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Evidence-based Review of Medicinal Plants Used for the Treatment of Hemorrhoids

Roja Rahimi and Mohammad Abdollahi

Abstract: Hemorrhoidal disease is a common problem which is usually not managed properly with pharmacologic interventions and will eventually require surgery. However, there are many medicinal plants that were successfully used for the treatment of hemorrhoids in the traditional and folk medicine of different countries. In this study, these medicinal plants have been reviewed and their mechanism of action and their major chemical constituents responsible for their activities have been assessed individually. Among various herbal medicines, *Aesculus hippocastanum*, *Boswellia* species, *Cissus quadrangularis*, *Euphorbia prostrata*, *Juniperus* species, *Melastoma malabathricum*, *Myrtus communis* and *Verbascum* species have got higher support from scientific evidence. These medicinal plants may exert their beneficial effects in hemorrhoids by their anti-inflammatory, analgesic and venotonic activities. Several chemical constituents were identified in these plants which may be responsible for their pharmacological activities, of which, flavonoids, terpenoids, triterpenes and tannins are the majors.

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Study of Kidney Repair Mechanisms of Corn Silk (*Zea mays* L. Hair)-Binahong (*Anredera cordifolia* (Ten.) Steenis) Leaves Combination in Rat Model of Kidney Failure

Elin Yulinah Sukandar, Joseph Iskendiarso Sigit and Levina Ferdiana Adiwibowo

Abstract: Earlier studies from our laboratory have indicated renal function improving action of corn silk and binahong in gentamicin-piroxicam induced kidney failure. This study was aimed to determine the effects of combination of cornsilk and binahong extracts on kidney failure model in rat and the effects of the extract combination on oxidative stress. Rats were divided into the positive control group, the group treated with 75 mg kg^{-1} of corn silk, the group treated with 100 mg kg^{-1} b.wt. of binahong, two groups treated with graded doses of combination of corn silk and binahong and the negative control group. Serum creatinine, urea, organ-to-body weight ratio of the kidney (kidney index) and renal histology were assessed to determine renal function. Meanwhile, the activities of lipid peroxidation, catalase and Superoxide Dismutase (SOD) were measured to analyse oxidative stress level. Administration of combination of the extracts at half dose resulted in marked depletion of serum creatinine and urea which was comparable to the results in corn silk-and binahong-treated groups. In addition, the extract combination was shown to reduce kidney index compared to that of the positive control group. The combination was further revealed to reduce renal damage histologically. Administration of the extract combination was demonstrated to attenuate kidney oxidative stress as shown by the reduction in lipid peroxidation and the increased activity of antioxidant enzymes, such as catalase and SOD. Taken together, results of this study suggest that corn silk in combination with binahong possesses renal function improving activity which is slightly better compared to the activity of each extract alone. The results further indicate that reduction of oxidative stress by each extract as well as their combination might be beneficial to the repair of renal damage.

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Modulation Effects of α-Asarone on the GABA homeostasis in the Lithium-Pilocarpine Model of Temporal Lobe Epilepsy

Jing-Kun Miao, Qi-Xiong Chen, Chun Li, Xiao-Wen Li, Xiao-Mei Wu and Xiao-ping Zhang

Abstract: In our previous study, we have proved that α-asarone had an obviously antiepileptic effect on various experimental models of epilepsy, but the putative mechanism of action has remained elusive. The objective of present study was to investigate the modulation effects of α-asarone on γ-aminobutyric Acid (GABA) homeostasis in the rat lithium-pilocarpine model of TLE. Adult Wistar rats were subjected to Status Epilepticus (SE) induced by lithium-pilocarpine. Rats were randomized into three groups, LI-PILO group (sham-treated group), LI-PILO+α-asarone group (α-asarone treated group) and normal control group. α-Asarone treated group were administered orally with α-asarone (200 mg kg^{-1} day^{-1}), twice daily, for 7 days. Rats were sacrificed 12, 24, 48, 72 h and 7 day after SE. Changes in GABA level and GABA transaminase (GABA-T) activity were compared. The expression of glutamic acid decarboxylase 67 (GAD67) and GABAA receptor were measured in brain sections from different groups of experimental rats by Tiger920 image analysis system. The hippocampal GABA levels and GAD67 protein expression in the sham-treated group significantly decreased 12-24 h after SE ($p<0.05$). Then it slowly increased at 72 h after SE. An extremely higher activity of GABA-T was found in sham-treated group than normal control group at various time-points after SE ($p<0.05$). GABAAR-mRNA expression was significantly lower in sham-treated group than normal control group 12-24 h after SE. The expression peak of GABAAR-mRNA appeared 48-72 h after SE in sham-treated group. The hippocampal GABA levels,

