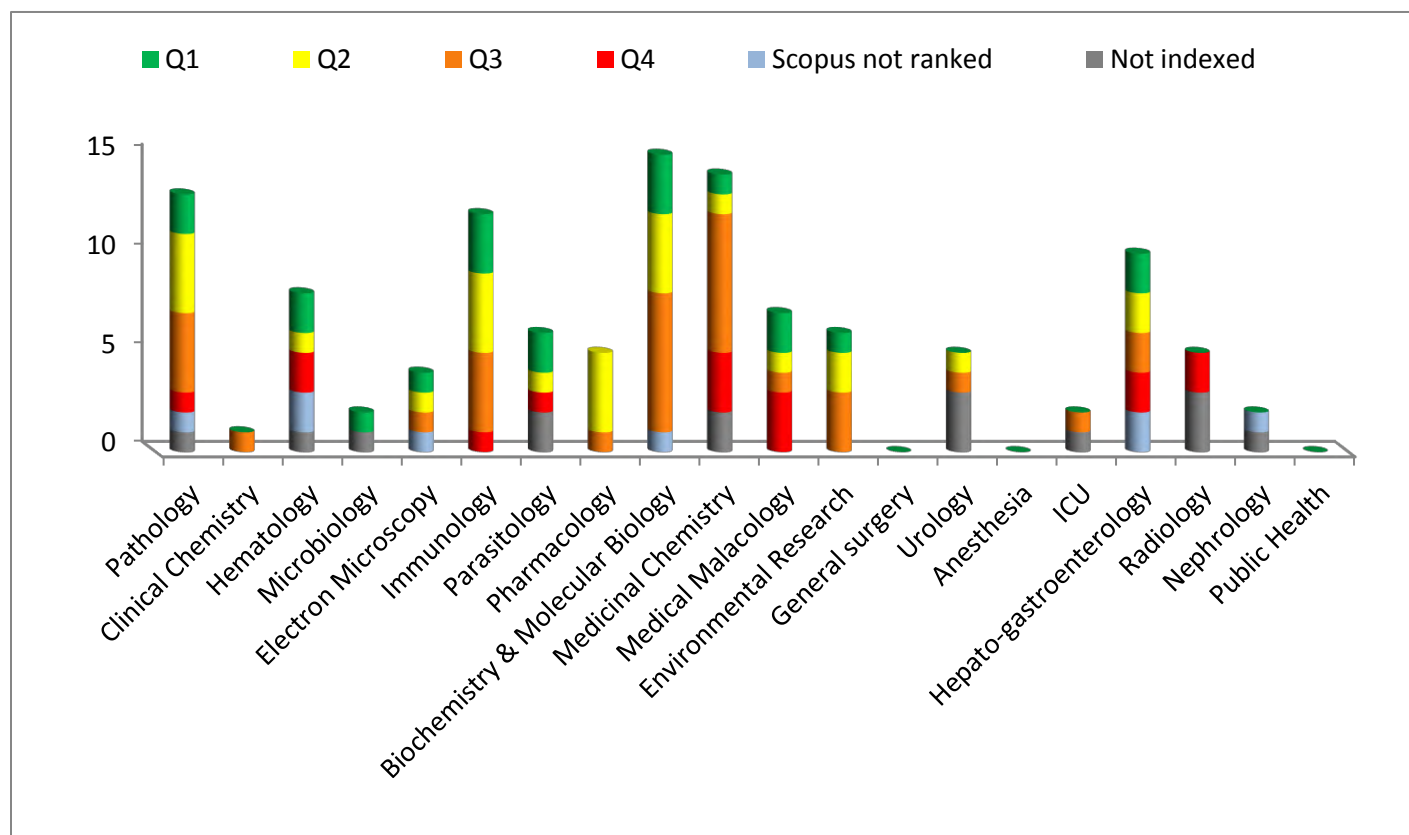


Figure 1. Classification of the research papers published by TBRI departments according to their quartiles (January to June 2021)

This classification is according to Scimago <http://www.scimagojr.com/>

(Metrics based on Scopus ® data as of April 2021)

Q1 Journals

Journal	Pharmaceuticals
Year	2021
Volume/Issue/Pages	14 (4): 341
Indexing	Scopus
Quartile	Q1
Title	A Novel Combination Therapy Using Rosuvastatin and <i>Lactobacillus</i> Combats Dextran Sodium Sulfate-Induced Colitis in High-Fat Diet-Fed Rats by Targeting the TXNIP/NLRP3 Interaction and Influencing Gut Microbiome Composition
Authors	Sameh Saber ¹ , Eslam E. Abd El-Fattah ² , Galal Yahya ³ , Naglaa A. Gobba ⁴ , Abdalkareem Omar Maghmomeh ⁵ , Ahmed E. Khodir ⁶ , Ahmed A.E. Mourad ⁷ , Ahmed S. Saad ⁷ , Hager G. Mohammed ⁸ , Nehal A. Nouh ⁹ , Ahmed Shata ^{10,11} , <u>Noha A. Amin</u> ¹² , Magdy Abou El-Rous ¹³ , Samuel Girgis ¹⁴ , <u>Eman El-Ahwany</u> ¹⁵ , Eman M. Khalaf ¹⁶ , Attalla F. El-Kott ^{17,18} and Ahmed M. El-Baz ¹⁹
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TBRI Departments	Immunology & Hematology Laboratories
Abstract	<p>Inflammasome targeting and controlling dysbiosis are promising therapeutic approaches to control ulcerative colitis. This report is the first to investigate the mechanisms underlying the coloprotective effects of rosuvastatin and Lactobacillus and their combined therapy on dextran sodium sulfate (DSS)-induced colitis in high-fat diet (HFD)-fed rats. Our results demonstrate the aggravation of intestinal inflammation as a consequence of an HFD following DSS administration. An association between dyslipidemia, LDL oxidation, CD36 expression, ROS generation, thioredoxin-interacting protein (TXNIP) upregulation, and NLRP3 inflammasome activation was demonstrated by DSS exposure in HFD-fed rats. We demonstrated that rosuvastatin/Lactobacillus significantly suppressed the DSS/HFD-induced increase in colon weight/length ratio, DAI, MDI, and myeloperoxidase, as well as corrected dysbiosis and improved histological characteristics. Additionally, caspase-1 activity and IL-1β-driven pyroptotic activity was significantly reduced. Rosuvastatin/Lactobacillus showed prominent anti-inflammatory effects as revealed by the IL-10/IL-12 ratio and the levels of TNF-α and IL-6. These latter effects may be attributed to the inhibition of phosphorylation-induced activation of NF-κB and a concomitant reduction in the expression of NLRP3, pro-IL-1β, and pro-IL-18. Furthermore, rosuvastatin/Lactobacillus reduced Ox-LDL-induced TXNIP and attenuated the inflammatory response by inhibiting NLRP3 inflammasome assembly. To conclude, rosuvastatin/Lactobacillus offers a safe and effective strategy for the management of ulcerative colitis.</p>
Key Words	Ulcerative colitis; NLRP3 inflammasome; rosuvastatin; Lactobacillus; gut microbiome; TXNIP; Ox-LDL

Journal	Biochemical Pharmacology
Year	2021
Volume/Issue/Pages	186: 114497
Indexing	Scopus
Quartile	Q1
Title	Activation of FXR modulates SOCS3/Jak2/STAT3 signaling axis in a NASH-dependent hepatocellular carcinoma animal model
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TBRI Departments	Pathology Department
Abstract	Despite the recent substantial progress in the treatment of hepatocellular carcinoma (HCC) from viral etiology, non-alcoholic steatohepatitis (NASH) is on a trajectory to become the fastest growing indication for HCC-related liver transplantation. The Farnesoid X receptor (FXR) is a member of the nuclear receptor superfamily with multifaceted roles in several metabolic disorders, particularly NASH. Its role as a tumor suppressor was also highlighted. Herein, we investigated the effect of obeticholic acid (OCA), as an FXR agonist, on NASH-associated HCC (NASH-HCC) animal model induced by diethylnitrosamine and high fat choline-deficient diet, exploring the potential impact on the suppressor of cytokine signaling 3 (SOCS3)/Janus kinase 2 (Jak2)/signal transducer and activator of transcription 3 (STAT3) pathway. Results indicated that OCA treatment upregulated FXR and its key mediator, small heterodimer partner (SHP), with remarkable amelioration in the dysplastic foci observed in the NASH-HCC group. This was paralleled with noticeable downregulation of alpha fetoprotein along with reduction in interferon gamma and transforming growth factor beta-1 hepatic levels besides caspase-3 and p53 upregulation. Moreover, sirtuin-1 (SIRT-1), a key regulator of FXR that controls the regenerative response of the liver, was elevated following OCA treatment. Modulation in the SOCS3/Jak2/STAT3 signaling axis was also reported. In conclusion, OCA attenuated the development and progression of NASH-dependent HCC possibly by interfering with SOCS3/Jak2/STAT3 pathway suggesting the potential use of FXR activators in NASH-related disorders, even at later stages of the disease, to impede its progression to the more deteriorating condition of HCC.

Key Words

Non-alcoholic steatohepatitis, Hepatocellular carcinoma, FXR
STAT3, SOCS3

Journal	Infection, Genetics and Evolution
Year	2021
Volume/Issue/Pages	89:104722.
Indexing	Scopus
Quartile	Q1
Title	Assessment of eugenol inhibitory effect on biofilm formation and biofilm gene expression in methicillin resistant <i>Staphylococcus aureus</i> clinical isolates in Egypt
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TBRI Departments	Microbiology, Biochemistry and Molecular Biology & Parasitology
Abstract	Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) biofilm infection is a major threat in Healthcare facilities. The search for biofilm inhibitors is essential to overcome the antibiotic resistance. Eugenol is a phyto-compound that possesses many biological properties. In this study, the aim was to estimate the effect of eugenol on biofilms of MRSA through quantifying the level of gene expression of three genes (IcaA, IcaD and SarA) involved in biofilm development. Fifty MRSA biofilm producers collected from the microbiology lab at Theodor Bilharz Research Institute were incubated with different concentrations of eugenol for 24 h. The minimum inhibitory concentration of eugenol (MIC) that eradicates the biofilms growth was detected. mRNA was extracted from all isolates before and after the application of eugenol at 0.5 x MIC, and then subjected to quantitative real-time PCR (qPCR). Results showed that fourteen isolates out of 50 (28%) exhibited intermediate biofilm formation ability, and 36 out of 50 (72%) were strong biofilm producers. The MIC values of eugenol for MRSA ranged from 3.125% to 0.01%. The mean values of MIC in both strong and intermediate biofilm forming MRSA isolates were statistically comparable ($p = 0.202$). qPCR results revealed that the levels of expression of the studied genes IcaA, IcaD, and SarA were decreased after eugenol treatment when compared with their corresponding values before treatment ($p = 0.001$). Eugenol inhibited the formation of biofilm of MRSA isolates, indicating it could be used to control infections associated with MRSA biofilms.
Key Words	Biofilm; Eugenol; Expression of genes; MRSA; Quantitative real-time PCR

Journal	Journal of Infection and Public Health
Year	2021
Volume/Issue/Pages	14(2): 169-178
Indexing	Scopus
Quartile	Q1
Title	Bioinformatics prediction of B and T cell epitopes within the spike and nucleocapsid proteins of SARS-CoV2
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Corresponding Author	Dr. Mostafa K. El Awady; Email: mkawady49@yahoo.com Prof. Mohamed Shemis Email: M.Shemies@tbri.gov.eg
TBRI Departments	Biochemistry and Molecular biology Departments
Abstract	Background: The striking difference in severity of SARS CoV2 infection among global population is partly attributed to viral factors. With the spike (S) and nucleocapsid (N) are the most immunogenic subunits, genetic diversity and antigenicity of S and N are key players in virulence and in vaccine development. Aim: This paper aims at identifying immunogenic targets for better vaccine development and/or immunotherapy of COVID 19 pandemic. Methods: 18 complete genomes of SARS CoV2 (n = 14), SARS CoV (n = 2) and MERS CoV (n = 2) were examined. Bioinformatics of viral genetics and protein folding allowed functional tuning of NH2 Terminal Domain (NTD) of S protein and development of epitope maps for B and T cell responses. Conclusion: A deletion of amino acid residues Y144 and G107 were discovered in NTD of S protein derived from Indian and French isolates resulting in altered pocket structure exclusively located in NTD and reduced affinity of NTD binding to endogenous nAbs and disrupted NTD mediated cell entry. We therefore, proposed a set of B and T cell epitopes based on Immune Epitope Database, homologous epitopes for nAbs in convalescent plasma post SARS CoV infection and functional domains of S (NTD, Receptor Binding domain and the unique polybasic Furin cleavage site at S1/S2 junction). Nevertheless, laboratory data are required to develop vaccine and immunotherapeutics.
Key Words	SARS CoV2; Furin cleavage site; Genetic distance; NH2 Terminal Domain; Phylogenetic tree

Journal	Life Sciences
Year	2021
Volume/Issue/Pages	270:119123.
Indexing	Scopus
Quartile	Q1
Title	BBG enhances OLT1177-induced NLRP3 inflammasome inactivation by targeting P2X7R/NLRP3 and MyD88/NF-κB signaling in DSS-induced colitis in rats
Authors	Sameh Saber ¹ , Mahmoud E Youssef ² , Hossam Sharaf ³ , Noha A Amin⁴ , Ruwyda El-Shedody ³ , Farah H Aboutouk ³ , Yumna Abd El-Galeel ³ , Amr El-Hefnawy ³ , Dina Shabaka ³ , Arwa Khalifa ³ , Renad A Saleh ³ , Donya Osama ³ , Ghada El-Zoghby ³ , Naglaa A Gobba ⁵
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TBRI Departments	Hematology Department
Abstract	Chronic ulceration of the colon is associated with the activation of TLR4/NF-κB and P2X7R/NLRP3 signaling pathways. We investigated the effect of individual or combined administration of BBG, a P2X7R blocker, and OLT1177, a selective NLRP3 inhibitor, in the dextran sodium sulfate-induced ulcerative colitis (UC) rat model. The ulcerative rats were treated orally with brilliant blue G (BBG) (50 mg/kg/day) or OLT1177 (200 mg/kg/day) or a combination of both. Myd88 and NF-κB levels were measured by ELISA, qRT-PCR, and immunohistochemical staining. Cytokines known to be associated with TLR4/NF-κB or P2X7R/NLRP3 signaling were measured by ELISA. P2X7R and NLRP3 expression were measured by ELISA and qRT-PCR. The administration of BBG or OLT1177 ameliorated the toxic effects of DSS on the colon as they restored normal colonic macroscopic and microscopic morphology. BBG administration, but not OLT1177, reduced the expression of Myd88, NF-κB, IL-6, and TNF-α in addition to lowering P2X7R and oxidative stress levels. Individual BBG or OLT1177 administration decreased NLRP3 inflammasome recruitment and subsequent activation of caspase-1, IL-1β, and IL-18. However, the combined administration of OLT1177 with BBG potentiated its inhibitory effect on the NLRP3, which was reflected by the additional suppressive effect on caspase-1, IL-1β, IL-18 levels. In conclusion, BBG/OLT1177 exhibited complementary effects and effectively ameliorated UC. This novel approach provides a basis for the clinical application of this combination for the treatment of IBDs and

	might also be promising for the pharmacological intervention of other NLRP3 inflammasome-dependent inflammatory conditions.
Key Words	BBG; Dextran sodium sulfate; MyD88/NF- κ B; OLT1177; P2X7R/NLRP3; Ulcerative colitis

Journal	International Journal of Molecular Sciences
Year	2021
Volume/Issue/Pages	22: 6866
Indexing	Scopus
Quartile	Q1
Title	Combinatory Effects of Cerium Dioxide Nanoparticles and Acetaminophen on the Liver—A Case Study of Low-Dose Interactions in Human HuH-7 Cells
Authors	Benjamin C. Krause ¹ , Fabian L. Krieger ^{1,2} , Victoria Tartz ¹ , Harald Jungnickel ¹ , Philipp Reichardt ¹ , Ajay Vikram Singh ¹ , Peter Laux ¹ , Mohamed Shemis³ and Andreas Luch ¹
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TBRI Departments	Biochemistry & Molecular Biology
Abstract	The interactions between pharmaceuticals and nanomaterials and its potentially resulting toxicological effects in living systems are only insufficiently investigated. In this study, two model compounds, acetaminophen, a pharmaceutical, and cerium dioxide, a manufactured nanomaterial, were investigated in combination and individually. Upon inhalation, cerium dioxide nanomaterials were shown to systemically translocate into other organs, such as the liver. Therefore, we picked the human liver cell line HuH-7 cells as an in vitro system to investigate liver toxicity. Possible synergistic or antagonistic metabolic changes after co-exposure scenarios were investigated. Toxicological data of the water soluble tetrazolium (WST-1) assay for cell proliferation and genotoxicity assessment using the Comet assay were combined with an untargeted as well as a targeted lipidomics approach. We found an attenuated cytotoxicity and an altered metabolic profile in co-exposure experiments with cerium dioxide, indicating an interaction of both compounds at these endpoints. Single exposure against cerium dioxide showed a genotoxic effect in the Comet assay. Conversely, acetaminophen exhibited no genotoxic effect. Comet assay data do not indicate an enhancement of genotoxicity after co-exposure. The results obtained in this study highlight the advantage of investigating coexposure scenarios, especially for bioactive substances.
Key Words	ToF-SIMS; HuH-7 cells; acetaminophen; nanoparticles; cerium dioxide; metabolomics; liver

Journal	Heliyon
Year	2021
Volume/Issue/Pages	7: e06205
Indexing	Scopus
Quartile	Q1
Title	<i>Dobera glabra</i> (Forssk.) Poir. (Salvadoraceae); phenolic constituents of the aqueous leaves extract and evaluation of its anti-inflammatory, analgesic activities
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TBRI Departments	Medicinal Chemistry Department
Abstract	Background: The plant kingdom is considered one of the most common sources for structural and biological diversity. In particular, the wild category acquires our attention to investigate the phytochemical and the biological evaluations. Methods: <i>Dobera glabra</i> was exposed to phytochemical examination using HPLC-ESI-MS analysis. Furthermore, the anti-inflammatory activity was evaluated using carrageenan-induced rat paw edema model, whereas both the central and peripheral analgesic activities were tested via hot plate test in rats and acetic acid-induced writhing in mice, respectively. Results: Twenty phenolic compounds of <i>D. glabra</i> aqueous leaves extract were emphasized by liquid chromatography coupled with mass spectrometry. Moreover, <i>D. glabra</i> exhibited both anti-inflammatory and peripheral analgesic activities. Furthermore, <i>D. glabra</i> significantly decreased the immune expression of MMP-9, TNF- α and TGF- β 1 in the hind paw of rats. Conclusion: <i>D. glabra</i> possess peripheral anti-nociceptive and anti-inflammatory effects in rats mediated through its anti-oxidant and anti-inflammatory activities. The activity of <i>D. glabra</i> leaves extract might be attributed to the presence of hydroxy and keto structures.
Key Words	<i>Dobera glabra</i> , Anti-Inflammatory, Analgesic, Flavonoids, Rat

Journal	Parasitology Research
Year	2021
Volume/Issue/Pages	120(3): 1011-1023.
Indexing	Scopus
Quartile	Q1
Title	Effect of methyl gallate on immune response of <i>Biomphalaria alexandrina</i> (Ehrenberg, 1831) snails to infection with <i>Schistosoma mansoni</i> (Sambon, 1907)
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TBRI Departments	Environmental Research and Medical Malacology Departments
Abstract	Schistosomiasis still affects a lot of people in many developing countries. Reducing the disease dissemination has been the target of various studies. As methyl gallate has antioxidant properties, it is assumed that it can be a good candidate for stimulating the immune response of snails. So, the aim of this work is to investigate the potential of using methyl gallate as an immunostimulant to <i>Biomphalaria alexandrina</i> snails in order to prevent the development of invading miracidia into infective cercariae. The infected snails were exposed to three concentrations of methyl gallate for two periods: 24 and 72 h. The results indicated that the most effective concentration was the lowest one: 125 mg/L of methyl gallate for 72 h, as it reduced both infection rate and mean number of shed cercariae. Also, it increased the total number of snails' hemocytes in hemolymph, which were observed in headfoot region and digestive gland of treated snails surrounding degenerated sporocysts and cercariae. In addition, hydrogen peroxide showed its highest content in tissues of snails exposed to 125 mg/L of methyl gallate for 72 h. In conclusion, methyl gallate can be considered as one of the most promising immunostimulants of <i>B. alexandrina</i> snails against infection with <i>Schistosoma mansoni</i> .
Key Words	<i>Biomphalaria alexandrina</i> ; Hydrogen peroxide; Immunostimulant; Methyl gallate; Schistosomiasis

Journal	Archives of Medical Science
Year	2021
Volume/Issue/Pages	17 (1): 218–227
Indexing	Scopus
Quartile	Q1
Title	Effects of free and nanoparticulate curcumin on chemically induced liver carcinoma in an animal model
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TBRI Departments	Immunology Department
Abstract	Introduction: Curcumin therapeutic applications are constrained by its prominent metabolic instability as well as inadequate absorption and bioavailability. The current study was designed to enhance the curcumin bioavailability by exploiting nanoparticles. Material and methods: Eleven groups of mice were divided into: normal and nanoparticle control groups, a hepatocellular carcinoma (HCC) group induced by diethylnitrosamine (DEN), 2 groups treated with DEN plus a high dose/low dose of free curcumin, 2 groups treated with a high dose/low dose of free curcumin, 2 groups treated with DEN plus a high dose/low dose of nanoparticulate curcumin, and 2 groups treated with a high dose/low dose of nanoparticulate curcumin. Results: DEN administration significantly increased liver enzymes, vascular endothelial growth factor, tumor necrosis factor- α , α -fetoprotein, malondialdehyde, and nuclear factor-kB. Also, it decreased serum albumin and tissue antioxidant activities and caused severe histological changes in hepatic tissue. Oral treatment of DEN-injected mice with either a high dose of free curcumin or the tested doses of nanoparticulate curcumin resulted in a significant improvement of all the tested parameters. Conclusions: Although the two tested doses of nanoparticulate curcumin were much lower than free curcumin, both doses were effective in preventing HCC development while the low dose of free curcumin was hardly effective. Hence, we conclude that nanoparticles enhance the bioavailability of curcumin.
Key Words	Curcumin, diethylnitrosamine (DEN), hepatocellular carcinoma, nanoparticles.

Journal	Frontiers in Oncology
Year	2021
Volume/Issue/Pages	11:590771.
Indexing	Scopus
Quartile	Q1
Title	Expression of Myoglobin in Normal and Cancer Brain Tissues: Correlation with Hypoxia Markers
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TBRI Departments	Pathology Department
Abstract	Background: Myoglobin (MB) is increasingly recognized as a key player in cancer growth and metastasis. Low oxygen tensions, commonly associated with highly aggressive and recurrent cancers, have been shown to regulate its expression in several cancers such as lung, neck, prostate and breast cancer. However, it is not yet known whether it contributes to the growth and spread of brain cancers especially Glioblastoma multiforme (GBM). Methods: Here we investigate the expression of MB, and its correlation with the hypoxia markers carbonic anhydrase IX (CAIX) and lactate dehydrogenase A (LDHA), in human tissue microarrays of multiple organ tumors, brain tumors, and GBM tumors, and their respective cancer-adjacent normal tissues. Correlation between MB protein expression and tumor grade was also assessed. Results: We show that MB protein is expressed in a wide variety of cancers, benign tumors, cancer-adjacent normal tissues, hyperplastic tissue samples and normal brain tissue, and low oxygen tensions modulate MB protein expression in different brain cancers, including GBM. Enhanced nuclear LDHA immune-reactivity in GBM was also observed. Finally, we report for the first time a positive correlation between MB expression and brain tumor grade. Conclusion: Our data suggest that hypoxia regulate MB expression in different brain cancers (including GBM) and that its expression is associated with a more aggressive phenotype as indicated by the positive correlation with the brain tumor grade. Additionally, a role for nuclear LDHA in promoting aggressive tumor phenotype is also suggested based on enhanced nuclear expression which was observed only in GBM.
Key Words	glioblastoma multiforme, myoglobin, human tissue microarray, lactate dehydrogenase A, carbonic anhydrase IX

Journal	PLoS Neglected Tropical Diseases
Year	2021
Volume/Issue/Pages	15(5): e0009423
Indexing	Scopus
Quartile	Q1
Title	Ginger (<i>Zingiber Officinale</i>)-derived nanoparticles in <i>Schistosoma mansoni</i> infected mice: Hepatoprotective and enhancer of etiopathological treatment
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TBRI Departments	Parasitology
Abstract	<p>Background: Nanotechnology has been manufactured from medicinal plants to develop safe, and effective antischistosomal alternatives to replace today's therapies. The aim of the study is to evaluate the prophylactic effect of ginger-derived nanoparticles (GNPs), and the therapeutic effect of ginger aqueous extract, and GNPs on <i>Schistosoma mansoni</i> (<i>S. mansoni</i>) infected mice compared to praziquantel (PZQ), and mefloquine (MFQ). Methodology/principal findings: Eighty four mice, divided into nine different groups, were sacrificed at 6th, 8th, and 10th week postinfection (PI), with assessment of parasitological, histopathological, and oxidative stress parameters, and scanning the worms by electron microscope. As a prophylactic drug, GNPs showed slight reduction in worm burden, egg density, and granuloma size and number. As a therapeutic drug, GNPs significantly reduced worm burden (59.9%), tissue egg load (64.9%), granuloma size, and number at 10th week PI, and altered adult worm tegumental architecture, added to antioxidant effect. Interestingly, combination of GNPs with PZQ or MFQ gave almost similar or sometimes better curative effects as obtained with each drug separately. The highest therapeutic effect was obtained when ½ dose GNPs combined with ½ dose MFQ which achieved 100% reduction in both the total worm burden, and ova tissue density as early as the 6th week PI, with absence of detected eggs or tissue granuloma, and preservation of liver architecture. Conclusions/significance: GNPs have a schistosomicidal, antioxidant, and hepatoprotective role. GNPs have a strong synergistic effect when combined with etiopathological treatments (PZQ or MFQ), and significantly reduced therapeutic doses by 50%, which may mitigate side effects and</p>

	resistance to etiological drugs, a hypothesis requiring further research. We recommend extending this study to humans.
Key Words	Ginger - <i>Schistosoma mansoni</i> - Hepatoprotective

Journal	Journal of King Saud University – Science
Year	2021
Volume/Issue/Pages	33(3): 101368
Indexing	Scopus
Quartile	Q1
Title	Green synthesis of Cerium oxide / <i>Moringa oleifera</i> seed extract nano-composite and its molluscicidal activities against <i>Biomphalaria alexanderina</i>
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TBRI Departments	Environmental Research and Medical Malacology
Abstract	The green synthesis method is one of the most economic and ecofriendly approach for preparation of metal oxide nanoparticles. In the current study, <i>Moringa oleifera</i> seed was used for synthesis of Ce2O3/ <i>M. oleifera</i> (Ce2O3/MNCs) nano-composite. The bio-composite was characterized using FT-IR, XRD, SEM and HR-TEM. The FTIR analysis confirmed the phytochemical involvement in bio-composite. Its crystalline and size was well demonstrated through X-ray Diffraction and HR-TEM. The TEM images revealed these particles in circle shape with average size of 30 nm. The present investigation showed that Ce2O3/MNCs were toxic to <i>B. alexandrina</i> snails with LC ₅₀ of 314.5 mg/L. The survival and the reproductive rates of the snails were significantly reduced after exposing to ¼ and ½ of LC ₅₀ of Ce2O3/MNCs. The showed that Ce2O3/MNCs had significant ovicidal and larvicidal activities. Also, the exposure to ½ of LC ₅₀ of Ce2O3/MNCs showed alterations in the tegmental architectures of the head-foot region, in addition it caused significant damages in both of the hermaphrodite and digestive glands of <i>B. alexandrina</i> . Conclusively, Ce2O3/MNCs nano-composite could be utilized as a new molluscicidal agent for the snails of schistosomiasis.
Key Words	Cerium oxide/ <i>Moringa oleifera</i> nanocomposite; Nanoceria; Schistosomiasis; Molluscicide

Journal	PLoS Neglected Tropical Diseases
Year	2021
Volume/Issue/Pages	25;15(5):e0009432.
Indexing	Scopus
Quartile	Q1
Title	Identification of hit compounds with anti-schistosomal activity on <i>in vitro</i> generated juvenile worms in cell-free medium
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TBRI Departments	Electron Microscopy Research Department
Abstract	<p>Background: Anthelmintic treatment options against schistosomiasis are limited. The current treatment relies almost exclusively on a single drug, praziquantel (PZQ). As a consequence, the development of resistance to PZQ and limited activity of PZQ against earlier development stages are respectively a risk and a limitation to achieving the goals of the new WHO roadmap towards elimination. For the discovery of new chemical starting points, the <i>in vitro</i> drug screening on <i>Schistosoma mansoni</i> (<i>S. mansoni</i>) against newly transformed schistosomula (NTS) is still the most predominant approach. The use of only NTS in the initial screening limits sensitivity to potential new compounds which are predominantly active in later developmental stages. Using our recently described highly standardized, straightforward and reliable culture method that generates high rates of juvenile worms, we aimed to repurpose a subset of the National Center for Advancing Translational Sciences (NCATS) Pharmaceutical Collection (340 compounds) to identify new hits with an <i>in vitro</i> worm culture assay.</p> <p>Methodology/Principal findings: Cercariae were mechanically transformed into skin-stage (SkS) schistosomula and continuously cultured for 3–6 weeks to the liver stage (LiS). A commercial source of serum was identified, and decrease of NTS/well along with optimal drug testing conditions was established to test compounds on early and late LiS worms. The library was screened in 96-well format assays using</p>

	<p>praziquantel (PZQ) as a positive control. Primary screening allowed a 5.9% hit rate and generated two confirmed hits on adult worms; a prophylactic antianginal agent and an antihistaminic drug. Conclusion: With this standardized and reliable <i>in vitro</i> assay, important <i>S. mansoni</i> developmental stages up to LiS worms can be generated and cultured over an extended period. When exposed to a subset of the NCATS Pharmaceutical Collection, 3 compounds yielded a defined anti-schistosomal phenotype on juvenile worms. Translation of activity on perfused adult <i>S. mansoni</i> worms was achieved only for perhexiline (a prophylactic antianginal agent) and astemizole (an antihistaminic drug).</p>
Key Words	-

Journal	European Journal of Pediatrics
Year	2021
Volume/Issue/Pages	180(6):1693-1699
Indexing	Scopus
Quartile	Q1
Title	Pulmonary function test abnormalities in children and adolescents with non-alcoholic fatty liver disease
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TBRI Departments	Immunology Department
Abstract	<p>Association between pulmonary function tests (PFTs) and non-alcoholic fatty liver disease (NAFLD) has been reported in adult studies; however, there is lack of pediatric studies. Our study aimed to evaluate PFTs in children with NAFLD. A total of 137 children with NAFLD and 100 healthy children of matched age and sex were included in the study. Different PFTs including forced expiratory volume in 1 s (FEV1), forced vital capacity (FVC), FEV1/FVC ratio, residual volume (RV), and total lung capacity (TLC) were performed for all included children. Lipid profile, insulin resistance, fasting and postprandial glucose level, and high sensitive C reactive protein (hs-CRP) were measured. FEV1 %, FVC %, FEV1/FVC ratio, RV, and TLC were significantly lower in the patient group compared with the control group ($P < 0.05$), while RV and hs-CRP were significantly higher in children with NAFLD. Restrictive lung dysfunction was the commonest pulmonary dysfunction detected in children with NAFLD (21.9%). PFT indices were significantly correlated with grade and duration of NAFLD, insulin resistance, waist circumference, and hs-CRP. Regression analysis revealed that insulin resistance and hs-CRP were independently associated with decreased PFT indices. Conclusion: PFT indices were impaired in children with NAFLD and this impairment was independently associated with insulin resistance and hs-CRP. What is Known: • Pulmonary function tests (PFTs) abnormalities are common in adults with nonalcoholic fatty liver disease (NAFLD). • Studies involving PFTs abnormalities in pediatric NAFLD are lacking. What is New: • It is the first study that assessed PFT in pediatric patients with NAFLD. • PFTs abnormalities are present in children with NAFLD. • Insulin resistance and high sensitive C reactive protein are independently associated with the decline of PFTs in children with NAFLD.</p>

Key Words

Adolescents; Children; Insulin resistance; Non-alcoholic fatty liver disease; Pulmonary function; hs-CRP.

Q2 Journals

Journal	Materials Technology
Year	2021
Volume/Issue/Pages	https://doi.org/10.1080/10667857.2020.1863555 .
Indexing	Scopus
Quartile	Q2
Title	A potential antibiofilm, antimicrobial and anticancer activities of chitosan capped gold nanoparticles prepared by γ -irradiation.
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TBRI Departments	Immunology Department
Abstract	Recently, nanotherapy has been considered a promising and rapidly evolving field to combat cancer. Both gold nanoparticles and chitosan are interesting materials with biological and antitumor properties. The present study aimed to synthesise chitosan/gold nanocomposites (Cs/Au) using gamma irradiation technique and to study their anticancer, antibiofilm and antimicrobial activities. The synthesized Cs/Au nanocomposites were characterized using various analytical tools such as UV-vis, XRD, and TEM. UV-vis absorption spectra exhibited a surface plasmon resonance (SPR) peak at 525 nm that confirming the successful synthesis of colloidal AuNPs. The TEM image demonstrates well-dispersed spherical shaped Au nanoparticles. The cytotoxic activity of Cs/Au nanocomposites was examined against HepG-2 and CACO2 cell lines in comparison to free chitosan using neutral red assay test. The Cs/Au nanocomposites inhibited the proliferation of cancer cells more than chitosan. Moreover, the prepared Cs/ Au nanocomposites showed antibacterial and antibiofilm activities encouraging its potential candidature for biomedical and pharmaceutical purposes
Key Words	Gamma rays; gold nanoparticles; chitosan; nanocomposites; antibiofilm activity; antimicrobial activity; anticancer activity

Journal	Digestive Diseases
Year	2021
Volume/Issue/Pages	DOI: 10.1159/000514356.
Indexing	Scopus
Quartile	Q2
Title	Ascetic Fluid Cytokines in Chronic Liver Disease: A Possible Prognostic Tool
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TBRI Departments	Immunology and Hepato-gastroenterology Departments
Abstract	<p>Introduction: Malignant ascites results from imbalance between protein in the peritoneal cavity and absorption of fluids via the lymphatic system. More than 20 interleukins (ILs) are known to play an important role in the protection against tumors. Materials and Methods: Ascetic fluid IL-1B, IL-2, IL-4, IL-6, IL-10, TNF-α, and IFN-γ levels were assessed in 45 patients with liver cirrhosis and ascites as judged by histopathological and ultrasonographic findings. They were divided into 2 groups according to presence of hepatic focal lesions. Ten patients with focal hepatic lesions were randomly selected and subjected to analysis of serum levels of IL-2 and IL-10. Results: Ascetic fluid IL-4, IL-6 and IL-10 levels were found to be significantly higher in patients with hepatocellular carcinoma (HCC) than patients with cirrhosis. TNF-α, and IFN-γ were also found to be higher in HCC than patients with cirrhosis but with no significance. On the other hand, there was no significant difference in levels of IL-1B and IL-2 between the 2 groups. Ascitic fluid IL-2 and IL-10 levels were found to be higher in ascitic fluid than in serum of the same patients. Conclusion: Ascetic fluid levels of IL-4, IL-6 and IL-10 are higher in HCC patients than patients with cirrhosis alone. Levels of ascitic fluid IL-2 and IL-10 proved to be a better prognostic tool than their levels in sera of the same patients. To conclude, patients with cirrhosis may be subjected to scheduled examination of ascitic fluid cytokines to predict transformation into HCC</p>
Key Words	Hepatocellular carcinoma · Ascetic fluid · Cytokines

Journal	Journal of Ethnopharmacology
Year	2021
Volume/Issue/Pages	273:113939
Indexing	Scopus
Quartile	Q2
Title	Ashwagandha (<i>Withania somnifera</i>) root extract attenuates hepatic and cognitive deficits in thioacetamide-induced rat model of hepatic encephalopathy via induction of Nrf2/HO-1 and mitigation of NF-κB/MAPK signaling pathways
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TBRI Departments	Immunology & Pharmacology Departments
Abstract	<i>Ethnopharmacological relevance:</i> Ashwagandha (ASH) is one of the medicinal plants used in traditional Indian, Ayurvedic, and Unani medicines for their broad range of pharmacological activities including, tonic, aphrodisiac, energy stimulant, and counteracting chronic fatigue. Besides, it is used in the treatment of nervous exhaustion, memory-related conditions, insomnia, as well as improving learning ability and memory capacity. ASH is preclinically proven to be efficient in hepatoprotection and improving cognitive impairment, however, its beneficial effects against hepatic encephalopathy (HE) is still unclear. Therefore, this study aimed at investigating the protective effects of ASH root extract against thioacetamide (TAA)-induced HE and delineate the underlying behavioral and pharmacological mechanisms. <i>Materials and methods:</i> ASH metabolites were identified using UPLC-HRMS. Rats were pretreated with ASH (200 and 400 mg/kg) for 29 days and administrated TAA (i.p, 350 mg/kg) in a single dose. Then, behavioral (open field test, Y-maze, modified elevated plus maze and

	<p>novel object recognition test), and biochemical (ammonia and hepatic toxicity indices) assessments, as well as oxidative stress markers (MDA and GSH) were evaluated. The hepatic and brain levels of glutamine synthetase (GS), nuclear factor erythroid 2-related factor 2 (Nrf2), heme-oxygenase (HO)-1, inducible nitric oxide synthase (iNOS) were detected by enzyme-linked immunosorbent assay (ELISA). The mRNA expressions of p38/ERK$\frac{1}{2}$ were determined using real-time polymerase chain reaction (PCR). Moreover, histopathological investigations and immunohistochemical (NF-κB and TNF-α immunohistochemical expressions) examinations were performed.</p> <p>Results:Metabolite profiling of ASH revealed more than 45 identified metabolites including phenolic acids, flavonoids and steroidal lactone triterpenoids. Compared to the TAA-intoxicated group, ASH improved the locomotor and cognitive deficits, serum hepatotoxicity indices and ammonia levels, as well as brain and hepatic histopathological alterations. ASH reduced hepatic and brain levels of MDA, GS, and iNOS, and increased their GSH, Nrf2, and HO-1 levels. Also, ASH downregulated p38 and ERK$\frac{1}{2}$ mRNA expressions, and NF-κB and TNF-α immunohistochemical expressions in brain and hepatic tissues.</p> <p>Conclusions:Our results provided insights into the promising hepato- and neuroprotective effects of ASH, with superiority to 400 mg/kg ASH, to ameliorate HE with its sequential hyperammonemia and liver/brain injuries. This could be attributed to the recorded increase in the spontaneous alternation % and recognition index, antioxidant and anti-inflammatory activities, as well as upregulation of Nrf2 and downregulation of MAPK signaling pathways.</p>
Key Words	Hepatic encephalopathy, Ashwagandha root extract, Thioacetamide, Novel object recognition, MAPK signaling Pathway, Nrf2/HO-1 signaling pathway