GAD67 and GABAAR-mRNA expression in α-asarone treated group were significantly higher at various time-points after SE. α-asarone significantly decreased activity of GABA-T at various time-points after SE and a stronger inhibitory effect of α-asarone on GABA-T activity was found in hippocampus than frontal lobe. This study suggests that GABAergic modulation is involved in the antiepileptic action of α-asarone.

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Preliminary Studies on the *in vitro* Antioxidant Potential and Vitamin Composition of Selected Dietary Fruits Consumed in Alice region of South Africa

Sunday Oyewole Oyedemi, Sunday Arowosegbe and Anthony Jide Afolayan

Abstract: The present study investigated total phenols, flavonoids and vitamins composition in a selection of fruits; {orange (*Citrus sinensis*), red apple (*Mallus pumila*), carrot (*Daucus carota*), pear (*Pyrus calleryana*), golden apple (*Mallus pumila*), pawpaw (*Carica papaya*), pineapple (*Ananas comosus*) and banana (*Musa acuminate*)} consumed in Alice region of South Africa. The antioxidative capacity of these fruits were also determined using ferric reducing power, Lipid Oxidation (LO), 1,1-diphenyl-2-picrylhydrazyl (DPPH), 2,2'-azino-bis-3 ethylbenzothiazoline-6-sulfonic-acid (ABTS), Nitric Oxide (NO) and hydroxyl (OH) radicals. The contents of vitamin B_2, B_3 and vitamin C were also noted using standard methods. A significant variation in the phenols, flavonoids and vitamins contents across the fruit samples was observed. All the fruits tested besides pineapple showed a good reducing antioxidant power in a concentration dependent manner. The extracts of pawpaw, orange, banana and red apple relatively had higher antioxidant potential against DPPH and ABTS radicals among others. The fruits samples demonstrated considerable antioxidant potential against OH* and LO with IC_{50} values range from 0.511-1.067 mg mL^{-1} and 0.53-0.818 mg mL^{-1}, respectively. Some of the fruit samples depicted reasonable antiradical potential against NO* with IC_{50} range from 1.035-1.513 mg mL^{-1}. The fruits extract contained relatively higher concentration of vitamin C, vitamin B_2 and vitamin B_3 whereas pineapple and red apple extracts had lower content of vitamin B_2. Unfortunately, both vitamins (B_2 and B_3) were not found in banana. The result of antioxidant activities of these fruits provide evidences to support consumption practice of fruits varieties in the region to compensate nutrient deficiency and therefore could be a useful source to prevent diseases related to oxidative stress.

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Sunday Oyewole Oyedemi, Sunday Arowosegbe and Anthony Jide Afolayan, 2013. Preliminary Studies on the *in vitro* Antioxidant Potential and Vitamin Composition of Selected Dietary Fruits Consumed in Alice region of South Africa. International Journal of Pharmacology 9 (1): 33-41, 2013. (DOI: 10.3923/ijp.2013.33.41)

Aqueous Extracts of Purple Sweet Potato Attenuate Weight Gain in High Fat-fed Mice

S.J. Shin, U.J. Bae, M. Ahn, S.O. Ka, S.J. Woo, S.O. Noh, Y.S. Kwon, K.H. Jung, J.H. Wee and B.H. Park