Journal	Aquaculture Research
Year	2021
Volume/Issue/Pages	52(5): 2014-2024.
Indexing	Scopus
Quartile	Q2
Title	Assessment of the molluscicidal activity of the methanolic seed extracts of <i>Ziziphus spinachristi</i> and <i>Carica papaya</i> on immunological and molecular aspects of <i>Biomphalaria alexandrina</i> snails
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TBRI Departments	Department of Environmental Research and Medical Malacology
Abstract	Medicinal plants are still less expensive, safe to non-target organisms, and eco-friendly. The present work aims to evaluate the molluscicidal activity of the methanolic extract of <i>Ziziphus spina-christi</i> and <i>Carica papaya</i> seeds against <i>Biomphalaria alexandrina</i> snails. The half lethal concentrations (LC ₅₀) of <i>Z. spina-christi</i> and <i>C. papaya</i> were 108 and 138.5 mg/L, respectively after 24 h. LC ₁₀ of <i>C. papaya</i> created a pronounced induction in catalase (CAT) activity, while LC ₂₅ of <i>Z. spina-christi</i> and LC ₅₀ of <i>C. papaya</i> induced an inhibition in superoxide dismutase (SOD) level in treated snails. LC ₂₅ of <i>Z. spina-christi</i> caused the highest induction in total antioxidant capacity (TAC). Phagocytic indices values were the lowest in snails exposed to LC ₅₀ of both <i>Z. spina-christi</i> and <i>C. papaya</i> . Considerable changes in DNA patterns were observed in all treated groups by RAPD-PCR using six primers. The similarity indices of snails exposed to <i>Z. spina-christi</i> were higher than those exposed to <i>C. papaya</i> . Results showed no mortality in <i>Daphnia magna</i> individuals during the first 12 h of the experiment, while the extract of <i>C. papaya</i> seeds was more toxic on <i>D. magna</i> than <i>Z. spina-christi</i> after 24 h of the exposure.
Key Words	antioxidant capacity, <i>B. alexandrina</i> , <i>D. magna</i> , phagocytosis, RAPD-PCR, seeds extracts

Journal	Journal of Ethnopharmacology
Year	2021
Volume/Issue/Pages	269:113670
Indexing	Scopus
Quartile	Q2
Title	<i>Canna x generalis</i> L.H. Bailey rhizome extract ameliorates dextran sulfate sodium-induced colitis <i>via</i> modulating intestinal mucosal dysfunction, oxidative stress, inflammation, and TLR4/ NF-κB and NLRP3 inflammasome pathways
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TBRI Departments	Pharmacology&Pathology Departments
Abstract	Ethnopharmacological relevance: Genus <i>Canna</i> is used in folk medicine as demulcent, diaphoretic, antipyretic, mild laxative and in gastrointestinal upsets therapy. <i>Canna x generalis</i> (CG) L.H. Bailey is traditionally used as anti-inflammatory, analgesic and antipyretic. Besides, CG is used in Ayurvedic medicines' preparations and in the treatment of boils, wounds, and abscess. Nevertheless, its anti-inflammatory effects against ulcerative colitis (UC) are not yet investigated. Aim: This study aimed to investigate the phytoconstituents of CG rhizome ethanol extract (CGE). Additionally, we aimed to comparatively evaluate its therapeutic effects and underlying mechanisms against the reference drug "sulphasalazine (SAS)" in dextran sodium sulfate (DSS)-induced UC in mice. Material and methods: Metabolic profiling of CG rhizomes was performed <i>via</i> UHPLC/qTOF-HRMS; the total phenolic, flavonoid and steroid contents were determined, and the main phytoconstituents were isolated and identified. Next, DSS-induced (4%) acute UC was established in C57BL/6 mice. DSS-induced mice were administered either CGE (100 and 200 mg/kg) or SAS (200 mg/kg) for 7 days. Body weight, colon length, disease activity index (DAI) and histopathological alterations in colon tissues were examined. Colon levels of oxidative stress (GSH, MDA, SOD and catalase) and pro-inflammatory [Myeloperoxidase (MPO), nitric oxide (NO), IL-1β, IL-12, TNF-α, and INF-γ] markers were colourimetrically determined. Serum levels of lipopolysaccharide (LPS) and relative mRNA expressions of occludin, TLR4 and ASC (Apoptosis-Associated Speck-Like Protein Containing CARD) using RT-PCR were measured. Protein levels of NLRP3 inflammasome and cleaved caspase-1 were determined by Western blot. Furthermore, immunohistochemical examinations of caspase-3, NF-κB and

	<p>claudin- 1 were performed. Results: Major identified constituents of CGE were flavonoids, phenolic acids, phytosterols, beside five isolated phytoconstituents (β-sitosterol, triacontanol fatty alcohol, β-sitosterol-3-<i>O</i>-β-glucoside, rosmarinic acid, 6-<i>O</i>-<i>p</i>-coumaroyl-β-D-fructofuranosyl α-D-glucopyranoside). The percentage of the phenolic, flavonoid and steroid contents in CGE were 20.55, 6.74 and 98.09 μg of gallic acid, quercetin and β-sitosterol equivalents/mg extract, respectively. In DSS-induced mice, CGE treatment ameliorated DAI, body weight loss and colon shortening. CGE attenuated the DSS-induced colonic histopathological alternations, inflammatory cell infiltration and histological scores. CGE elevated GSH, SOD and catalase levels, and suppressed MDA, pro-inflammatory mediators (MPO and NO) as well as cytokines levels in colonic tissues. Moreover, CGE downregulated LPS/TLR4 signaling, caspase-3 and NF-κB expressions. CGE treatment inhibited NLRP3 signaling pathway as indicated by the suppression of the protein expression of NLRP3 and cleaved caspase-1, and the ASC mRNA expression in colonic tissues. Additionally, CGE restored tight junction proteins' (occludin and claudin-1) expressions. Conclusion: Our findings provided evidence for the therapeutic potential of CGE against UC. CGE restored intestinal mucosal barrier's integrity, mitigated oxidative stress, inflammatory cascade, as well as NF-κB/TLR4 and NLRP3 pathways activation in colonic tissues. Notably, CGE in a dose of 200 mg/kg was more effective in ameliorating DSS-induced UC as compared to SAS at the same dose.</p>
Key Words	Cecropin-B; Escherichia coli; anticancer peptide; hepatocellular carcinoma; peptide; recombinant expression

Journal	Human and Experimental Toxicology
Year	2021
Volume/Issue/Pages	8:960327121999445
Indexing	Scopus
Quartile	Q2
Title	Early intervention with probiotics and metformin alleviates liver injury in NAFLD rats via targeting gut microbiota dysbiosis and p-AKT/mTOR/LC-3II pathways
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TBRI Departments	Pharmacology, Pathology & Biochemistry and Molecular Biology Departments
Abstract	Non-alcoholic fatty liver disease (NAFLD) constitutes a major health problem worldwide and intimately links with obesity and diabetes. This study aimed to explore the therapeutic impact of early treatment with metformin (MTF) alone or in combination with <i>Lactobacillus reuteri</i> DSM 17938 (<i>L. reuteri</i>) þ metronidazole (MTZ) in male Sprague Dawley rats with high-fat diet (HFD)-induced NAFLD. Hepatic steatosis was induced by feeding rats HFD for 6 weeks. MTF (150 mg/kg/day) or <i>L. reuteri</i> (2 x 10 ⁹ colony forming unit/day) were given orally for 4 weeks; meanwhile, MTZ (15 mg/kg/day, p.o.) was administered for 1 week. Administration of <i>L. reuteri</i> þ MTZ in combination with MTF produced a superior effect concerning insulin resistance (IR), lipid profile, liver function, oxidative stress, inflammatory and autophagic markers than using each treatment alone. Besides, this combination resulted in disappearance of steatosis, inflammation and vacuolation within hepatic architecture. Moreover, it normalized short chain fatty acids (SCFAs) as well as <i>Firmicutes</i> and <i>Bacteroidetes</i> faecal contents. In conclusion , early treatment with <i>L. reuteri</i> þ MTZ in combination with MTF could prevent NAFLD progression and liver injury through targeting gut dysbiosis, inflammation and autophagic pathways.
Key Words	Autophagy, dysbiosis, inflammation, <i>Lactobacillus reuteri</i> , NAFLD

Journal	Journal of Applied Pharmaceutical Science
Year	2021
Volume/Issue/Pages	11(07): 163-171
Indexing	Scopus
Quartile	Q2
Title	Identification of the volatile and nonvolatile constituents of <i>Schinus molle</i> (L.) fruit extracts and estimation of their activities as anticancer agents
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TBRI Departments	Medicinal Chemistry Department
Abstract	This work was designed to assess the cytotoxic potential of <i>Schinus molle</i> (L.) fruit extracts and characterization of their chemical composition. The cytotoxicity of <i>S. molle</i> extracts was carried out on hepatoma HepG2 cell line using the Sulforhodamine B method. The volatile constituents of <i>S. molle</i> normal-hexane (n-hexane) extract and the essential oil were identified by gas chromatography-mass spectrometry (GC-MS), whereas the nonvolatile chemical compositions were investigated using the Liquid chromatography-electron spray ionization-mass spectrometry (LC-ESI-MS) technique. The n-hexane extract showed the highest cytotoxic inhibition activity on the HepG2 cell line in a concentration-dependent manner with inhibition concentration (IC ₅₀ = 9.75 µg/ml), followed by n-butanol fraction (IC ₅₀ = 10.70 µg/ml) and the essential oil (IC ₅₀ = 11.90 µg/ml). The GC-MS investigation of the essential oil afforded 50 compounds classified into monoterpenes and sesquiterpenes with different percentiles. The most abundant monoterpenes were α-phellandrene, myrcene, D-limonene, β-phellandrene, and α-pinene. At the same time, the major sesquiterpenes were juniper camphor, guaiyl acetate, γ-gurjunene, α-cadinol, and β-caryophyllene. On the other hand, the LC-ESI-MS investigation of the methanolic extract, n-butanol fraction, and aqueous part led to the identification of 31 phenolic compounds classified as phenolic acids, phenylethanoids, flavonoids, and tannins. These findings demonstrate the remarkable potentiality of <i>S. molle</i> extracts as a valuable source of anticancer capacity.
Key Words	Anticancer, flavonoids, GC- MS, LC-ESI-MS, phenolic, <i>Schinus molle</i> .

Journal	Asian Pacific Journal of Cancer Prevention
Year	2021
Volume/Issue/Pages	22(4): 1105-1113
Indexing	Scopus
Quartile	Q2
Title	IL-4, IL-17 and CD163 Immunoexpression and IL-6 Gene Polymorphism in Chronic Hepatitis C Patients and Associated Hepatocellular Carcinoma
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TBRI Departments	Pathology, Hepatology and Gastroenterology & Hematology Departments
Abstract	Objective: To assess the expression of <i>IL-4</i> , <i>IL-17</i> and <i>CD-163</i> as well as study of <i>IL6-572 C/G</i> gene polymorphism in chronic HCV and HCC on top of HCV. Methods: Sixty HCC specimens and 60 adjacent hepatic tissue with HCV of different grades of necro-inflammation and different stages of fibrosis. In addition to 55 HCV, 60 HCC and 50 healthy venous blood samples for evaluation of <i>IL6-572 C/G</i> gene polymorphism. Results: high expression of <i>IL-4</i> , <i>IL-17</i> and <i>CD163</i> in higher grades of activity, late stages of fibrosis and higher degrees of steatosis of HCV. <i>IL-4</i> and <i>CD163</i> showed higher expression in advanced grades of HCC, while <i>IL-17</i> more expressed in lower grades. No significant difference in <i>IL6-572 C/G</i> gene polymorphism among studied groups regarding G/C, G/G, C/C frequencies or G and C allele's frequencies. Conclusion: <i>IL-4</i> , <i>IL-17</i> and <i>CD163</i> were associated with HCV severity. Their expression in HCC suggests their important role in HCC development. Blocking of these proteins may be a good target to control inflammation in HCV and can hinder progression to cirrhosis then to HCC. On the other hand, <i>IL6-572</i> promoter gene polymorphism is neither associated with HCV infection nor with HCC development and its progression.
Key Words	<i>IL-4</i> - <i>IL-17</i> - <i>CD136</i> - <i>IL-6</i> - HCV- HCC

Journal	Environmental Science and Pollution Research
Year	2021
Volume/Issue/Pages	https://doi.org/10.1007/s11356-021-14237-2
Indexing	Scopus
Quartile	Q2
Title	Metallothionein expression in <i>Aspergillus</i> exposed to environmentally relevant concentrations of heavy metals at different pH levels
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Abstract	Heavy metal pollution represents a health threat. Many fungal species are capable of tolerating various heavy metals, especially if they are isolated from a contaminated watercourse. One of the mechanisms by which fungi can sequester certain heavy metals is synthesizing stress proteins. The aim of this study is to investigate the production of metallothioneins in <i>Aspergillus oryzae</i> and <i>Aspergillus clavatus</i> exposed to environmentally relevant concentrations of Cd, Cu, Fe, and Zn at neutral, alkaline, and acidic pH conditions within 10 days. We determined the concentrations of these heavy metals in certain watercourses representing Behira and Giza governorates; also, we identified the most prevalent fungal species. We carried out a statistical correlation between different heavy metals and the isolated fungi. Then, in the laboratory, we exposed two of the most prevalent fungal species to the environmentally detected concentrations of the heavy metals and their doubles. Sodium dodecyl sulfate-polyacrylamide gel electrophoresis demonstrated that in <i>A. oryzae</i> , the metallothionein bands appeared in neutral medium containing Cd and Cu and in alkaline medium containing Cd and Zn, while in <i>A. clavatus</i> , no metallothionein bands appeared at all. In conclusion, metallothionein is a good indicator of pollution with Cd, Cu, and Zn in <i>Aspergillus oryzae</i> , and pH plays a central role in metallothionein production.
Key Words	<i>Aspergillus</i> , Metals, Metallothionein, pH, Cd, Cu, Zn

Journal	Urology
Year	2021
Volume/Issue/Pages	4295(21)00463-5.
Indexing	Scopus
Quartile	Q2
Title	Miniaturized Ambulatory Percutaneous Nephrolithotomy Versus Flexible Ureterscopy in the Management of Lower Calyceal Renal Stones 10-20 mm: A Propensity Score Matching Analysis
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TBRI Departments	Department of Urology
Abstract	Objective: To evaluate the efficacy of ambulatory mini percutaneous nephrolithotomy (Mini-PCNL) and flexible ureteroscope (F-URS) in treating 10-20 mm lower calyceal stones using propensity score matching analysis (PSM). Patients and methods: A retrospective analysis of 136 adult patients that underwent Mini-PCNL or F-URS for a single lower calyx calculus. Participants that underwent F-URS were allocated to Group I, while those who underwent Mini-PCNL were assigned to Group II. Patients were discharged on the same day and followed up by CT after 3 months. Both groups were matched by stone size and density using propensity stone matching (PSM) and the matched groups were further compared. Results: Before matching, there were statistical differences in stone size (P = .02), preoperative hydronephrosis (P = .004), and Hounsfield Unit (P = .04) between both groups. A logistic regression model was created between independent variables such as stone size and density. The new groups following PSM were statistically similar in terms of age, BMI, stone size, and HFU (P = .43, P = .74, P = .49, P = .36). The stone-free rates after PSM was not significantly higher in the Mini-PCNL group than the F-URS group (91.7% vs 81.7%, respectively P = .1) while the operative time for the F-URS group was significantly shorter than the Mini-PCNL group 54 (49-64.3) minutes vs 68.2 (62-73.5) minutes, respectively, P = .045. Conclusion: Ambulatory Mini-PCNL and F-URS have a comparable hospital stay, stone-free rates, and complication rates for treating lower calyceal stones 10-20 mm. Both techniques may be considered acceptable treatment options, with a prolonged operative time in Mini-PCNL.

Key Words

Miniaturized Ambulatory Percutaneous Nephrolithotomy - Flexible Ureteroscopy - Calyceal Renal Stones - A Propensity Score Matching Analysis

Journal	Drug Development and Industrial Pharmacy
Year	2021
Volume/Issue/Pages	47(4):663-672
Indexing	Scopus
Quartile	Q2
Title	Nanostructured lipid carriers for enhanced <i>in vitro</i> and <i>in vivo</i> schistosomicidal activity of praziquantel: effect of charge
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TBRI Departments	Parasitology Department
Abstract	WHO considers praziquantel (PZQ) as the drug of choice for treatment of <i>Schistosoma mansoni</i> infection but this requires high dose due to poor solubility and first pass metabolism. The aim of this work was to optimize nanostructured lipid carriers (NLCs) for enhanced PZQ oral delivery. The optimization involved testing the effect of surface charge of NLCs. NLCs comprised precirol ATO as solid lipid with oleic acid, Span 60 and Tween 80 as liquid components. Dicetyl phosphate and stearyl amine were the negative and positive charging agents, respectively. NLCs were prepared by microemulsification technique and were characterized. The schistosomicidal activity of PZQ loaded NLCs was monitored <i>in vitro</i> and <i>in vivo</i> using infected mice. PZQ showed high entrapment efficiency in all types of NLCs (ranged from 93.97 to 96.29%) with better PZQ loading in standard NLCs. This was clarified by thermal analysis which reflected displacement of PZQ by charging agents. <i>In vitro</i> schistosomicidal study revealed the superiority of PZQ loaded positively charged NLCs (LC50 and LC95 equal 0.147 and 0.193 µg/ml respectively) with traditional and negatively charged NLCs being inferior to simple PZQ solution after short incubation period. Scanning electron micrographs showed that PZQ loaded positively charged NLCs resulted in more intense ultrastructural changes in worms. The superiority of positively charged NLCs was confirmed by <i>in vivo</i> assessment as they showed better improvement in histopathological features of the liver of the infected mice compared with other formulations. The study introduced positively charged NLCs as promising carriers for oral delivery of PZQ.
Key Words	Nanostructured lipid carriers; adult worm; entrapment efficiency; granuloma; praziquantel; schistosomiasis.