Abstract: Purple sweet potato is a widely consumed food around the world has been reported to possess antioxidant, antimutagenic and memory-enhancing effects. However, antiobesity effect of PSP is not clear. The objective of this study was to determine the effects of Purple Sweet Potato Extracts (PSPE) on serum and fecal lipid profiles, body weight gain, body fat percentage and hepatic lipogenesis. Mice were administered a standard chow diet, a 45% high-fat diet, or a high-fat diet with various doses of PSPE. Mice that were fed a high-fat diet containing PSPE were found to have lower increases in body and adipose tissue weights and lessened occurrences of hepatic steatosis than mice that were fed a high-fat diet without PSPE. The decreased adiposity induced by PSPE accounted for lower serum levels of leptin and a higher adiponectin/leptin ratio. PSPE administration also resulted in a significant decrease in serum and hepatic triglyceride and cholesterol levels and a significant increase in fecal triglyceride and cholesterol levels when compared to the high-fat group. To identify the mechanism by which PSPE induced its antiobesity effect, the expression of lipogenesis-related genes that were induced in high fat-fed mice was investigated. PSPE suppressed the expression of Sterol Regulatory Element-Binding Protein (SREBP)-1, Acyl-CoA Synthase (ACS), Glycerol-3-Phosphate Acyltransferase (GPAT), HMG-CoA Reductase (HMGR) and Fatty Acid Synthase (FAS) in liver tissue in mice provided the high-fat diet. These findings suggest that the antiobesity effect of PSPE in high fat-fed mice occurs through its modulation of lipogenesis in the liver and inhibition of dietary lipid absorption.

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In vitro Antioxidant, PTP-1B Inhibitory Effects and _in vivo_ Hypoglycemic Potential of Selected Medicinal Plants

A. Arya, C.Y. Looi, W.F. Wong, M.I. Noordin, S. Nyamathulla, M.R. Mustafa and M. Ali Mohd

Abstract: The therapeutic potential of plants varies according to their parts. The present study was aimed to ascertain the antioxidant and antidiabetic potential of crude fractions obtained from different parts of 6 medicinal plants, *Centratherum anthelminticum, Cissus quadrangularis, Terminalia bellerica, Terminalia chebula, Terminalia arjuna* and *Woodfordia fruticosa*. Total phenolic (TPC), total flavonoid (TFC) and total tannin content (TTC) were determined. *In vitro* antioxidant abilities were showed by 1, 1-diphenyl-2-picrylhydrazyl (DPPH), Oxygen Radical Absorbance Capacity (ORAC) and Ferric Reducing/antioxidant Power (FRAP) assays. Furthermore, anti-diabetic potential was determined using *in vitro* protein tyrosine phosphatase-1B (PTP-1B) inhibition assay and blood glucose lowering effects were evaluated on streptozotocin (STZ)-induced diabetic rats. The result of our study showed that *T. chebula* fruit exhibited highest amount of TPC (910.43±37.45 mg GAE g^{-1}) and TTC (65.6±6.83 mg Catechin g^{-1}), respectively. Whereas *C. anthelminticum* seeds contained highest amount of TFC (98.2±27.6 mg Quercetin g^{-1}). The free radical scavenging capacity of *T. chebula* fruits was the highest among the six plants as determined by DPPH (3.6±0.13 μg mL^{-1}) and FRAP (109.6±2.5 μg mL^{-})^{1} assays. *C. anthelminticum* seeds (9.16±0.62 μM mL^{-1}) demonstrated highest oxygen radical absorbance capacity in ORAC test. In addition, *C. anthelminticum* seeds (38±5.8 μM) showed highest PTP-1B inhibitory effects and maximum blood glucose lowering effects in STZ-induced diabetic rats. Altogether, our findings suggest that *T. chebula* fruit is potent in ameliorating oxidative damage whereas, *C. anthelminticum* seeds possess highest antidiabetic and antioxidant properties.