Journal	Journal of Ethnopharmacology
Year	2021
Volume/Issue/Pages	273:113939
Indexing	Scopus
Quartile	Q2
Title	Nephroprotective activity of <i>Aframomum melegueta</i> seeds extract against diclofenac-induced acute kidney injury: A mechanistic study
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TBRI Departments	Pharmacology, Immunology& Pathology Departments
Abstract	Ethnopharmacological relevance: In Africa, <i>Aframomum</i> species have been traditionally used to treat illnesses such as inflammation, hypertension, diarrhea, stomachache and fever. Moreover, <i>Aframomum melegueta</i> seed extracts (AMSE) are used in traditional medicine to relieve stomachaches and inflammatory diseases. Aim: Chronic administration of diclofenac (DIC) has been reported to cause acute kidney injury (AKI), which is a serious health condition. The nephroprotective effect of AMSE is yet to be elucidated. Accordingly, this study aims to investigate the phytoconstituents of standardized AMSE, evaluate its nephroprotective effects against DIC-induced AKI in rats, and elaborate its underlying molecular mechanisms. Materials and methods: The quantitative estimation of major AMSE constituents and profiling of its secondary metabolites were conducted via RP-HPLC and LC-ESI/Triple TOF/MS, respectively. Next, DIC (50 mg/kg)-induced AKI was achieved in Sprague-Dawley rats and DIC-challenged rats were administered AMSE (100 and 200 mg/kg) orally. All treatments were administered for five consecutive days. Blood samples were collected and the sera were used for estimating creatinine, urea and, kidney injury molecule (KIM)-1 levels. Kidney specimens were histopathologically assessed and immunohistochemically examined for c-Myc expression. A portion of the kidney tissue was homogenized and examined for levels of oxidative stress markers (MDA and GSH). Heme oxygenase (HO)-1, TNF- α , IL-6, Bax, Bcl2 and caspase-3 renal levels were quantified by ELISA. Moreover, the protein expression levels of

	<p>NF-κB p65 was quantified using Western blot analysis, whereas mRNA expression levels of AMPK, SIRT-1, nuclear factor erythroid-2-related factor (Nrf2) and STAT3 were detected using qRT-PCR in the remaining kidney tissues. Results: Standardized AMSE was shown to primarily contain 6-gingerol, 6-shogaol and 6-paradol among the 73 compounds that were detected via LC-ESI/Triple TOF/MS including phenolic acids, hydroxyphenylalkanes, diarylheptanoids and fatty acids. Relative to DIC-intoxicated rats, AMSE modulated serum creatinine, urea, KIM- 1, renal MDA, TNF-α, IL-6, Bax, and caspase-3 levels. AMSE has also improved renal tissue architecture, enhanced GSH and HO-1 levels, and upregulated renal Nrf2, AMPK, and SIRT-1 mRNA expression levels. Furthermore, AMSE suppressed NF-κB p65 protein and STAT3 mRNA expression, and further reduced c-Myc immunohistochemical expression in renal tissues. Conclusion: Overall, our findings revealed that AMSE counteracted DIC-induced AKI via its antioxidant, anti-inflammatory, and antiapoptotic activities. Moreover, AMSE activated Nrf2/HO1 and AMPK/SIRT1, and inhibited NF-κB/STAT3 signaling pathways. Therefore, AMSE is a promising agent for inhibiting DIC-induced nephrotoxicity.</p>
Key Words	<p>AMPK pathway; Acute kidney injury; Aframomum melegueta seeds extract; Diclofenac; Nrf2 pathway; STAT3</p>

Journal	Drug Delivery and Translational Research
Year	2021
Volume/Issue/Pages	11:1943–1957
Indexing	Scopus
Quartile	Q2
Title	Promising bioadhesive ofloxacin-loaded polymeric nanoparticles for the treatment of ocular inflammation: formulation and in vivo evaluation
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TBRI Departments	Electron Microscopy Research Department
Abstract	Our work tackles the combined advantages of both nanotechnology and the bioadhesive gel properties which were utilized to design an ocular drug delivery system that is capable to treat ocular inflammation. Nanoparticles encapsulating an antibiotic drug, ofloxacin, were fabricated using emulsion solvent evaporation technique adopting 23 full factorial design to evaluate the effect of formulation parameters: that is to say, the molecular weight of the polymer (polycaprolactone), amount of Kolliphor P188, and presence of the charge inducer (chitosan hydrochloride) on the measured responses: drug entrapment efficiency (EE%), particle size (PS), polydispersity index (PDI) and zeta potential (ZP). The results show that the optimized LPCL-NP2 formulation (composed of low molecular weight polycaprolactone, 500 mg of Kolliphor P188, 0.25% chitosan hydrochloride, and 50 mg ofloxacin) displayed a sphere shape with EE%, PS, PDI, and ZP values of 89.73 ± 0.04%, 195.4 ± 13.17 nm, 0.323 ± 0.01, and 55.4 ± 0.66 mV, respectively. DSC study confirmed the amorphous nature of the drug. The optimized nanoparticle formulation was then further incorporated into the following two ocular formulations: gel (LPCL-NP2-G4) and in situ forming gel (LPCLNP2- ISG4). The penetration of optimized ocular formulations was assessed by confocal laser scanning microscopy. The antimicrobial study was conducted for the following three ocular formulations: LPCL-NP2 presented as eye drops, LPCL-NP2-G4, and LPCL-NP2-ISG4 as well as the market product using rabbits which were infected in their eyes with Escherichia coli. Results revealed that rabbits treated with LPCL-NP2-ISG4 demonstrated a remarkable antibacterial efficacy and evident low bacterial growth which was additionally

	assured by the histopathological examination of eye biopsies compared with the other investigated groups. Thus, a novel ofloxacin-loaded nanoparticle formulation based on polycaprolactone is presented in the form of mucoadhesive non-irritating in situ forming ocular gel possessing a superior antibacterial activity
Key Words	Polycaprolactone, Ocular drug delivery, Ofloxacin, Nanoparticles, Mucoadhesive, Confocal laser scanning microscopy

Journal	Current Pharmaceutical Biotechnology
Year	2021
Volume/Issue/Pages	22(9):1235-1245.
Indexing	Scopus
Quartile	Q2
Title	Recombinant Expression of Cec-B Peptide in <i>Escherichia coli</i> with a Significant Anticancer Effect on Hepatocellular Carcinoma
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TBRI Departments	Biochemistry and Molecular Biology Department
Abstract	<p>Background:Cecropin-B (Cec-B) is an antimicrobial peptide (AMP) found in insects. Objectives:Recombinant production of Cec-B peptide in <i>Escherichia coli</i> (Rosetta™ DE3), and studying its anticancer effect on hepatocellular carcinoma cell line (HCC). Methods:The Cec-B gene of <i>Drosophila melanogaster</i> was synthesized by PCR assembly using the simplified gene synthesis (SGS) method. To express the recombinant peptide in <i>E. coli</i> (Rosetta™ DE3); the synthesized gene was cloned into pET-15b expression vector. The recombinant peptide was expressed as insoluble aggregates called inclusion bodies (IBs) using 2mM lactose inducer. IBs were solubilized in a denatured form using 8 M urea followed by <i>in-vitro</i> protein refolding using rapid dilution method. The refolded Cec-B was purified using cation-exchange SP-FF column. Cytotoxicity of recombinant Cec-B (rCec-B) was reported on normal human lung cell line (WI-38), and hepatocellular carcinoma cell line (HepG2). Results:The Cec-B gene was expressed and purified at concentration 1.212±0.1 mg/ml which represents 48.49±4% of the total proteins injected to the column (2.5±0.2 mg/ml). The safe dose of purified rCec-B on normal WI-38 cells was calculated to be 1.57 mg/ml. The half-maximal inhibitory concentration (IC₅₀) of rCec-B on HepG2 cell line was calculated to be 25 µg/ml. Scanning electron microscope (SEM) showed that untreated and treated HepG2 cells had cell diameters from 11-12.92 µm and 14.18-21.58 µm, respectively.Conclusion:The results of this study revealed a successful expression of the rCec-B peptide using a pET-based expression system with a simple purification step. The purified peptide could be considered as a hopeful anticancer drug against HCC.</p>
Key Words	Cecropin-B, Recombinant expression, Peptide, <i>Escherichia coli</i> , Hepatocellular carcinoma, anticancer peptide

Journal	Applied Organometallic Chemistry
Year	2021
Volume/Issue/Pages	35(1): e6024
Indexing	Scopus
Quartile	Q2
Title	Synthesis, characterization, and evaluation of biological activities of new 4'-substituted ruthenium (II) terpyridine complexes: Prospective anti-inflammatory properties
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TBRI Departments	Biochemistry and Molecular Biology
Abstract	The synthesis and characterization of Ru (II) terpyridine complexes derived from 4' functionalized 2,2':6',2''-terpyridine (tpy) ligands are reported. The heteroleptic complexes comprise the synthesized ligands 4'-(2-thienyl)- 2,2':6',2''-terpyridine) or (4'-(3,4-dimethoxyphenyl)-2,2':6',2''-terpyridine and (dimethyl 5-(pyrimidin-5-yl)isophthalate). The new complexes [Ru(4'-(2-thienyl)-2,2':6',2''-terpyridine)(5-(pyrimidin-5-yl)-isophthalic acid)Cl ₂] (9), [Ru(4'-(3,4-dimethoxyphenyl)-2,2':6',2''-terpyridine)(5-(pyrimidin-5-yl)-isophthalic acid)Cl ₂] (10), and [Ru(4'-(2-thienyl)-2,2':6',2''-terpyridine)(5-(pyrimidin-5-yl)-isophthalic acid)(NCS) ₂] (11) were characterized by ¹ H- and ¹³ C-NMR spectroscopy, C, H, N, and S elemental analysis, UPLC-ESI-MS, TGA, FT-IR, and UV-Vis spectroscopy. The biological activities of the synthesized ligands and their Ru (II) complexes as anti-inflammatory, antimicrobial, and anticancer agents were evaluated. Furthermore, the toxicity of the synthesized compounds was studied and compared with the standard drugs, namely, diclofenac potassium and ibuprofen, using hemolysis assay. The results indicated that the ligands and the complex 9 possess superior anti-inflammatory activities inhibiting albumin denaturation (89.88–100%) compared with the standard drugs (51.5–88.37%) at a concentration of 500 µg g ⁻¹ . These activities were related to the presence of the chelating N-atoms in the ligands and the exchangeable chloro- groups in the complex. Moreover, the chloro- and thiophene groups in complex 9 produce a higher anticancer activity compared with its isothiocyanate derivative in the complex 11 and the

	3,4-dimethoxyphenyl moiety in complex 10 . Considering the toxicity results, the synthesized ligands are nontoxic or far less toxic compared with the standard drugs and the metal complexes. Therefore, these newly synthesized compounds are promising anti-inflammatory agents in addition to their moderate unique broad antimicrobial activity.
Key Words	anticancer, anti-inflammatory, antimicrobial activity, photophysical studies, ruthenium(II) terpyridine complexes

Q3 Journals

Journal	Recent Patents on Biotechnology
Year	2021
Volume/Issue/Pages	15(1): 67-75
Indexing	Scopus
Quartile	Q3
Title	A Novel Cell-based In vitro Assay for Antiviral Activity of Interferons α , β , and γ by qPCR of MxA Gene Expression
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Abstract	<p>Background: Human MxA gene is related to the class of interferon (IFN)-stimulated genes (ISGs) that plays a role in antiviral resistance. Objective: Implementation of standard curves obtained from designing a procedure for data processing in relative qPCR between MxA expression and interferon's antiviral activity (IU/ml). These standard curves can be used to detect the antiviral activity of any new compound rapidly and safely. Methods: To detect the optimum incubation time for maximum MxA gene expression in human peripheral blood mononuclear cells (PBMC), the isolated human PBMCs (1x10⁶ cells) were incubated with a concentration of 1000 IU/ml of each IFN at different time intervals; 2 h, 4 h, 6 h, and 24 h post-treatment. A standard curve was performed for each IFN (α, β, and γ) at different concentrations (250, 500, 750, 1000, 1500, and 2000 IU/ml). Results: As observed at 4 h incubation time of 1000 IU/ml concentration, IFN-γ provided a higher expression of MxA compared to IFN-α and IFN-β. Correlation analyses between IFN-α and IFN-β, IFN-β and IFN-γ were non-significant. However, there was a significant correlation between IFN-α and IFN-γ ($p < 0.01$). Receiver operator characteristic (ROC) analysis revealed that cut-off values of IFN- γ, IFN-β, and IFN-α were 58.14 > 7.31 and > 3.33, respectively. Conclusions: The relative expression of MxA is a biomarker for IFN-α, β, and γ, especially IFN-α. It has compiled and validated a standard curve-based protocol for PCR data processing. It shows that the standard curve is an easy alternative tool to assess antiviral activity. We revised all patents relating to the antiviral assays of the used interferons.</p>
Key Words	PBMCs, MxA, antiviral, interferon-alpha, interferon-beta, interferon-gamma, qRT-PCR

Journal	Recent Patents on Biotechnology
Year	2021
Volume/Issue/Pages	15(1): 25-33.
Indexing	Scopus
Quartile	Q3
Title	Bacteriophages as Therapeutic Agents: Alternatives to Antibiotics
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TBRI Departments	Biochemistry and Molecular Biology Department
Abstract	<p>Bacteriophages are bacterio-specific viruses that constitute the main portion of the environment. Bacteriophages inject their genome into the targeted bacterial cells and some of them can disrupt the metabolism of bacteria and cause bacterial cell disintegration. The application of bacteriophages to kill bacteria is known as bacteriophage therapy. Since bacteriophages target bacteria and are strain-specific, every bacteriophage/bacterial host pair is unique. They are believed to cause no harm to humans. An additional advantage of the strain-specific nature of bacteriophages is that they do not disrupt the beneficial natural flora in the body. Bacteriophage therapy in the West is not a recognized medicine at this time, and no products are registered. Some clinicians are turning to bacteriophage therapy for the treatment of antibiotic-resistant infections. Lack of adverse effects makes bacteriophage therapy ideal for use. Funding research, media attention, and the increased publication of articles helped in a widespread understanding of its therapeutic potential. The first prerequisite for the use of bacteriophage therapy is simply the availability of bacteriophages for treatment, which is often complicated at this stage of bacteriophage production. This includes providing access to all biologically active bacteriophages against the bacterial isolate of the patient and meeting regulatory criteria of purity, traceability, and characterization. A monophage preparation, which is a single bacteriophage, or a phage cocktail, which consists of a number of combined bacteriophages against one or more bacterial species may be used. Accordingly, the antibiotic resistance crisis brought back bacteriophage therapy as a potential complementary or alternative treatment. Bacteriophages are promising cheap antibacterials.</p>
Key Words	Bacterial infection; antibiotic resistance; antibiotic therapy; bacteriophage therapy; phage; staphylococcus.

Journal	Pharmacognosy Journal
Year	2021
Volume/Issue/Pages	13(2): 434-442
Indexing	Scopus
Quartile	Q3
Title	Bioactive secondary metabolite from endophytic <i>Aspergillus Tubenginses</i> ASH4 isolated from <i>Hyoscyamus muticus</i> :Antimicrobial, antibiofilm, antioxidant and anticancer activity
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TBRI Departments	Medicinal Chemistry Department
Abstract	Background: Endophytes are the richest sources of natural compounds, showing biological varieties and pharmacological activities. Objective: This study aims to isolate bioactive secondary metabolites from endophytic <i>Aspergillus tubenginses</i> with study the biological activity of the isolated bioactive compounds. Materials and Methods: Anofinic acid were obtained from <i>Aspergillus tubenginses</i> crude extract using chromatographic techniques and characterized by spectral analysis. Results: Nine endophytic fungi were isolated from <i>Hyoscyamus muticus</i> plant. The most efficient isolate was AF3 identified as <i>Aspergillustubenginses</i> ASH4 by 18S rRNA gene sequencing. Anofinic acid is an isolated active metabolite biosynthesized by <i>A. tubenginsis</i> was extracted from ethyl acetate with UPAC name of 2,2-dimethyl-2H-1-benzopyran-6-carboxylic acid. It shows a strong antimicrobial activity against human pathogenic bacteria such as <i>Pseudomonas aeruginosa</i> , <i>Staphylococcus aureus</i> , <i>Escherichia coli</i> , <i>Candida albicans</i> and <i>Bacillus subtilis</i> . Moreover, anofinic acid inhibits biofilm formation and has antioxidant activity, with strong activity against some carcinoma cells such as HCT-116, Hep-G2 and MCF-7. Conclusion: Anofinic acid was purified from the endophytic <i>Aspergillus tubenginses</i> crude extract and showed antimicrobial, antibiofilm, antioxidant, anticancer activities.
Key Words	<i>Hyoscyamus muticus</i> , Endophytes, <i>Aspergillus tubenginses</i> , Bioactive secondary metabolite.

Journal	Open Access Macedonian Journal of Medical Sciences
Year	2021
Volume/Issue/Pages	9(B):29-35.
Indexing	Scopus
Quartile	Q3
Title	Diagnostic and Prognostic Value of Plasma Gelsolin in Multiorgan Failure in Patients with Sepsis
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TBRI Departments	Critical Care Medicine&Clinical Chemistry Departments
Abstract	<p>AIM: The aim of this work is to investigate the clinical value of gelsolin plasma concentration in the diagnosis of sepsis and investigate the relationship between gelsolin plasma concentration and the severity of organ dysfunction assessed by the acute physiology and chronic health evaluation (APACHE II) and SOFA scores, and to study the mortality predictive power of gelsolin plasma concentration. METHODS: We analyzed data of patients admitted with sepsis (n = 46) for 5 days. Age- and sex-matched non-specific intensive care unit (ICU) patients (n = 18) served as controls. Septic patients were then divided according to severity of disease to patients with sepsis, severe sepsis, and septic shock. Besides plasma gelsolin (pGSN) classical laboratory parameters and clinical scores (APACHE II and SOFA) were also assessed. RESULTS: Septic patients showed significantly decreased 1st-day GSN levels (170.9 ± 74.3 mg/l) compared to non-septic critically ill patients (225.9 ± 84.5 mg/l, $p < 0.05$). Furthermore, patients with septic shock had lower gelsolin plasma concentration than with severe sepsis and with sepsis ($p < 0.05$); furthermore, non-survivors had significantly lower GSN levels compared to survivors ($p < 0.05$). Septic patients had higher APACHE II and SOFA scores. Lower GSN level was significantly correlated with the development of multiple organ dysfunction syndrome and fatal outcome, also, patients with lower GSN level had longer ICU stay, APACHE II, and SOFA scores. APACHE II score has shown best ability to predict mortality with AUC 0.913 followed by PCT with AUC 0.828. pGSN was the least in the ability to predict mortality with AUC only 0.378 despite significant difference between pGSN levels between survivals and non-survivals. CONCLUSIONS: pGSN might serve as efficient complementary marker in sepsis. However, the prognostic role of pGSN in mortality requires further investigation in larger studies.</p>
Key Words	Gelsolin, Sepsis, Septic shock, Acute physiology and Chronic health Evaluation II, Sequential Organ Failure Assessment (SOFA) score

Journal	Journal of Reports in Pharmaceutical Sciences
Year	2021
Volume/Issue/Pages	10(1): 130-136.
Indexing	Scopus
Quartile	Q3
Title	Evaluation of total phenolics, flavonoids, and antioxidant and cytotoxic potential of <i>Ailanthus altissima</i> (Mill.) swingle leaves
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TBRI Departments	Medicinal Chemistry & Biochemistry and Molecular Biology Departments
Abstract	<p>Context: People all over the world are suffering from cancer. Liver cancer is considered the second mostcommon malignancy among Egyptian men and the sixth most common malignancy among Egyptianwomen. Plant-derived antioxidants are believed to prevent or delay the occurrence of many chronic diseases such as cancer. <i>Ailanthus altissima</i> has been used in many traditional prescriptions. Aims: Thecurrent study aimed at investigating the phytochemical profile of <i>A. altissima</i> leaves' extract and its derivedfractions, determining their content of phenolics and flavonoids as well as assessing their antioxidant and cytotoxic potential. Materials and Methods: The phytochemical screening was carried out using standard methods. The total phenolic, flavonoid, and flavonol contents were determined using Folin-Ciocalteu,aluminum chloride, and aluminum chloride/ sodium acetate assays, respectively. The antioxidant activity was evaluated using different in vitro methods: DPPH•, total antioxidant capacity, hydroxyl (•OH), nitric oxide (NO•) radical scavenging activities, and permanganate-reducing antioxidant capacity (PRAC).The antiproliferative potential against HepG2 cells was evaluated using sulforhodamine-B assay (SRB).Results: The results showed that the ethyl acetate fraction had the highest content of phenolics, flavonoids, and flavonols (551.72 1.81 mg GAE/g ext., 371.24 4.36 mg RE/g ext., and 100.47 1.30 mg QE/gext., respectively). It also had the most potent reducing power (DPPH• SC50 = 7.19 0.05 µg/mL, TAC=369.88 1.51 mg AAE/g ext., •OH SA = 95.46 0.14%, NO• SA = 40.65 0.91%, and PRAC = 77.19 0.27%). The n-butanol fraction exhibited the most potent cytotoxic potential against HepG2 cells (IC50 = 16.70 µg/mL). Conclusion: <i>A. altissima</i> leaves could be considered potent antioxidant andcytotoxic alternatives.</p>
Key Words	<i>Ailanthus altissima</i> , antioxidant activity, cytotoxic activity, phytochemical screening, total flavonols, total phenolics

Journal	Egyptian Journal of Chemistry
Year	2021
Volume/Issue/Pages	64(8): 4727 - 4737
Indexing	Scopus
Quartile	Q3
Title	Fatty Acid and Amino Acid Composition of <i>Citrullus colocynthis</i> Seeds Growing in Algeria
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TBRI Departments	Medicinal Chemistry Department
Abstract	<i>Citrullus colocynthis</i> is an herbaceous perennial wild species of the Cucurbitaceae family, used in traditional medicine in the treatment of diabetes mellitus. In the present work, <i>C. colocynthis</i> seed oils have been assessed for their fatty acids profile and concentration by Gas Chromatography–Mass Spectrometry (GC-MS), while oil and protein extracts were investigated in respect to their amino acid compositions by using Ultra High-Performance Liquid Chromatography-Electrospray Ionization-Triple Quadrupole Mass Spectrometry (UHPLC-ESI-QqQ-MS/MS) instrumentation. Results revealed that the predominant fatty acids in <i>C. colocynthis</i> seeds were linoleic (70.7 %), oleic (10.9 %), palmitic (8.3 %), and stearic (7.8 %) acids. On other hand, the analysis of the free amino acids content noticed the presence of threonine (0.32 µgmL ⁻¹), valine (0.26 µgmL ⁻¹), and tryptophan (0.19 µgmL ⁻¹). Besides, the <i>C. colocynthis</i> seeds oil contained the non-essential amino acids like serine (0.29 µgmL ⁻¹), ethanolamine (0.18 µgmL ⁻¹), glycine (0.25 µgmL ⁻¹) and aspartic acid (0.12 µgmL ⁻¹). In conclusion, the results obtained revealed the valuable nutritional value of <i>C. colocynthis</i> and derived co-products, suggesting its suitability to be used as a nutritional ingredient and to be considered in the development of dietary supplements.
Key Words	<i>Citrullus colocynthis</i> , Cucurbitaceae; Amino acids; Fatty acids; GC-MS; UHPLC-ESI-QqQ-MS/MS