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The Feasibility of Delayed Repair of Facial Nerve Trauma-electrophysiological Studies and Research of Neurons and Specificity of Regeneration

Hu Jiongjiong, Zhou Liang and Ma Zhaoxing

Abstract: To study aimed to evaluate the feasibility of delayed repair of facial nerve trauma in case immediate repair was not possible. Guinea pigs were randomly assigned to one of eight groups; normal group, group of immediate Facial-facial Anastomosis (FFA), group of delayed FFA for 7 days, group of delayed FFA for 14 days, group of delayed FFA for 21 days, group of delayed FFA for 30 days, group of delayed FFA for 60 days and group of delayed FFA for 90 days, by turns. The survival time was 2 months after nerve suture. The group of immediate FFA and the group of delayed FFA for 7 days had shorter latency than other groups of delayed FFA ($p<0.05$). The amplitude of the group of delayed FFA for 7 days was larger than that of immediately sutured and other delayed sutured ones. The group of delayed FFA for 60 and 90 days had longer latency and smaller amplitude than the group of immediate FFA and other group of delayed FFA. The facial neurons labeled by HRP in immediate suture group were more than that in any other delayed suture group ($p<0.05$). There was no significant difference among groups of delayed FFA for 7, 14, 21 and 30 days ($p = 0.326$). Immediate repair of facial nerve trauma showed best results; however delayed nerve repair was also an option. The best curative effects were with repairs within 60 days.

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Adverse Drug Reactions and Pattern Use of Cephalosporins: A Retrospective Review of Hospitalized Patients During 5 Years

Qing-Ping Shi, Xiao-Dong Jiang, Feng Ding, Mei-Ling Yu and Shu-Qiang Zhang

Abstract: Cephalosporin drugs are among the most widely prescribed drugs and their utilization can be complicated by the development of adverse drug reactions (ADRs). The aim of this study was to assess the frequency and characteristics of cephalosporin-induced ADRs and to compare the usage pattern of cephalosporin in hospitalized patients in China over a 5-year period, from January 2008 to December 2012. All insured prescriptions which were recorded in hospital information system were retrospectively evaluated for prescriptions included at least one dosage form cephalosporin. All ADRs induced by cephalosporins in the database of Chinese Adverse Drug Reaction Monitoring were analyzed. Of 352,661 inpatients who received cephalosporins, 2046 (0.58%) exhibited ADRs. Cefatriaxone and cefalexin were the drugs most frequently involved in the development of ADRs. The dermatological system (43.50%) was the most commonly affected organ system, with skin rash (30.60%) being the most frequently reported reaction. Cefatriaxone (15.59%) was the most frequently reported individual drug. The most common predisposing factors were polypharmacy and having a history of allergies, which in turn were the main predisposing factors of allergic shock and rash induced by cephalosporins. In conclusion, cephalosporins therapy

represents a common cause of ADRs in hospitalised patients the pattern of ADRs reported in the hospitals. The findings offer opportunities for interventions, especially for preventable ADRs, to ensure safer drug use.

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Immunoregulatory *in vitro*/*in vivo* Effects of 2,3-Secotriterpene Acetylhydrazone

S.V. Gein, V.V. Grishko, T.A. Baeva and I.A. Tolmacheva

Abstract: Immunity is a defensive reaction of an organism to suppress alien bodies (antigens), such as bacteria and viruses. Natural triterpenoids and their semisynthetic derivatives have a wide range of biological activities, including effects on immune system. This study was aimed to determine immunotropic properties of the semisynthetic A-secotriterpenoid with antiviral activity-acetylhydrazone of 1-cyano-19β, 28-epoxy-2, 3-seco-2-nor-18αH-olean-3-al (ASO). The research included the study of ASO acute toxicity and its effects on humoral and cellular immunity in the local/systemic administration of the antigen and evaluation of proliferative response of mouse splenocytes *in vivo* and cytokine production of immunocompetent cells *in vitro*. ASO has been classified as a low-toxic compound (LD>1 g kg^{-1}) having different effects on humoral and cellular immunity. ASO showed dose-dependent (1.0-100.0 mg kg^{-1}) stimulatory effect on the formation of Plaque-forming Cells (PFC) under local/systemic immunization conditions and the inhibitory effect on the intensity of Delayed-type Hypersensitivity response (DTH). At concentrations 30 nM, ASO demonstrated *in vivo* inhibitory properties on production of IL-2, IL-4 and IFN-γ, while not affecting the synthesis of IFN-α. So it is concluded that, ASO is an attractive low-toxic A-secotriterpenoid with differently directed properties which suppresses the *in vitro* production of IL-2, IL-4 and IFN-γ cytokines, whereas *in vivo* this compound stimulates intensity of the humoral immune response.

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Effects of Rosiglitazone on Isoproterenol-induced Myocardial Infarction in Rats

Nawal M. AL-Rasheed, Nouf M. AL-Rasheed, Maha A. AL-Amin, Iman H. Hasan, Hanaa N. AL-Ajmi, H.A. Attia and Amany A. Eissa

Abstract: The safety of rosiglitazone as it pertains to the cardiovascular system has been continuously debated. Because there is no strong evidence of an increased risk of myocardial infarction or cardiovascular mortality with rosiglitazone. This study aimed to investigate different doses of rosiglitazone effects to treat myocardial infarction in animal model specifically rats induced with isoperetenol used a high and low doses (6 and 12 mg kg^{-1}) determined the greatest influence and compare between doses. Spectrophotometric and chemical methods measured parameters specific to myocardial infarction presented a significant accumulation of lipid peroxidase, reduction of glutathione and increased of reduced lactate dehydrogenase levels were observed while the cardiac marker enzymes creatinine kinase, aspartate aminotransferase and alanine aminotransferase. None of these parameters changed significantly with rosiglitazone treatment (6 and 12 mg kg^{-1}) when compared to the group that was only treated with isoproterenol. Present results suggest that rosiglitazone does not potentiate the cardiac toxicity of isoproterenol-induced myocardial infarction in rats. These findings strengthen the notion that rosiglitazone has a lower risk of myocardial infarction than previously reported.

How to cite this article:
Nawal M. AL-Rasheed, Nouf M. AL-Rasheed, Maha A. AL-Amin, Iman H. Hasan, Hanaa N. AL-Ajmi, H.A. Attia and Amany A. Eissa, 2013. Effects of Rosiglitazone on Isoproterenol-induced Myocardial Infarction in Rats. International Journal of Pharmacology 9 (1): 80-85, 2013. (DOI: 10.3923/ijp.2013.80.85)

Detection of Galactomannan and (1-3)-β-D-glucan for Early Diagnosis of Invasive *Aspergillosis* in Hematological Cancer Patients

Xin Jin, Yifei Chen, Nong Yu, Xianghua Zuo, Shiping Song, Xiuyun Yin, Yuan Huang, Wei Zhang and Jiankui Chen

Abstract: Invasive *Aspergillosis* (IA) is one of the most common life-threatening opportunistic invasive mycosis in hematological cancer patients. Early diagnosis of IA is difficult; the need for early clinical diagnosis and management presents the need for new noninvasive, culture-independent diagnostic tools. Galactomannan (GM) and (1-3)-β-D-glucan (BG) antigenemia can serve as useful markers for IA. The current study was conducted to prospectively evaluate the clinical significance of GM and BG detection in the diagnosis of IA in patients with hematological malignancies in China. In 378 patients with hematological malignancies, GM and BG were detected. Analysis

of sensitivity, specificity, Positive Predictive Value (PPV) and Negative Predictive Value (NPV) of GM and BG assay were performed. Detection of BG for diagnosis of IA with plasma reported sensitivity, specificity, PPV and NPV values as 66, 92, 86 and 78%, respectively. The GM detection for diagnosis of IA in serum reported sensitivity, specificity, PPV and NPV values as 48, 97, 93 and 71%, respectively. Combination of the two tests improved the specificity (to 100%) and PPV value (to 100%) of each individual test without affecting the sensitivity and NPV. The study concluded that serum GM and plasma BG can serve as potential markers of *Aspergillosis*. The detection of GM and BG has shown high specificity and PPV for screening high-risk hematological patients. The combined measurement of GM and BG appeared to be useful for early diagnosis of IA.