Journal	Egyptian Journal of Chemistry
Year	2021
Volume/Issue/Pages	64(4): 1831 - 1843
Indexing	Scopus
Quartile	Q3
Title	High-Performance Liquid Chromatography-Fingerprint Analyses, In vitro Cytotoxicity, Antimicrobial and Antioxidant Activities of the Extracts of <i>Ceiba speciosa</i> Growing in Egypt
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TBRI Departments	Medicinal Chemistry&Biochemistry and Molecular Biology Departments
Abstract	Background: Cancer diseases and microbial resistance are serious health diseases related to oxidative stress and infectious diseases. The risk can be reduced by using plants rich in polyphenols. Methodology: Different solvent extracts from leaves of <i>Ceiba speciosa</i> (C.s) were evaluated for their biological and chemical activities. Also, the chemical profiles were investigated via high-performance liquid-chromatography (HPLC) -fingerprint analyses. Results: the leaves from <i>Ceiba speciosa</i> collected from the Zoo garden in Egypt, showed a moderate cytotoxicity against HepG2 in extracts; petroleum ether, ethyl acetate, dichloromethane, while weak-cytotoxicity in butanol, methanol extracts and non-cytotoxicity in water extract. Moreover, high antimicrobial activities were showed within dichloromethane, petroleum ether extracts, while moderate antimicrobial activities were showed in methanol, ethyl acetate extracts, and low antimicrobial activities were showed in both of butanol and water extracts. On the other side, strong antioxidant activities were recorded within extracts; dichloromethane and methanol while the least antioxidant activity was recorded within water extract. High-performance liquid-chromatography (HPLC) -fingerprint analysis is done for all fractions, this finding provides an insight into the usage of the tested species as a source of naturally occurring cytotoxic, antimicrobial and antioxidant agents.
Key Words	Antimicrobial, antioxidant (DPPH), Bombacae, <i>Ceiba speciosa</i> , Cytotoxicity, High-performance liquid chromatography-fingerprint analyses

Journal	Minerva Gastroenterologica e Dietologia
Year	2021
Volume/Issue/Pages	67(2):175-182.
Indexing	Scopus
Quartile	Q3
Title	Impact of E-cadherin and its transcription regulators on assessing epithelial-mesenchymal transition in chronic hepatitis C virus infection
Authors	Marwa Hassan ¹ , Tarek Aboushousha ² , Eman El-Ahwany ³ , Heba K Khalil ² , Ahmed Y Montasser ² , Hoda Abu-Taleb ⁴ , Mohamed D El-Talkawy ⁵ , Mona Zoheiry ³
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TBRI Departments	Immunology, Pathology, Environmental Research & Hepato-Gastroenterology Departments
Abstract	Background: The mechanisms of chronic hepatitis C virus (HCV)-induced liver fibrosis and hepatocarcinogenesis are still poorly recognized. Therefore, this study aimed to determine the effect of chronic HCV infection on the expression of the major regulators of epithelial-mesenchymal transition (EMT) including E-cadherin, Snail, Slug, and Twist2, in the Egyptian population. This will help to design more efficient strategies to treat HCV-associated cirrhosis and carcinoma. Methods: Fifty-nine liver biopsies from patients, that were serologically proven to be HCV positive, were included in the current study. Histopathological examination was done. Grading of hepatitis activity (A) and staging of fibrosis (F) were assessed using the METAVIR Scoring System. Additionally, an immunohistochemical examination of E-cadherin, Snail, Slug, and Twist2 expression was performed. Results: E-cadherin showed a significant progressive decline of its expression with increased fibrosis staging and development of hepatocellular carcinoma (HCC). In contrast, Snail and Slug expression was positively associated with the stage of fibrosis and HCC. Meanwhile, Twist2 expression was not affected by the degree of hepatitis activity, the stage of fibrosis, or by the development of HCC. Conclusions: E-cadherin and its transcriptional regulators; Snail and Slug may serve as indicators for assessing the stage of fibrosis and the progression of HCC associated with HCV infection but not for assessing the degree of hepatitis activity. Therefore, the Snail family could be a promising target for designing effective preventive and therapeutic strategies for chronic HCV infection and its serious comorbidities.
Key Words	Cadherin; Epithelial-mesenchymal transition; Hepacivirus; SNAI1 protein, human; TWIST2 protein

Journal	Egyptian Journal of Chemistry
Year	2021
Volume/Issue/Pages	64 (7): 3573 - 3586
Indexing	Scopus
Quartile	Q3
Title	<i>In vitro</i> cytotoxicity, antimicrobial, antioxidant activities and HPLC finger print analyses of the extracts of <i>Ceiba insignis</i> leaves growing in Egypt
Authors	Abdel-Wanes Anter Abdel-Aziz ¹ , Mona A. Mohamed ¹ , Magda A. Abdallah ² , Rasha Shaaban ³ , Nadia S. Mohamed ¹ , Nehal M. Elwan ²
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TBRI Departments	Medicinal Chemistry & Biochemistry and Molecular Biology
Abstract	Polyphenols - rich plants can be used to reduce health disorder resulting from cancer and infectious diseases. Methodology: Different solvent extracts of <i>Ceiba insignis</i> leaves were evaluated for their <i>in vitro</i> cytotoxic, antimicrobial, and antioxidant activities, while their chemical profiles were investigated via high-performance liquid-chromatography (HPLC)–fingerprint analyses. Results: Showed that methanol, butanol, and dichloromethane extracts of <i>Ceiba insignis</i> leaves exhibited a moderate cytotoxicity against HepG2 with IC ₅₀ values of 98.54, 75.38, 40.71 µg/ml respectively, while petroleum ether and water exhibited weak activity with IC ₅₀ values of 118.15 and 170.03 µg/ml respectively and very weak activity was recorded with ethyl acetate extract with IC ₅₀ value of 924.05µg. Moreover, methanol, dichloromethane, petroleum ether, and ethyl acetate exhibited strong antimicrobial activities with inhibition zones (20-25 mm), (15-30 mm), (14-16 mm), and (16-28 mm) respectively, while butanol and water exhibited low to moderate activity with inhibition zones (0-18 mm), and (0-16 mm) respectively. On the other side, strong DPPH antioxidant scavenging activity was recorded within petroleum ether extract with IC ₅₀ (24.72 µg/ml), while the least antioxidant activity was recorded within ethyl acetate with IC ₅₀ (97.50 µg/ml). HPLC fingerprint analyses revealed the presence of major compounds; syringic acid in dichloromethane extract, gallic acid, chlorogenic acid & syringic acid in ethyl acetate extract, and naringenin & gallic acid in methanol, butanol and water extracts, this finding provides an insight into the usage of the tested species as a source of naturally occurring antioxidant, cytotoxic and antimicrobial agents.
Key Words	Antimicrobial, antioxidant (DPPH), <i>Ceiba insignis</i> , cytotoxicity, HPLC-finger print

Journal	Pakistan Journal of Pharmaceutical Sciences
Year	2021
Volume/Issue/Pages	34(3): 925-932
Indexing	Scopus
Quartile	Q3
Title	MicroRNA-26a systemic administration attenuates tumor formation in hepatocellular carcinoma mouse model
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TBRI Departments	Immunology&Pathology Departments
Abstract	MicroRNA (miRNA)-26a is one of the tumor suppressor genes that has been down regulated during the development of hepatocellular carcinoma (HCC). This work was conducted to evaluate the possible preventive effect of exogenous miRNA-26a administration on diethylnitrosamine (DEN)-mediated HCC. Balb/C mice were intraperitoneally injected with saline (Normal group), DEN (HCC group) or miRNA-26a (HCC+miRNA-26a group). On week 8, 12, 16 and 20, the concentrations of alpha-fetoprotein (AFP), des-gamma carboxyprothrombin (DCP), the levels of helper T cells-associated cytokines, and the vascular endothelial growth factor (VEGF), were measured. Flow cytometry determined the frequencies of regulatory T (Treg) cells. The concentrations of AFP, DCP and VEGF, as well as the frequency of Treg cells showed significantly lower values following miRNA-26a administration than in HCC group. miRNA-26a administration has reduced the levels of IL (interleukin)-2 and TNF (tumor necrosis factor)- α , in contrast, IL-10 level was markedly elevated in comparison to HCC model at all experimental time points. The restore of miRNA-26a function significantly ($P < 0.001$) down regulated the expression levels of survivin & caspase-3 compared to HCC group. The obtained data introduce an evidence for the suppressive impact of miRNA-26a on liver tumor formation and its possible manipulation as a therapeutic design for HCC.
Key Words	HCC, miRNA-26a, DEN, tumor markers, regulatory T cells, cytokines, survivin, caspase-3, VEGF.

Journal	International Journal of Environmental Studies
Year	2021
Volume/Issue/Pages	https://doi.org/10.1080/00207233.2021.1893487
Indexing	Scopus
Quartile	Q3
Title	Neurotoxicity and genotoxicity of the veterinary antibiotics oxytetracycline and trimethoprim- sulphadiazine to <i>Biomphalaria alexandrina</i> snails
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TBRI Departments	Environmental Research and Medical Malacology
Abstract	There is increased concern about aquatic contamination with veterinary antibiotics (VAs) residues. The present study tested the effects of two commonly used antimicrobials in animal husbandry, oxytetracycline (OTC) and trimethoprim-sulphadiazine (TMS), on survival rate, DNA integrity and some biochemical parameters in the nervous system and reproductive tissues of <i>Biomphalaria alexandrina</i> snails as bio-indicator organisms for VAs toxicity. The results showed that both antibiotics caused a decline in the survival of snails in a dose-dependent manner. Moreover, disturbances in the levels of lipid peroxidation (MDA), antioxidant enzymes, acetylcholinesterase (AChE), and neurotransmitters were recorded in exposed snails with an overall decrease in these parameters compared to controls. In addition, comet assay revealed DNA damage in snails' tissues following 96 h exposure. Thus, <i>B. alexandrina</i> snail can be used as a bio-indicator for assessing VAs toxicity and its potential impacts on the nervous system and reproduction of animals.
Key Words	<i>Biomphalaria alexandrina</i> ; bioindicator; veterinary antibiotics; neurotoxicity; genotoxicity

Journal	Egyptian Journal of Chemistry
Year	2021
Volume/Issue/Pages	64(7): 3729 – 3738
Indexing	Scopus
Quartile	Q3
Title	Phytochemical Investigation and Differential Effects of <i>Cestrum elegans</i> Isolated Compounds as Antimicrobial and Virucidal against Hepatitis A Virus
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TBRI Departments	Biochemistry and Molecular Biology & Medicinal Chemistry
Abstract	A new steroidal saponin, named as (25R)-6 α -[(β -D-glucopyranosyl oxy]-5 α -spirostan-3 β -yl β -D-glucopyranosyl (1" \rightarrow 3')-O- β -D-glucopyranosid (2) was isolated from the flowers of <i>Cestrum elegans</i> . In addition, a known steroidal saponin (1), a flavonoid compound (3) along with a triterpene saponin (4) were isolated for the first time in genus <i>Cestrum</i> and identified based on their chromatographic properties, chemical and spectral data (HR-ESI-MS, ¹ H, ¹³ C NMR, ¹ H- ¹ H COSY, HSQC, and HMBC). The four compounds are characterized by different effects against Gram positive, Gram negative bacteria, antifungal and antiviral activities. The maximum non-toxic concentration (MNTC) on vero cell line was 1.56 μ g/mL for all compounds. While compound 1 and 3 showed the highest biological activities against hepatitis A virus possess 34.3% and 25% antiviral activity respectively.
Key Words	Antiviral; Antimicrobial; <i>Cestrum elegans</i> ; Cytotoxicity; Steroidal saponin

Journal	Research Journal of Pharmacy and Technology
Year	2021
Volume/Issue/Pages	14(6): 3119-3127.
Indexing	Scopus
Quartile	Q3
Title	Phytochemical Screening, In-vitro Antioxidant and Cytotoxic potentials of <i>Brachychiton rupestris</i> Leaves
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TBRI Departments	Medicinal Chemistry & Biochemistry and Molecular Biology Departments
Abstract	Few studies had been conducted on the phytochemical profile and the biological activities of <i>Brachychiton rupestris</i> . The antioxidant activity of 85% methanolic extract of <i>B. rupestris</i> leaves and its derived fractions was assessed using five different <i>in-vitro</i> assays which are DPPH• assay, phosphomolybdenum assay (TAC), hydroxyl radical (•OH) scavenging assay, nitric oxide radical (NO•) scavenging assay and permanganate reducing antioxidant capacity (PRAC). The total phenolic, flavonoid and flavonol contents were also determined for the different plant samples using Folin-Ciocalteu, aluminum chloride and aluminum chloride/ sodium acetate methods, respectively. <i>In-vitro</i> cytotoxic activity of the crude extract and its fractions against HepG2 cell line was also evaluated via SRB assay. The ethyl acetate fraction obtained from the aqueous methanolic extract of the plant leaves possessed the most potent antioxidant potential according to the different applied assays (DPPH• SC50 = 25.50±0.76 µg/mL, TAC= 311.98±1.19 mg AAE/g ext., •OH SA= 68.42±0.15%, NO• SA= 33.68±1.98% & PRAC = 62.88±0.27%). It also owed the highest amount of phenolics (TPC= 342.10±2.08 mg GAE/ g ext.) whose majority were flavonoids (TFC= 309.82±3.64 mg QE/ g ext.). A strong positive correlation was found between the total phenolic contents of various plant samples and their antioxidant activity. The butanol derived fraction exhibited the most potent cytotoxic activity (IC50 = 8.60 µg/mL). To the best of our knowledge, it is the first study reporting the antioxidant and the cytotoxic activities of <i>B. rupestris</i> leaves. The study revealed that the <i>B. rupestris</i> leaves could be a good source of natural antioxidants which may be applied in food and pharmaceutical industries. They could also be a new opportunity of discovering anti-mutagenic agents.
Key Words	<i>Brachychiton rupestris</i> , Antioxidant Activity, Total Flavonols, Total Phenolics, Nitric Oxide Radical Scavenging Activity

Journal	Journal of Herbs, Spices and Medicinal Plants
Year	2021
Volume/Issue/Pages	27(3): 322-341
Indexing	Scopus
Quartile	Q3
Title	Rutin Ameliorates Hepatic Fibrosis via Targeting Hepatic Stellate Cells' Activation, Proliferation and Apoptosis
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TBRI Departments	Pharmacology&Pathology Departments
Abstract	Despite rutin, extracted from black mulberry, has several pharmacological activities, its exact effect against hepatic fibrosis remains incompletely identified. Accordingly, this study investigates whether rutin is a promising candidate for treating hepatic fibrosis and to clarify its underlying antifibrotic mechanisms <i>in vitro</i> and <i>in vivo</i> . <i>In vitro</i> studies were performed on hepatic stellate cell line (HSC-T6) whereas liver fibrosis was established in rats via chronic thioacetamide (TAA)-intoxication. Rats were divided into (i) normal, (ii) TAA-intoxicated rats; TAA-intoxicated rats treated with (iii) silymarin or (iv) rutin. Levels of ALT, AST, platelet-derived growth factor-BB (PDGF-BB), tissue inhibitor of metalloproteinases type-1 (TIMP-1), hydroxyproline and expression of proliferating cellular nuclear antigen (PCNA) together with histological changes were examined. Activities of rutin on TGF- β 1, α -smooth muscle actin (α -SMA) and caspase-3 were measured <i>in vitro</i> and <i>in vivo</i> . Rutin exhibited no marked HSC-T6 cell death (IC ₅₀ = 460 μ g.ml ⁻¹), however, it showed reduction in HSCs activation (low TGF- β 1 level and α -SMA positive cells) and induced apoptosis (high caspase-3 positive cells). Rutin also ameliorated liver functions, reduced hepatic levels of PDGF-BB, TGF- β 1, TIMP-1, hydroxyproline and restored PCNA, together with attenuation in fibrosis score (S1 vs S4). Rutin could be a promising candidate for treating hepatic fibrosis through down-regulation of HSCs activation and induction of apoptosis.
Key Words	Rutin, Fibrosis markers, Hepatic stellate-T6, <i>in vivo</i> , <i>in vitro</i>

Journal	Ultrastructural Pathology
Year	2021
Volume/Issue/Pages	10.1080/01913123.2021.1954734
Indexing	Scopus
Quartile	Q3
Title	Telocytes, c-Kit positive cells, Smooth muscles, and collagen in the ureter of pediatric patients with congenital primary obstructive megaureter: elucidation of etiopathology
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TBRI Departments	Urology and Electron Microscopy Research Departments
Abstract	Congenital primary obstructive megaureter (POM) is an uncommon pediatric anomaly that is due to obstructive distal ureter leading to the loss of peristalsis with consequent ureterohydronephrosis causing loss of kidney function. The objectives are to elucidate the etiology of POM by demonstrating the presence of interstitial cells of Cajal (ICC), telocytes, smooth muscles, and collagen in the obstructive and dilated ureteral segments. The study was carried out on 15 surgical specimens of congenital POM in pediatric patients, age range was 4 to 24 months, they were operated upon by excision of the obstructed segment, tailoring the dilated ureter, and anastomosing it to the bladder. Specimens included the obstructed ureteral segment and part of the dilated ureter. Specimens were examined with hematoxylin and eosin (H&E) stain, Modified Gomori trichrome stain, immunohistochemistry (IHC) with α -muscle actin, and c-kit (CD117), and transmission electron microscopy (TEM). Obstructed segment showed excess collagen intervening between smooth muscles, excess c-Kit positive cells, and presence of telocytes. The dilated segment of the ureteral wall is formed of smooth muscle bundles with scanty collagen. Staining with c-Kit did not demonstrate positive cells. TEM showed myofibroblasts and close adherence of smooth muscle cells to each other with absence of telocytes. The pathophysiology of POM is multifactorial. Loss of interstitial cells and rarity of collagen result in loss of elasticity of dilated segment leading to massive dilatation. While the obstructed segment had no muscle conductivity due to excess collagen irrespective of presence of telocytes
Key Words	Urinary tract; c-kit; collagen; electron microscopy; megaureter; smooth muscles

Journal	Experimental and Clinical Transplantation
Year	2021
Volume/Issue/Pages	DOI: 10.6002/ect.2020.0495
Indexing	Scopus
Quartile	Q3
Title	Therapeutic Role of Bone Marrow-Derived Mesenchymal Stem Cells in Controlling Prognosis of Hepatocellular Carcinoma in a Murine Model
Authors	Wafaa Mansour¹, Manal Kamel¹ , Emad Elzayat ² , Shimaa Atta¹ , Dalia Mahmood ² , Hanaa Abd El Fattah El Sayed ³ , Taghreed Hussein ⁴ , Sara Saber ³
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TBRI Departments	Immunology Department
Abstract	Objectives: Hepatocellular carcinoma (HCC) is the fourth leading cause of cancer death in the world. Conventional methods of cancer therapy are either invasive or have undesirable side effects. Therefore, exploring new therapeutic strategies to control the progression of HCC such as cell-based therapies is the key issue for prolonging patient survival. The present work aimed at evaluating the tumor suppressive effects of MSCs on the in vivo progression of HCC in murine model. Materials and Methods: HCC was induced in 40 rats with DEN. Rats were divided into 4 groups; one group was injected only with DEN one group was injected with DEN and one dose of rat BM-MSCs, one group was injected with DEN and two doses of rat BM-MSCs and one group was injected with DEN and three doses of rat BM-MSCs. Rats were sacrificed after 1 month of the 3rd dose. Liver specimens were histopathologically examined and serum levels of ALT, AST IL-2, IL-10, TNF- α , and IFN- γ were evaluated. Results: Histopathological examination revealed that MSC transplantation induced liver regeneration. It also improved liver function as revealed by decreased levels of ALT and AST. MSCs also repaired the immunopathology of the liver environment as it decreased levels of IL-2, IL-10, TNF α , and IFN γ . Conclusion: MSCs infusion significantly enhanced hepatic structure and function of livers of HCC rats.
Key Words	MSCs, HCC, IL-2, IL-10, TNF- α , IFN- γ .

Journal	Egyptian Journal of Chemistry
Year	2021
Volume/Issue/Pages	64(11): 5-6
Indexing	Scopus
Quartile	Q3
Title	Thioacetamide-Induced Acute liver Failure and Prospect of Nano Antioxidant Based Therapy
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TBRI Departments	Pathology Department
Abstract	Acute liver failure (ALF) is a clinical condition with an unclear history of pathophysiology, Punica granatum L peel and Pistacia atlantica leaves are differentiated by the presence of a wide range of flavonoids and phenolic as antioxidant compounds. The purpose of this study was to investigate the hepatoprotective effects of Punicagranatum L. peel and Pistacia atlantica leaves either in their normal and/or in their nano forms against thioacetamide induced acute liver failure in a rodent model. Male Wistar rats (n=60) were divided into six equal groups, the first group employed as a control; The second group administered a dose of 350 mg /Kg/ b.w of thioacetamide (TAA)-ip, from the third to the sixth group received TAA + [2mls / 100 g b.w/d] of aqueous extracts of Punica granatum L and Pistacia atlantica either in their normal and/or Nano forms consecutively for (14 days) .In the TAA challenged group, there was a substantial increase in liver enzymes, lipid profiles, LPO (p=0.05), and NO, as well as a substantial drop in GSH and SOD, which was followed by an increase in inflammatory cytokine (IL6, TNF-, and AFP), as well as a considerable increase in HSP70 level and DNA degradation. However, ip nano treatment of both extracts resulted in considerable and subsequent improvement of most of the compromised indicators. In conclusion: The current findings demonstrated the great performance of both plant nano extracts, as well as their hepatoprotective effects and possible therapeutic usefulness in the treatment of TAA-induced acute liver failure in experimental animals.
Key Words	ALF; thioacetamide; HPLC; nano herbal extracts; TNF- α ; IL6. HSP70

Journal	Clinical Epidemiology and Global Health
Year	2021
Volume/Issue/Pages	11: 100728
Indexing	Scopus
Quartile	Q3
Title	Validation of Circom comorbidity score in critically-ill cirrhotic patients
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TBRI Departments	Hepatogastroenterology, Environmental Research and Immunology Departments
Abstract	Background and aim of work: CirCom score has been designed specifically for cirrhotic patients as it is used to reassess which comorbidities associate with mortality of those patients. The current study was designed to assess the performance of CirCom comorbidity score in predicting the mortality of critically ill cirrhotic patients of hepatitis C virus (HCV) etiology. Methodology: 1085 consecutive patients admitted to the ICU in a two-year period were included. All were antiHCV Ab positive with liver cirrhosis and portal hypertension as evidenced by clinical examination, laboratory, ultrasonographic and endoscopic features. None of them received oral antiviral treatment. Results: Out of the 1085 Patients, 321 (29.5%) patients died and 764 (70.4%) survived. Co-morbidities were found in 572 (52.7%), CirCom score 0 in 47.28%, 1 + 0 in 4.33%, 1 + 1 in 7.19%, 3 + 0 in 6.45%, 3 + 1 in 9.4%, 5 + 0 in 12.16%, 5 + 1 in 13.18%. Adjusted ORs for increased risk of death were 2.07, 2.65, 4.62, 6.72, 8.43 and 12.87, respectively. Overall, the model correctly predicted 82.24% of patients. Conclusion: The CirCom score performance as a measure of the burden of comorbidity in critically ill cirrhotic patients is fairly good and 82.24% of patients were correctly predicted by the model. Actual and expected survivals were comparable. This emphasizes the importance of including a measure of comorbidity in comparative studies of cirrhosis survival.
Key Words	CirCom comorbidity score, Critically ill cirrhotic, ICU mortality, Risk score

Q4 Journals

Journal	Pakistan Journal of Medical and Health Sciences
Year	2021
Volume/Issue/Pages	15(4): 940
Indexing	Scopus
Quartile	Q4
Title	An Update of Hepatic Biomarkers in Hepatocellular Carcinoma among HCV Patients in Egypt
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Corresponding Author	Dr. Marwa S. Wahdan; Email: Marwa.wahdan@yahoo.com
TBRI Departments	Hematology & Hepato-gastroenterology Departments
Abstract	<p>Background: Hepatocellular Carcinoma (HCC) is a distinguished type of liver cancer with multifactorial risks. Epidermal growth factor (EGF), Interleukin 6 (IL-6), vascular endothelial growth factor (VEGF), CD163 and tumor necrosis factor (TNF-α) are believed to have roles in deregulation of the inflammatory response and cancer development.</p> <p>Aim: To study the serum levels of five essential cytokines and growth factors; EGF, IL-6, VEGF, CD163 and TNF-α in the HCV Egyptian patients and healthy controls as well as to validate the relationship between these inflammatory biomarkers and the presence of HCC in HCV patients. Subjects and methods: Methods: In this study we calculated the serum levels of TNF-α, EGF and IL-6 using ELISA technique as well as assessing the serum levels of VEGF, and CD163 using Human Luminex® screening assay premixed multiplex kit in a cohort of 165 subjects who were divided into 3 groups Results: Regarding ELISA technique, there was a significant difference regarding EGF and IL-6 between the control group and the two diseased groups ($p < 0.05$); in EGF, the mean serum level was highest in the HCC group (631.7 pg/ml) and lowest in the control group (185.7 pg/ml). IL-6 serum values revealed highest significant levels in the HCC group (20.7 pg/ml) and lowest in the control group (4.7 pg/ml) ($p < 0.05$). Additionally, ELISA technique's results revealed significant high levels of serum TNF-α in both HCV as well as HCC group compared to the control group with a ($p < 0.05$), with no significance between HCC and HCV groups respectively. Conclusion: TNF-α, EGF, IL-6, VEGF and CD 163 were increased in this cohort of Egyptian patients with chronic HCV infection compared to controls but failed to establish reliable diagnostic performance for the development of HCC as sole markers in those patients. However, based on the presented results most of these molecules are probably involved in the pathogenesis of host inflammatory response to HCV infection.</p>

Key Words

IL-6, CD163, EGF, VEGF, TNF- α , Luminex assay, ELISA, hepatitis C virus

Journal	Journal of Physics: Conference Series
Year	2021
Volume/Issue/Pages	1879: 022062.
Indexing	Scopus
Quartile	Q4
Title	Biochemical aspect, antimicrobial and antioxidant activities of <i>Melaleuca</i> and <i>Syzygium</i> species (Myrtaceae) grown in Egypt
Authors	Omar M. Khalaf ¹ , Mohamed S. Abdel-Aziz ² , Ali M. El-Hagrassi ³ , Abeer F. Osman ¹ and Mosad A. Ghareeb³
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TBRI Departments	Medicinal Chemistry Department
Abstract	The objective of the present work was to establish the antimicrobial activity of four species of <i>Melaleuca</i> (i.e. <i>Melaleuca leucandron</i> , <i>Melaleuca armillaris</i> , <i>Melaleuca linarifolia</i> , & <i>Melaleuca ericifolia</i>) methanolic extracts and five species of <i>Syzygium</i> (i.e., <i>Syzygium samaragense</i> , <i>Syzygium jambos</i> , <i>Syzygium gratum</i> , <i>Syzygium paniculatum</i> & <i>Syzygium malaccense</i>). To research the chemical composition of the most promising extracts, as well. The antimicrobial activity was evaluated against four pathogenic microbial strains, namely <i>Staphylococcus aureus</i> , <i>Escherichia coli</i> , <i>Candida albicans</i> and <i>Aspergillus niger</i> , the antioxidant activity was evaluated by 2,2'-diphenyl-1-picrylhydrazyl radical (DPPH), while the chemical composition was calculated by gas chromatography coupled to a mass spectrometry method (GC/MS). For the genus of <i>Melaleuca</i> , after therapy, <i>S. aureus</i> pathogens were inhibited with their methanolic extracts with an 8.0-20.0 mm range of inhibition zones, <i>E. Coli</i> with a 0.0-21.0 mm inhibition zone size, <i>C. albicans</i> with an inhibition zone size of 9.0-18.0 mm, and <i>A. niger</i> with an inhibition zone scale of 0.0-15.0 mm. Whereas, for the genus <i>Syzygium</i> , after treatment with their methanolic extracts, <i>S. aureus</i> pathogens were inhibited with a 10.0-20.0 mm range of inhibition zones, <i>E. Coli</i> , with an inhibition zone size of 0.0-14.0 mm, <i>C. albicans</i> with an inhibition zone size of 0.0-21.0 mm, and <i>A. niger</i> with a range of inhibition zones of 0.0-9.0 mm. The IC ₅₀ values in the DPPH assay ranged from 34.60 to 60.97 µg/ml for the species <i>Melaleuca</i> . The IC ₅₀ values for the <i>Syzygium</i> species ranged from 29.81 to 52.95 µg/ml compared to 7.35 µg/ml for the normal ascorbic acid. GC/MS research showed that <i>Syzygium gratum</i> 's methanolic extract consists of 39 compounds comprising 99.08 percent, with Veridiflorol (7.16 percent) and 2-methyl, 3- Hexanone being the

	main compounds (5.74 percent). While <i>Melaleuca armillaris</i> ' methanolic extract consists of 30 compounds comprising 97.66%, with Veridiflorol (18.36%) and Globulolol compounds being the key compounds (12.57 percent).
Key Words	Myrtaceae; Melaleuca sp.; Syzygium sp.; Antimicrobial, DPPH, GC/MS.

Journal	Annals of the Romanian Society for Cell Biology
Year	2021
Volume/Issue/Pages	25(4): 6329 – 6335.
Indexing	Scopus
Quartile	Q4
Title	Comparative Study on the Pro-Inflammatory Activity of Turmeric (<i>Curcuma longa</i>) and flax seed (<i>Linum usitatissimum</i>)
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TBRI Departments	Immunology Department
Abstract	Background: A wide spectrum of therapeutic effects of curcumin and flaxseed has been shown by extensive scientific research as an anti-inflammatory. IL6 cytokines are produced in large quantities during inflammation and serve as mediators in chronic inflammatory conditions. Moreover, IL-10 is classified as strong immunosuppression and antiinflammatory cytokine. Objective: The purpose of our study to assess and compare the anti-inflammatory capacity of turmeric and flaxseed either alone or in combination in a healthy animal model. Method: We evaluate the serum level of IL-6 and IL-10 in healthy male swiss albino mice (n=72) after low dose oral intake of curcumin and flaxseed for six weeks by enzyme-linked immunosorbent assay. Results: Our results demonstrate that dietary turmeric as well as flaxseed had a non-significance decrease in serum IL-6 level and could induce the expression and production of IL-10 level significantly. Moreover, turmeric and flaxseed coadministration appear to be more positive health impacts to boost inhibition of IL 6 and improve IL 10 induction. Conclusion: Turmeric and flaxseed may modulate the level of IL-10. Moreover, their combination having a greater anti-inflammatory potential efficiency than each one separately
Key Words	Turmeric, Flaxseed, anti-inflammatory, IL-6, IL-10, cytokines.

Journal	Annals of the Romanian Society for Cell Biology
Year	2021
Volume/Issue/Pages	25(3): 98 – 108
Indexing	Scopus
Quartile	Q4
Title	Diagnostic significance of Serum Clustrin and Heat Shock Protein 70 in Hepatocellular Carcinoma Egyptian Patients
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TBRI Departments	Hematology, Hepato-gastroenterology & Radiology Departments
Abstract	<p>Background: The most popular primary liver cancer and the second common reason of cancer-related mortality globally is hepatocellular carcinoma (HCC). In Egypt it is considered the second cause of cancer related mortality among men. Early detection of HCC increases the success of curative treatments. Both US and AFP combined usage improves detection rates, yet expenses and false-positive rates also increase. Increased secreted Clustrin (CLU) expression is correlated with radioresistance, chemoresistance and resistance to hormones, rendering CLU a promising antitumor therapeutic goal. A highly conserved stress response protein is heat shock protein 70 (HSP70). It protects the cell and promotes a range of stimuli to induce repair. Aim: The objective of this research was to investigate the diagnostic value of CLU and HSP70 in HCC patients in order to improve the outcome of HCC patients through early diagnosis. Methods: A total of 120 individuals have been enrolled in this research. They were classified into 3 groups: Group 1 involved 10 healthy individuals who served as a control group. Group 2 included 20 patients diagnosed with liver cirrhosis. Group 3 HCC group was divided into two subgroups: Group (3 A): 60 patients with proved HCC before treatment. Group (3 B): 30 patients with HCC were treated using interventional radiology and followed up for 3 months post treatment. Serum levels of AFP, Clustrin and Heat shock protein 70 were assayed using ELISA technique. Results: The comparison between healthy control group and HCC patients without any intervention revealed that serum CLU cutoff was 132.2 ng/ml with sensitivity of 96%, specificity of 97 % and accuracy of 95 %, furthermore, serum HSP 70 cut off was 38.0 ng/ml with sensitivity of 94%, specificity of 95 % and accuracy of 98 %. While AFP cut off became 114.4 ng/ml with sensitivity of 90 %, specificity of 92 % and accuracy of 91 %. These</p>

	results indicate that serum CLU level and serum HSP 70 level are better diagnostic markers for HCC detection than serum AFP level. Conclusion: CLU and HSP70 are promising and potentially complementary candidate biomarkers for effective detection of early stageHCC.
Key Words	Clustrin, Heat shock protein 70 and HCC.

Journal	Journal of Parasitic Diseases
Year	2021
Volume/Issue/Pages	45(2):380–393
Indexing	Scopus
Quartile	Q4
Title	Evaluation of possible prophylactic and therapeutic effect of mefloquine on experimental cryptosporidiosis in immunocompromised mice
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Abstract	Cryptosporidiosis is an imperative global health concern. Unfortunately, Nitazoxanide (NTZ) (the nowadays drug of choice) is not effective in treatment of immunocompromised patients. We aimed to assess the possible anti-cryptosporidial prophylactic and therapeutic effects of Mefloquine (MQ) on infected immunosuppressed murine models. Mice were divided into five groups; GI: received Mefloquine (400 mg/kg/day), GII: received NTZ (100 mg/kg/bid), GIII: received a combination, half dose regimen of both drugs, GIV: infected untreated and GV: non-infected untreated. Each treated group was divided into three subgroups; Ga prophylaxis (PX), thereafter infection, Gb first and Gc second treatment doses. Assessment was done by parasitological, histopathological and serological techniques. A significant oocyst clearance was detected in all prophylactically treated groups. GIa showed 77% reduction of the mean oocyst count in stool while GIb and GIIIc showed 100% oocyst clearance. Histopathologically, the ileocecal sections from GIV showed loss of brush borders with marked villous atrophy. GIa induced a moderate improvement of those pathological changes. Moreover, the villi in GIb and GIIIc retained their normal appearance with minimal inflammatory cells. Serum interferon gamma levels showed highly significant increases in GI&GIII compared to GIV while a nonsignificant increase was observed in GIIa only. On the contrary, serum interleukin-17 levels showed a highly significant down-regulation in all treated groups in comparison to GIV. This study proved a marvelous effect of MQ-PX on cryptosporidiosis in immunosuppressed mice and thus it could be introduced as one of the most promising re-purposed prophylactic and therapeutic anticryptosporidial agents
Key Words	Cryptosporidium, Mefloquine, Nitazoxanide, Interferon gamma, Interleukin-17, Prophylaxis

Journal	Egyptian liver journal
Year	2021
Volume/Issue/Pages	11:61
Indexing	Scopus
Quartile	Q4
Title	Hepatic steatosis: a risk factor for increased COVID-19 prevalence and severity—a computed tomography study
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TBRI Departments	Radiology
Abstract	<p>Background: Around 25% of the world population was affected by the metabolic-related fatty liver disorder. Hepatic steatosis is frequently observed in conjunction with hypertension, obesity comorbidities, and diabetes. We evaluate the hepatic steatosis frequency found in chest CT exams of COVID-19-positive cases compared to non-infected controls and evaluate the related increased prevalence and severity of COVID.</p> <p>Results: Our research includes 355 subjects, 158 with positive PCR for COVID-19 (case group) and 197 with negative PCR and negative CT chest (control group). The mean age in the positive group was 50.6 ± 16 years, and in the control, it was 41.3 ± 16 years ($p < 0.001$). Our study consists of 321 men (90.5%) and 34 women (9.5%). The number of males in both cases and control groups was greater. In the case group, 93% men vs. 6.9% women, while in controls, 88.3% men vs. 11.6% women, $p < 0.001$. CT revealed normal results in 55.5% of individuals (i.e., CORADs 1) and abnormal findings in 45.5% of participants (i.e., CORADs 2–5). In abnormal scan, CO-RADs 2 was 13.92%, while CO-RADs 3–4 were 20.89% of cases. CO-RADs 5 comprised 65.19% of all cases. Approximately 42.6% of cases had severe disease (CT score ≥ 20), all of them were CO-RADs 5. The PCR-positive class had a greater prevalence of hepatic steatosis than controls (28.5% vs. 12.2%, $p < 0.001$). CO-RADs 2 represented 11.1%, CO-RADs 3–4 represented 15.6%, and CO-RADs 5 represented 73.3% in the hepatic steatosis cases. The mean hepatic attenuation value in the case group was 46.79 ± 12.68 and in the control group 53.34 ± 10.28 ($p < 0.001$). When comparing patients with a higher severity score (CT score ≥ 20) to those with non-severe pneumonia, it was discovered that hepatic steatosis is more prevalent (73.2% vs. 26.8%).</p> <p>Conclusions: Steatosis was shown to be substantially more prevalent in COVID-19-positive individuals. There is a relation among metabolic syndrome, steatosis of the liver, and obesity, as well as the COVID-19 severity</p>
Key Words	Fatty liver, Computed tomography, COVID-19

Journal	Egyptian Journal of Aquatic Biology and Fisheries
Year	2021
Volume/Issue/Pages	25(3): 85 – 99
Indexing	Scopus
Quartile	Q4
Title	Impact of carbamide perhydrate on the snail <i>Bulinus truncatus</i> , the intermediate host of <i>Schistosoma haematobium</i>
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TBRI Departments	Medical Malacology Department
Abstract	Control of the snail <i>Bulinus truncatus</i> is an essential component in elimination of the parasite <i>Schistosoma haematobium</i> in Egypt. Carbamide perhydrate, as a disinfectant and bleaching agent in cosmetics and pharmaceuticals, was bio-assayed against <i>B. truncatus</i> snails. It was toxic to these snails with LC90 of 138.54 ppm after 24-h of exposure. It caused significant detrimental effects on the total protein content, the activities of AST, ALT and ALP enzymes and the levels of steroid sex hormones in the tissues of treated snails, which in turn reflected negatively on their fecundity (Mx) and reproductive rate (R0). The reduction rate of R0 for snails treated with LC25 was 76.66%. Moreover, this compound exerted obvious histological changes in the digestive and hermaphrodite glands of treated snails, where secretory and digestive cells in the digestive gland were swelled and ruptured in addition to degeneration of connective tissues, ova and sperms in acini of the hermaphrodite gland. So, carbamide perhydrate exerted harmful effects to <i>B. truncatus</i> snails, as it negatively affected their biological and physiological activities as well their productivity, hence minimize or diminish the snail population available for the transmission of <i>S. haematobium</i> . Therefore, this compound could be suggested as an effective and safe component in schistosomiasis control program.
Key Words	<i>Bulinus truncatus</i> , molluscicidal, carbamid perhydrate, biochemical parameters

Journal	Egyptian Journal of Aquatic Biology and Fisheries
Year	2021
Volume/Issue/Pages	25(1): 525 – 540
Indexing	Scopus
Quartile	Q4
Title	Impact of the photosensitizers copper and magnesium chlorophyllin on biological and biochemical parameters of <i>Bulinus truncatus</i> snail
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Abstract	<i>Bulinus truncatus</i> snail is the intermediate host of <i>Schistosoma haematobium</i> , which causes serious damage to the urinary system of infected patients. To control it in its rapid interruption and/or elimination of the disease transmission would be efficient. Copper chlorophyllin (Cu-chl) and magnesium chlorophyllin (Mg-chl); two photosensitizers used in several biological applications, were bio-assayed against <i>B. truncatus</i> snails. Mg-chl proved to be more toxic to the snails than Cu-chl; their LC ₉₀ values were 516.7 and 668.9 ppm, respectively. The sub lethal concentrations of each photosensitizer significantly suppressed the fecundity (Mx) and reproductive rate (R ₀) of treated snails, which could be partially attributed to the recorded disturbances in their biochemical parameters. The reduction rates of R ₀ for snails treated with LC ₂₅ Mg-chl and Cu-chl were 83.5% and 50.8%, respectively. Moreover, these photosensitizers exerted marked histological changes in the hermaphrodite gland of treated snails where spermatogonia and oogonia in the gland acini were degenerated, while the connective tissue was disintegrated. Both Mg-chl and Cu-chl exhibited toxic effect on <i>B. truncatus</i> snail and interfered with the biological parameters of it that could negatively interrupt the transmission of <i>S. haematobium</i> . Therefore, both chemicals could be considered in the control program of this parasite being cheap and environmentally safe.
Key Words	<i>Bulinus truncatus</i> , copper chlorophyllin, magnesium chlorophyllin photosensitizers, biochemical parameters

Journal	Bulletin of Pharmaceutical Sciences
Year	2021
Volume/Issue/Pages	44(1): 265-274.
Indexing	Scopus
Quartile	Q4
Title	Insights into the Impact of FXR Activation on Hepatic Autophagy in a Non-alcoholic Steatohepatitis M
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TBRI Departments	Pathology Department
Abstract	Multiple lines of evidence pointed to the role of dysbiosis, small intestinal bacterial overgrowth and altered intestinal permeability in promoting pro-inflammatory events in the liver leading to the progression of steatosis to non-alcoholic steatohepatitis (NASH). The pivotal involvement of farnesoid-X-receptor (FXR) in maintaining intestinal homeostasis and combating hepatic inflammation was previously established. Nonetheless, the role of hepatic autophagy in NASH pathogenesis and treatment remains controversial. The present study aimed at investigating whether the effect of the FXR agonist, obeticholic acid, on ameliorating NASH related incidents is related to an impact on hepatic autophagy. Methods: Swiss albino mice were fed an atherogenic high fat diet (Ath-HFD) with dextran sulfate sodium (DSS) in drinking water to induce NASH. Obeticholic acid (5 mg/kg/day, p.o.) was given for 28 days, starting at day 64 post NASH initiation. Histopathological examination of liver and colon samples was performed. Inflammatory markers, IL-1 β , IL-6, IFN- γ and TNF- γ , besides adiponectin, were assessed in the liver. Autophagy genes, ULK1, BECN-1 and ATG5, were assessed by RT-PCR in hepatic tissues. Results: Histopathological changes observed in the liver and colon of the positive control group (Ath-HFD/DSS) was significantly ameliorated after treatment. No noticeable changes were reported in adiponectin and inflammatory markers following treatment except for a partial enhancement in IFN- γ . Though ULK1 and BECN-1 gene expression tended to increase after treatment with obeticholic acid compared to Ath-HFD/DSS group, ATG5 mRNA was almost restored. Conclusion: Obeticholic acid ameliorated NASH partially through autophagy and IFN- γ enhancements in the liver.
Key Words	FXR Activation- Hepatic Autophagy - Non-alcoholic Steatohepatitis Mode

Journal	Egyptian Journal of Aquatic Biology and Fisheries
Year	2021
Volume/Issue/Pages	25(3): 23 – 38.
Indexing	Scopus
Quartile	Q4
Title	Marine, freshwater, and terrestrial snails as models in the biomedical applications
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TBRI Departments	Environmental Research and Medical Malacology&Medicinal Chemistry Departments
Abstract	A snail is a member of the molluscan gastropods that has a cosmopolitan distribution, inhabiting marine, freshwater and terrestrial habitats. The present review highlights the importance of the snails as they have medical and veterinary applications, besides being considered as excellent indicators of ecosystem health like Biomphalaria sp., and Lymnaea stagnalis freshwater snails. Also, snails have been proved to be excellent models in neurophysiology, especially on learning and memory formation like Aplysia californica marine snail and Lymnaea stagnalis freshwater snails. Marine snails produce antimicrobial secondary metabolites that exhibit anticancer, antibiotic, antiviral, neurotoxic, or anti-inflammatory properties. These materials can be obtained from the extracts of Babylonia spirata, Buccinum corneum, Buccinum undatum, Littorina littorea “called littorerin”, Haliotis laevigata or H. rubra, Murex pecten, Tegula gallina, conotoxins released from Conus magus, and hemocyanins of Rapana venosa snails. Freshwater snails have many bioactive compounds that have antimicrobial activity. These materials like, the extracted proteins from Bellamya dissimilis, Bithynia pulchella, Melanoides tuberculata, and Pila sp, mucus extracted from Pomacea canaliculata and Faunus ater; or the hemolymph of Pomacea insularium snail. Terrestrial snails can be used in the traditional medicine as they have pharmacologically active compounds, like mucus from Helixsp., Achatina achatina, Achatina fulica, and Eremia desertorum snails, or proteins extracted from Cryptozonia bistrialis snails. Conclusively, snails have a lot of biomedical, nutritional and economic importance.
Key Words	Snails, Molluscan gastropods, Marine snails, Freshwater snails, Terrestrial snails, Secondary metabolites

Journal	Tropical Journal of Natural Product Research
Year	2021
Volume/Issue/Pages	5(2): 272-280
Indexing	Scopus
Quartile	Q4
Title	Phenolics isolation and chemical profiling of <i>Livistona australis</i> (R.br.) mart. fruit extracts; potent inhibitors of α -amylase and pancreatic lipase
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TBRI Departments	Medicinal Chemistry Department
Abstract	Great medicinal value and uses were reported for Palm family species. <i>Livistona australis</i> (R.Br.) Mart. is widely distributed as an ornamental plant in Egypt. The aqueous methanol extract of both pulps and seeds were subjected to chromatographic and spectral analysis as well as LC-ESI-MS technique for isolation and characterization of diagnostic constituents. Thirty-eight compounds were validated for the first time from the fruit parts (pulp and/or seeds) in which 14 compounds were purified and isolated from the pulps and 6 from the seeds. The isolated compounds were mainly phenolics (2 anthocyanins, 1 chlorogenic acid, 2 flavones and 9 flavonols isomers). In addition, some phenolic compounds were recognized putatively beside other minor compounds in both extracts. The phenolic rich extracts of fruit parts were in vitro evaluated for their inhibitory activities on α amylase and pancreatic lipase enzymes. The aqueous methanol extracts of pulps and seeds markedly inhibited α amylase enzyme with IC_{50} values of 153.42 ± 6.4 and 134.5 ± 6.1 μ g/mL, respectively, higher than that of Acarbose (230 ± 3.7 μ g/mL). Also, both extracts exhibited significant pancreatic lipase hindrance with IC_{50} 23.03 ± 5.8 and 23.5 ± 4.9 μ g/mL, respectively, at 300 μ g/mL. The effects were greater than that of Orlistat (IC_{50} 24.02 ± 2.1) at 100 μ g/mL. Digestive enzymes inhibition activity play a major role in prevention and management of diabetes and obesity, these effects of fruit parts could be attributed to the presence of wide range of phenolic metabolites.
Key Words	<i>Livistona australis</i> , Fruit, LC-ESI-MS, Phenolics, Obesity, Diabetes

Scopus (No quartile)

Journal	International Journal of Pharmaceutical Research
Year	2021
Volume/Issue/Pages	13 (2): 2394-2404
Indexing	Scopus
Quartile	Not yet assigned
Title	CD4+CD28 Null T Cells as a Marker of Progression in Chronic Renal Disease Including Hemodialysis Patients and Its correlation with Systemic Inflammation and Atherosclerosis
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TBRI Departments	Internal Medicine department
Abstract	<p>Background: one of the major risk factors to cardiovascular disease (CVD) is a Chronic kidney disease CKD which considered a burden of global health and need high economic cost from health systems. Chronic inflammation and endothelial dysfunction were a principle factors in the development of atherosclerosis, which are observed in CKD and hemodialysis (HD) patients. CD4+CD28 null T cells, a subtype of helper T cells, seem to be important in mediating some of the serious effects. CD4+CD28– T cells can be recognized as typical Th1 cells which produce significant amounts of IFN-γ and the cytotoxic components, perforin and granzyme that are responsible for endothelial damage and play a role in the pathogenesis of many inflammatory diseases. Aim: To evaluate the peripheral circulatory level of CD4+ CD28 null T cells in different grads of CKD including maintenance hemodialysis and its correlation to systemic inflammation and atherosclerosis in CKD patients. Subjects and Methods: Case control study were applied on 90 persons in Theodor Bilharz nephrology unit and outpatient clinic, divided into three groups. group I: 30 fully healthy control subjects, group II: included 30 CKD patients on maintenance HD more than six months and group III: included 30 CKD patients (grade III A&B and grade IV) undergo conservative treatment. All subjects included in our study were evaluated by CBC, LFT, KFT, blood electrolytes, CRP, carotid intimal-medial thickness (CMT) and CD4+CD28 null T cells were measured in the blood sample. Results: CD4+CD28null T cells mean value in the HD group (9.47 ± 0.75) ($P=0.00$) was significantly higher than that of CKD group (4.67 ± 3.06) which was higher but not significant than the control one (3.04 ± 0.79) ($p=0.4$). Within the CKD group, level of this cells was high in CKD grade IV (4.81 ± 0.88) more than grade IIIB (4.70 ± 1.46) which were a higher level than grade IIIA (4.49 ± 0.79). There is a high positive significant correlation between CD4++ CD28null T Cells and carotid intimal medial thickness (CMT) ($r=0.618$) ($p<0.0001$) & CRP in the studied groups ($r=0.625$) and ($p < 0.0001$) and negative correlation with eGFR ($r=-0.837$) ($p < 0.0001$). Conclusions:</p>

	Peripheral circulatory increase in CD4 + CD28 null T cells in CKD patients and this expansion elevated as CKD grades progress, this expansion was positively correlated to systemic inflammation and atherosclerosis; supporting a role of inflammation and immunity in initiation and progression of atherosclerosis. So CD4++ CD28null T cells may use as a marker of progression of chronic renal disease as same as atherosclerotic cardiovascular disease. So, we must have searched blood level of CD4+CD28- and treated early to avoid its hazards.
Key Words	CD4+ CD 28 null T cell, Chronic Kidney Diseases (CKD), Atherosclerosis, Inflammation, Cardiovascular disease, CIMT.

Journal	European Journal of Molecular and Clinical Medicine
Year	2021
Volume/Issue/Pages	7(11): 6071- 6082.
Indexing	Scopus
Quartile	Not yet assigned quartile
Title	Differential Recruitment of Monocytes Subsets in Chronic Hepatitis C Patients
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TBRI Departments	Hematology&Hepato-Gastroenterology Departments
Abstract	Background: Collagen producing myofibroblast activation of is critical for pathogenesis of liver fibrosis. Aim of the work: To study the expansion of peripheral monocyte subsets in HCV patients. Subjects and Methods: Sixty HCV patients were classified according to METAVIR score into 4 stages of liver fibrosis, 15 age and sex-matched controls were included. Flowcytometric analysis of peripheral blood monocytes subsets and CCR2+ve cells was carried out using monoclonal anti-CD45, anti-CD14, anti-CD16, anti-collagen type I and anti-CCR2antibodies. MCP-1 and SAP levels were assessed using ELISA. Results and Conclusions: A down regulation ($p < 0.01$) in the classical monocytes subset and an up regulation ($p < 0.01$) in both the non-classical monocytes and monocytes producing collagen subsets were notice in HCV patients compared to controls. A marked increase ($p < 0.01$) in the levels of MCP-1 and monocytes expressing CCR2 with a significant decrease ($p < 0.01$) in SAP levels, which paralleled the progression of liver fibrosis, were also noticed. MCP-1 and CCR2 may trigger monocytes recruitment to the injured liver promoting the development of collagen type I producing monocytes. The shift of classical monocyte subset towards the non-classical and collagen producing subsets may be present a predictive non-invasive biomarker for progress of liver fibrosis.
Key Words	HCV, liver fibrosis, monocytes, CCR2, MCP-1, SAP

Journal	European Journal of Molecular & Clinical Medicine
Year	2021
Volume/Issue/Pages	7(11): 4121-4133.
Indexing	Scopus
Quartile	Not yes assigned
Title	Differentiation of Human Peripheral Blood Mononuclear Cells and Cd14+ Monocytes into Hepatocyte-Like Cells Obtained from Liver Cirrhosis Patients
Authors	Nariman M. Zahran ¹ , Omar M. Sabry ¹ , Manal Y. Zahran ¹ , Bothaina Madkour ¹ , Olfat Hammam ² , Hisham El Khayat ³ , Shereif A. Morsy ⁴ , Mona Mohareb ⁵ and Rabab Fouad ¹
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TBRI Departments	Hematology, Pathology, Tropical Medicine&Biochemistry and Molecular Biology Departments
Abstract	The current study has benefit of the potentiality of peripheral blood monocytes (MONs) and adherent peripheral blood mononuclear cells (MNCs) to differentiate into various progenitor cells according to growth factors added. Aim: the aim of this work was to investigate and compare the efficiency of PB monocytes (MONs), and adherent mononuclear cells (MNCs) obtained from cirrhotic patients to expand and differentiate into functioning hepatocyte-like cells in vitro. Material and methods: 20 patients suffering from chronic hepatitis and liver cirrhosis were included in the study. MNCs were isolated from PB using Ficoll Hypaque. MONs (CD14+), and adherent MNCs (contain CD34+Cs) were separately cultured for 28 days in presence and absence of recombinant human hepatic growth factor (rh-HGF). The culture media were changed every 7 days and culture supernatants were harvested, allocated, and stored at - 80°C. Hepatocyte-like cells were examined for morphology, function, and hepatocyte markers by: a) estimation of albumin secretion, urea production, and LDH release in the culture supernatants, b) qRT-PCR for cultured cells at end points of cultures to detect albumin gene expression, and c) detection of CK 18 and Hep Par-1 proteins in cultured cells using immunohistochemical technique. Results: Data obtained revealed: Monocyte % as detected by differential leukocyte count and flowcytometer showed highly significant increase in suspensions prepared using human Pan Monocyte isolation kit as compared to Ficoll separated MNCs, suspensions. Albumin, urea, and LDH showed highly significant differences between

	<p>culture supernatants containing rh-HGF and those of control cultures depended on time points of estimations. Late specific liver markers; Hep par-1 and CK18 by immunocytochemistry showed increase in adherent MNCs cultured with rh-HGF compared to CD14+ MONs. Albumin gene expression increased significantly in differentiated cells derived from MNCs cultured with rh-HGF compared to CD14+ MONs at end point of culture as detected by qRT-PCR. Conclusion: The obtained results showed successful in-vitro generation of functioning hepatocyte-like cells from easily accessible source of cells in presence of rh-HGF. So innovative regenerative cellular therapy indicates the possibility of autologous cell transfusion after hepatic differentiation for treatment of CLD and provide a promising alternative treatment for end stage liver disease.</p>
Key Words	<p>Adherent PB MNCs, monocytes, rh- HGF, CK 18, Hep para-1, and hepatocyte differentiation.</p>

Journal	Open Biomarkers Journal
Year	2021
Volume/Issue/Pages	11(1):28-38
Indexing	Scopus
Quartile	-
Title	The Role of MicroRNAs (miRNA 155, miRNA-146b) and Procalcitonin as Novel Markers for the Diagnosis of Spontaneous Bacterial Peritonitis
Authors	Dalia M. A. El-Hassib ¹ , Dina M. Abo-elmatty ² , Noha M. Mesbah ² , Sherief Abd-Elsalam ³ , Shorouk A. Bastawisy ² , Doaa E. ⁴ , Ayat S.E.M. Hassan⁵ , Fawkia E. Zahran ⁶ , Reda S. Abdelghany ⁷ , Reham I. Siddik ⁸ , Asmaa R. Abdel-Hamed ²
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TBRI Departments	Electron Microscopy Research Department
Abstract	Background: MircoRNAs are endogenous, small non-coding RNA molecules that have been recognized as important modulators of gene expression. MicroRNA is considered one of the potential biomarkers of infection and inflammation. Our study aims to identify the potential role of miRNA-155, miRNA-146b, and Procalcitonin (PCT) in the early detection of spontaneous bacterial peritonitis in cirrhotic liver patients. miRNA-155 and 146b are molecular biomarkers , while procalcitonin is a serum marker in ascites patients complicated with Spontaneous Bacterial Peritonitis (SBP). Methods: This study was conducted on 199 patients, 101 of them have ascites complicated with spontaneous bacterial peritonitis, and 98 patients without spontaneous bacterial peritonitis (control group). Ascitic fluid samples were collected from patients with SBP undergoing paracentesis at National Hepatology Institute in Egypt. MicroRNAs were determined in the serum using qPCR (quantitative polymerase chain reaction), while procalcitonin has been assessed in serum samples using ELISA (Enzyme-linked immune assay) technique. Results: Serum levels of miRNA-146b & miRNA-155 were significantly higher (p<0.001) in spontaneous bacterial peritonitis patients (79.2% and 97.0% respectively) than ascites patients (17.3% and 7.1%, respectively). Furthermore, the serum level of procalcitonin was significantly higher (p<0.001) in spontaneous bacterial peritonitis

	patients than that in ascites patients (68.3% and 27.6%, respectively). Conclusion: miRNA-155, miRNA-146b and procalcitonin can be used as early markers for the detection of SBP in hepatic patients with ascites
Key words	Ascites, Spontaneous bacterial peritonitis, miRNA-155, miRNA-146b, Procalcitonin, Syndrome.

Not indexed

Journal	Urology Open Access Open Journal
Year	2021
Volume/Issue/Pages	2(1): 55–58.
Indexing	-
Quartile	-
Title	Aseel's Operation, Is there a Magic Wand? (Simple Easy and Time Saving Alternative for Distal Penile and Coronal Hypospadii Closure with Less Complications)
Authors	Mohamed Ali Ismail, Hani Nour, Khalid Elesily, Mohamed Hussein, Samir Eldahshan
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TBRI Departments	Department of Urology
Abstract	<p>Introduction: Distal penile and coronal hypospadii constitutes about 70% of the total hypospadii number yet there is no magical wand to solve the problem. Materials and Methods: Twenty nine patients were followed up for average of 2 years, (range between 6 months to 5.4 years) age ranged between 1.4 years to 5.2 years. No stent was left, no urethral catheter was left, with minimal tissue dissection and the average operation time was 25 minutes. And patients were discharged on the same day. Results: Of the 29 patients, all patients were free at long term follow up with no complications but 3 had different degrees of urethral cover suture loss ranged from 1-2 sutures loss to complete cover loss. No urethral meatal stenosis, no urethral diverticulum and no urethral fistula were found. Discussion: Aseel's operation provides simple easy and time saving alternative for distal penile and coronal hypospadii closure with less complication even in the case of complications and complete cover loss there is no problem ok in redoing it or any other alternative because of the minimal tissue dissection. Conclusion: Aseel's operation is a good alternative for distal penile and coronal hypospadii closure but nothing is complete, yet it is a good alternative for hypospadii repair.</p>
Key Words	Hypospadias; Aseel operation; Penile; Coronal.

Journal	The Egyptian Journal of Surgery
Year	2021
Volume/Issue/Pages	40(1): 278-283.
Indexing	-
Quartile	-
Title	Efficacy of continuous bladder irrigation with saline after transurethral resection of nonmuscle-invasive bladder cancer stage Ta T1 to prevent cancer recurrence and progression in comparison with a single immediate instillation of mitomycin C chemotherapeutic
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Abstract	Background: Continuous bladder irrigation (CBI) following transurethral resection of bladder tumor is a common practice, which usually continues in the early postoperative period. This irrigation may help to prevent tumor cell seeding, which is one of the precursors of tumor recurrence. Aim: In our study, we investigated the efficacy and safety of CBI against the standard single post-tumor-resection installation of mitomycin C (MMC). Patients and methods: An observational study was conducted for evaluation of patients admitted with bladder mass to our Urology Department. A total of 63 patients had single MMC instillation, whereas 73 had CBI with saline. Only patients with longer than 24 months of follow-up were analyzed. Results: Overall complications were comparable in both arms except the need to administrate anticholinergic drugs for persistent irritative urinary symptoms in the MMC arm. Time to recurrence was shorter in CBI with saline arm, yet with no effect on recurrence incidence rate, nor the time to progression. Conclusion: CBI with saline shows noninferior results to single postoperative adjuvant installation of MMC in terms of recurrence and progression with better tolerability.
Key Words	intravesical instillation, mitomycin C, outcome assessment, recurrence, therapeutic irrigation, urinary bladder neoplasms

Journal	International Journal of Medical Arts
Year	2021
Volume/Issue/Pages	3 (1): 1229-1239
Indexing	-
Quartile	-
Title	Efficacy of Nitazoxanide Alone or Loaded with Silica Nanoparticle for Treatment of Cryptosporidiosis in Immunocompetent Hosts
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TBRI Departments	Pathology and Parasitology
Abstract	<p>Background: Cryptosporidiosis is a major health problem for humans and animals with severe consequences in immune deficient hosts. There is no effective approved drug therapy against <i>Cryptosporidium</i> till now and it is increasingly necessary for evaluating new potential drugs. Nanoparticles are promising for effective treatment of parasitic diseases, as an emerging drug carriers. The aim of the work: Studying nitazoxanide efficacy alone and compared to nitazoxanide loaded with silica nanoparticles in the treatment of cryptosporidiosis in immunocompetent mice infected with <i>Cryptosporidium</i>. Materials and methods: The study included 50 Swiss albino mice subdivided into five subgroups, including treatment either with silica nanoparticles alone, with Nitazoxanide alone or by Nitazoxanide loaded with silica nanoparticles. We included infected non-treated and non- infected non treated mice in the study as the positive and the negative controls, respectively. The post-treatment evaluation at two and three weeks was done using parasitological stool examination, histological examination of the intestine and liver, and serological screening for anti-cryptosporidium IgG and IgM using ELISA at the 3rd week only.</p> <p>Results: Decreased percentages of cryptosporidium oocyst passage in all treated immunocompetent mice groups and an improvement on the intestinal and liver histopathology observed after two weeks and a significant oocyst count reduction and near total histopathological cure observed after the third week with superior results observed in groups treated with Nitazoxanide loaded silica.</p> <p>Conclusion: <i>Cryptosporidium</i> infection is a potentially harmful condition. Major histopathological changes and clinical deterioration occur in immunocompromised hosts requiring more available therapeutic options. The nitazoxanide loaded silica showed promising</p>

	results in the treated groups superior to nitazoxanide alone. This gives promising results encouraging further evaluation studies.
Key Words	Cryptosporidium; Nitazoxanide; Silica; Nanoparticles; Parasitic diarrhea

Journal	The Medical Journal of Cairo University
Year	2021
Volume/Issue/Pages	89(3): 1017-1024.
Indexing	-
Quartile	-
Title	Evolving Role of MRI in Assessment of Response of Hepatocellular Carcinoma Patients Post Trans-Arterial Chemoembolization: What Does the Physician Want to Know?
Authors	Mohamed F.H. Abdallah, Mohamed Hosni K. Abdelmaksoud, Shimaa H.I. Desouky, Mona Hassan, Medhat Madbouly
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TBRI Departments	Department of Radiology
Abstract	<p><i>Background:</i> In clinical practice, Transarterial Chemoembolization (TACE) has been widely used for the treatment of Hepatocellular Carcinoma (HCC) beyond as well as within guideline recommendations. Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) play critical roles for assessing treatment response of Hepatocellular Carcinoma (HCC) after locoregional therapy. Interpretation is challenging because post-treatment imaging findings depend on the type of treatment, magnitude of treatment response, time interval after treatment, and other factors. <i>Aim of Study:</i> To illustrate the prime role of MRI in accurate assessment and early monitoring of hepatocellular carcinoma response to treatment after transarterial chemoembolization. <i>Patients and Methods:</i> This study included 80 patients, 52 males and 28 females, patients ages ranged from 45 to 81 years with the mean age of 60 years underwent transarterial chemoembolization over a period of 23 months (Jan. 2019- Dec. 2020). All patients had liver cirrhosis related to chronic viral hepatitis. MRI was conducted at MRI unit in a private radiology centre. <i>Results:</i> Showed superior diagnostic performance of dynamic MRI compared to diffusion studies as dynamic MRI had a sensitivity of 90.9%, a specificity of 95.7%, PPV of 93.7%, NPV of 93.7% and overall agreement of 94% compared to 100%, 65.2%, 68%, 100% and 80% respectively of diffusion weighted imaging. The difference between the malignant residual and well-ablated groups ADC variables was statistically significant p-value 0.006. <i>Conclusion:</i> MRI is a robust tool in detection of tumour viability after TACE of hepatocellular carcinoma and should be performed at regular time intervals. Imaging protocol should include dynamic study combined with diffusion imaging. DW MR imaging is a rapid promising technique for the non-invasive evaluation of tumor response after TACE particularly when contrast medium administration is contraindicated. Dynamic study is the corner stone in detection of recurrent lesions.</p>
Key Words	MRI; Hepatocellular carcinoma; Chemoembolization

Journal	Medical journal of Cairo university
Year	2021
Volume/Issue/Pages	89 (1): 297-305
Indexing	-
Quartile	-
Title	Follow-up after Radiofrequency Ablation of Hepatocellular Carcinoma; Diffusion Weighted & Dynamic Contrast Enhanced MRI Characteristics
Authors	Mohamed F.H. Abdallah M.D.; Shimaa H.I. Desouky, M.D.; Medhat Madbouly, M.D.; Mona Hassan, M.D.; Amir Hanna, M.D.; Ahmed A. Mahmoud, M.D. and Mohamed Hosni K. Abdelmaksoud, M.D.
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TBRI Departments	Radiology
Abstract	<p>Background: Monitoring tumor response to loco-regional therapy is an increasingly important task in oncologic imaging. Aim of Study: The aim of the study is to highlight the growing role of diffusion and dynamic MRI in the follow-up of patients with hepatocellular carcinoma after radiofrequency ablation, and hence playing a crucial role in evaluating treatment effectiveness and therefore in taking important decisions in the management of these patients. Patients and Methods: This study included 80 patients, 61 males and 19 females, patients ages ranged from 32 to 85 years with the mean age of 60 years underwent Radiofrequency ablation of 100 hepatic focal lesions over a period of 19 months (July 2018-February 2020). The study was conducted in the Radiology Department at a private radiology centre. Results: 69 lesions (69%) were resolved lesions while 31 lesions (31%) had residual/recurrent tumor viability. The measured cut off value between the completely ablated lesions and residual/recurrent lesions was $1.18 \pm 0.24 \times 10^{-3} \text{mm}^2/\text{s}$ after the 1st month and $1.22 \pm 0.30 \times 10^{-3} \text{mm}^2/\text{s}$ after 3-4 months. The ablated zones can be differentiated from liver parenchyma visually in the DWIs and by means of ADC in all patients. There is no statistical difference in the mean ADC values between the ablated zones of the resolved and unresolved lesions. All the 31 malignant lesions show arterial phase enhancement with 16 lesions out of 31 show persistent enhancement on the portal phase and show washout of the contrast on the delayed phase with 15 malignant lesion show washout of the contrast on the portovenous and delayed phases of the study. The enhancement is considered only if proved by the subtracted images. Conclusion: MRI is a powerful tool in detection of tumour viability and response after RFA of hepatocellular carcinoma. Imaging protocols should include dynamic study, diffusion imaging with post processing of the images to obtain subtracted images and ADC measurements for precise tissue characterization and should be</p>

	performed at regular time intervals.
Key Words	Dynamic MRI – Hepatocellular carcinoma – Radiofrequency ablation

Journal	Azhar International Journal of Pharmaceutical and Medical Sciences
Year	2021
Volume/Issue/Pages	1(1): 111-115.
Indexing	-
Quartile	-
Title	In-vitro Cytotoxic Activity of Oleanolic & Cincholic acids isolated from <i>Lotus glaberrima</i> herb (Family, Fabaceae)
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TBRI Departments	Medicinal Chemistry Department
Abstract	In the current study, antiproliferative effects of 3 β -hydroxyl- Olean-12-en-28-oic acid (Oleanolic acid; OA) & 3- β -hydroxyolean-12-en-27, 28 dioic acid (Cincholic acid; CA); triterpene sapogenins isolated from the ethyl-acetate fraction of <i>Lotus glaber</i> -mill herb were evaluated against three human cancer cell lines, the liver cancer cell line(HepG-2), the colon cancer cell line (HCT-116), & the breast cancer cell line (MCF-7). The structures of isolated phytoconstituents were identified by careful analysis of 1D NMR spectra and negative ESI-MS data. Oleanolic acid & Cincholic acid displayed cytotoxic activities against the tested cell lines. Oleanolic acid has lower IC ₅₀ than Cincholic acid for both MCF-7 & HCT-116 at 27.99 & 18.66 μ g/ml respectively. While Cincholic acid has a lower IC ₅₀ in HEPG-2 than Oleanolic acid at 22.81 μ g/ml. Further investigations have shown that Oleanolic acid & Cincholic acid- induce apoptosis and cause cell cycle arrest at the G2/M phase.
Key Words	Cincholic; Oleanolic; sapogenin; Antiproliferative; HEPG-2.

Journal	The Egyptian Journal of Surgery
Year	2021
Volume/Issue/Pages	40(1): 393–398.
Indexing	-
Quartile	-
Title	Laparoscopic ureterolithotomy: bridging the gaps between open surgery and ureteroscopy and/or shock wave lithotripsy
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TBRI Departments	Department of Urology
Abstract	<p>Background: Ureteroscopic procedures together with shock wave lithotripsy are the standard of care for patients with symptomatic ureteral stones; in cases with large (>20 mm) and/or impacted stones, laparoscopic ureterolithotomy can be considered an alternative to open surgery, as it is less morbid with high stone-free rates. Patients and methods: A retrospective study of patients enlisted for active ureteral stone treatment was conducted. Files of 945 patients were reviewed and analyzed in term of stone size, number, and history of previous stone procedures. A total of 73 patients were included; they had transperitoneal ureterolithotomy for either proximal or distal ureteral stone(s).</p> <p>Results: Mean stone size was 31.7±8.5 mm, and median stone number was 1 (1–3). A total of 48 patients had proximal ureteric stones, whereas 25 had distal ones. Mean operative time was 96±19.2 min, stone-free rate was estimated to be 97%, and procedure was aborted in two patients. Complications were reported in 16%, with no grade 3 complications according to Clavian–Dindo classification. Mean hospital stay was 3.2±1.1 days. Conclusion: Laparoscopic ureterolithotomy is to be considered for the treatment of large ureteric stone when other minimally invasive modalities are not available; it can bridge the gap between the minimally invasive procedures and conventional open surgery.</p>
Key Words	laparoscopy, ureteric stone, ureterolithotomy

Journal	Microbes and Infectious Diseases
Year	2021
Volume/Issue/Pages	2(1): 119-129
Indexing	-
Quartile	-
Title	Presepsin, procalcitonin and C-reactive protein as diagnostic biomarkers of sepsis in intensive care unit patients
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TBRI Departments	Microbiology & Intensive Care Departments
Abstract	Background: Sepsis is a global, life-threatening health priority. Blood culture is the gold standard of diagnosis of sepsis, however, it requires several days, which delays the diagnosis of the sepsis. Biomarkers could play a pivotal role in diagnosis, grading and predicting the outcome of sepsis. Objectives: To assess the potential role of C-reactive protein (CRP), procalcitonin (PCT) and presepsin for diagnosis, grading and predicting the prognosis of sepsis. Methods: The study included 28 patients diagnosed with sepsis, and 28 intensive care unit (ICU) patients presented by different presentations but with no sepsis. For patients with sepsis, APACHE II score was calculated, blood culture was done using BacT/Alert system, and Vitek 2 to identify bacterial isolates. For all subjects included in the study, quantitative measurement of CRP, PCT and presepsin were done using PA54 Specific Protein Analyzer, VIDAS® immune-analyzer, and PATHFAST fully automated immunoassay analyzer, respectively. Results: APACHE II score positively correlated with PCT (p=0.026) and presepsin (p=0.034), but not CRP (p=0.291). Differences between cases and control group for the three biomarkers' levels were statistically significant t (P value <0.001). For sepsis severity, there were significant increase in PCT and presepsin on admission (P value <0.001) among septic shock compared to sepsis cases. Procalcitonin was slightly superior than presepsin. Procalcitonin and presepsin showed statistically significant increase (P <0.001 & p=0.02 respectively) among died compared to survived subgroups. Conclusion: PCT and presepsin are reliable biomarkers for early diagnosis, grading and predicting of the prognosis of sepsis.
Key Words	Sepsis; C-reactive protein; Procalcitonin; Presepsin; APACHE II

Journal	Medical journal of Cairo university
Year	2021
Volume/Issue/Pages	89(1): 229-236
Indexing	-
Quartile	-
Title	Role of Diffusion-Weighted Magnetic Resonance Imaging in Detecting and Characterizing Benign and Malignant Liver Tumors in Adults
Authors	Dina Hamzawy, M.Sc.; Medhat Madbouly, M.D.; Shimaa Desouky, M.D.; Mona Hassan, M.D.; Ahmed Abdelsamie, M.D. and Hamed EL-Ghawaby, M.D
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TBRI Departments	Radiology
Abstract	<p>Background: DWI is done by quantifying the amount of diffusion through tissues and calculating ADC values. Tumors, which consist of excessive proliferation of cells, would expectantly show restricted diffusion. ADC values can aid in characterizing focal liver lesions as benign vs. malignant. DWI when used in combination with dynamic MRI can be used to enhance the accuracy of liver lesion characterization and diagnosis. Aim of Study: To assess the role of diffusion-weighted magnetic resonance imaging (DWI) in detection and characterization of hepatic focal lesions, and its value in differentiating benign from malignant masses. Patients and Methods: A total of 60 liver disease patients (21 males and 39 females) with ages ranged from 20 to 63 years old were included in the study. All of the patients underwent MRI examination including pre-contrast imaging, dynamic study and diffusion study. The morphological features of each lesion were recorded and diffusion images were reviewed for final radiological characterization and detection of focal lesions. ADC values were calculated for all patients. Results: This study included 60 patients with various types of lesions, 40 of which had benign lesions and 20 with malignant lesions. The diffusion images aided in diagnosis of malignant lesions with different components. Absolute ADC values of different types of lesions were not similar. Benign hepatic lesions have generally higher ADC values compared with malignant lesions. The ADC values we found for different lesions were consistent with previous studies. Conclusion: Diffusion-weighted MRI sequence with quantitative ADC measurement should be used as an additional sequence to supplement conventional MRI protocol studies for proper detection and characterization of solid liver lesions</p>
Key Words	Liver – DW – MRI

Journal	The Egyptian Journal of Hospital Medicine
Year	2021
Volume/Issue/Pages	82(2): 231-236
Indexing	-
Quartile	-
Title	Study of Urinary N-Acetyl-Beta-D-Glucosaminidase as a biomarker of Diabetic Nephropathy
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TBRI Departments	Nephrology and Hematology Departments
Abstract	Background: Diabetic nephropathy (DN) is a major cause of morbidity and mortality in diabetic patients worldwide. Plenty of tubular damage biomarkers have been discovered. Urinary N-acetyl-β-D-glucosaminidase (NAG) is a hydrolytic enzyme that acts on glycosyl compounds. NAG is excreted in abnormally high amounts in many renal diseases. Objective: The aim of this work was to study the importance of Urinary N acetyl-β-D-glucosaminidase level as an early biomarker for detection of DN and to assess the degree of kidney affection in various stages of DN. Patients and methods: 100 subjects divided into five groups: Group 1: 20 healthy volunteers (control group), group 2: 20 pre diabetic persons, group 3: 20 normo-albuminuria diabetic patients, group 4: 20 micro-albuminuria diabetic patients (ACR 3 -300 mg/mmol) and group 5: 20 macro-albuminuria diabetic patients (ACR ≥ 300 mg/mmol). All individuals were subjected to full history taking, ECG & echocardiography, abdominal ultrasound, laboratory investigations (HbA1c, fasting and post prandial blood glucose, lipid profile, oral glucose tolerance test (OGTT), blood urea, serum creatinine, serum uric acid, e-GFR and urinary NAG. Results: There was high significant difference between the five groups regarding duration of the disease, fasting blood sugar, postprandial blood glucose, HbA1c, Serum cholesterol, albumin/creatinine ratio, serum urea and creatinine, e-GFR and urinary NAG. In addition, there was significant positive correlation between urinary NAG and albumin/creatinine ratio, blood urea, creatinine, and e-GFR. Conclusion: The urinary NAG can be used as an early urinary biomarker for early detection and progression of diabetic nephropathy in type 2 diabetic patients.
Key Words	Diabetes, Nephropathy, Urinary N-Acetyl-Beta-D-glucosaminidase

Journal	Parasitologists United Journal
Year	2021
Volume/Issue/Pages	39-45
Indexing	-
Quartile	-
Title	Therapeutic potential of <i>Commiphora molmol</i> extract loaded on Chitosan nanofibers against experimental cryptosporidiosis
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TBRI Departments	Parasitology and Medicinal Chemistry Departments
Abstract	<p>Background: <i>Cryptosporidium</i> is a life-threatening intestinal pathogen in immunocompromised patients. Currently, there is no entirely successful drug against cryptosporidiosis. Several reports utilizing nanotechnology combined with herbal medicine were published to evaluate its efficacy in treatment of intestinal pathogens.</p> <p>Objectives: To evaluate the anti-cryptosporidial efficacy of <i>Commiphora molmol</i> extract and its conjugation with chitosan nanofibers (CsNFs) for treatment of cryptosporidiosis in mice.</p> <p>Material and Methods: Sixty-five male albino mice were infected orally with 104 <i>Cryptosporidium</i> oocysts. They were grouped and treated with nanazoxid (NTZ) (100 mg/kg), <i>C. molmol</i> extract (500 mg/kg), and <i>C. molmol</i> loaded chitosan nanofibers (Cm-CsNFs) at 25, 50, and 100 mg/kg. The scarification of mice was done after 5 and 10 days of treatments. Assessment of the treatments' efficacy was achieved using parasitological parameters: oocysts and trophozoites counts, and histopathological examination.</p> <p>Results: <i>C. molmol</i> extract and Cm-CsNFs (100 mg/kg) significantly reduced the mean number of intestinal oocysts. All the treatment regimens significantly ($P<0.05$) diminished the mean number of trophozoites relative to the infected non-treated group. Apparent pathological alterations in intestinal tissues were consistent with cryptosporidiosis. <i>Cryptosporidium</i>-induced pathological alterations were improved remarkably in Cm-CsNFs (100 mg/kg) group.</p> <p>Conclusion: Our study highlights the efficacy of <i>C. molmol</i> as an extract or conjugated with CsNFs in declining cryptosporidiosis and attenuating <i>Cryptosporidium</i>-induced intestinal injury</p>
Key Words	Chitosan nanofibers, <i>C. molmol</i> , <i>Cryptosporidium</i> , Histopathological alterations, Myrrh

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