How to cite this article:
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Characteristics and Antibacterial Activity of Metabolites from *Lactobacillus acidophilus* Strains Produced from Novel Culture Media

Hassan Pyar, Min-Tze Liong and K.K. Peh

Abstract: The search for new culture media that will encourage the growth and production of active antimicrobial metabolites by probiotics has become of utmost importance in the light of increasing bacterial resistance and the high costs of commercial media to cultivate the probiotics. Hence, the study was aimed at characterizing and determining the activity of metabolites obtained from *Lactobacillus acidophilus* strains cultivated in two novel media against pathogenic bacteria. Eight strains of *L. acidophilus* were cultivated in *Morinda citrifolia* juice and *Glycine max* extract. Bacterial metabolites were harvested and evaluated for antibacterial activity against two human pathogens, *Staphylococcus aureus* and *Escherichia coli*. All tested metabolites of *L. acidophilus* strains showed significant bactericidal activity, as indicated by zone of inhibition in the culture plates compared with control. There was a statistically significant difference in the activity of the metabolites against *S. aureus* and *E. coli*. Metabolites of *L. acidophilus* FTDC-4462 strain exhibited the highest zone of inhibition against *S. aureus* and *E. coli* in both growth media. Metabolites of *L. acidophilus* strains were more effective against *S. aureus* than *E. coli*. There were no significant differences in the growth media on antimicrobial effect of the metabolites of *L. acidophilus* against *E. coli* and *S. aureus*. Metabolites of *L. acidophilus* significantly inhibited the growth of both pathogenic bacteria used and can be used as potential antibiotic or probiotic agents. *M. citrifolia* juice and *G. max* extract could be used as novel and cheap culture media for *L. acidophilus* to produce antibacterial metabolites.

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Hassan Pyar, Min-Tze Liong and K.K. Peh, 2013. Characteristics and Antibacterial Activity of Metabolites from *Lactobacillus acidophilus* Strains Produced from Novel Culture Media. International Journal of Pharmacology 9 (1): 92-97, 2013. (DOI: 10.3923/ijp.2013.92.97)

Smoking Cessation Efforts in Special Population: A Review of Research on Muslim Countries and Communities

Siddig Ibrahim Abdelwahab, Umar Yagoub, Rashad Al Sunosi, A. Bulgiba, Ahmad Hatim and Anwar Alahmar

Abstract: Although scenarios in global health are witnessing benefits from new medicines and technologies, nonetheless there are unprecedented reversals. As a consequence, the concerning international organizations have supported more novel approaches in promoting health risk reduction. The idea of culture understanding has emerged as a key factor in the agenda of health promotion and education. The rising consciousness about culture argues both for a shift in the philosophical and theoretical approaches and in methods underpinning health communication, promotion and education. It has been argued that norms are not a unitary concept and the assessment of different kinds of norms can improve its predictive power. According to some theories, social and religious norms are one of the key influences on people's behaviour. Evidence in support of the theories has been established across a wide range of behavioural domains including smoking and in a variety of populations. An awareness of their religious beliefs and rulings might increase the effectiveness of antismoking campaigns. On the other hand, a lack of understanding of Muslims and their cultural and religious tradition contributes to potential conflicts in health promotion. Smoking prevalence is generally high among Muslims which considered as a special population according to their religious and social norms and believes. Knowledge of Muslim religious beliefs and customs is important to understanding smoking behaviour and considering how best to deliver appropriate health promotional messages and interventions. Therefore, this review study was intended to summarize smoking cessation research efforts in Muslim world and communities in the Western World and help researchers to design effective smoking prevention programs targeting Muslim smokers, in the hope of restriction the rising smoking epidemic in the Muslim world.

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An Evidence-based Review on Medicinal Plants used for the Treatment of Peptic Ulcer in Traditional Iranian Medicine

Mohammad Hosein Farzaei, Roja Rahimi, Zahra Abbasabadi and Mohammad Abdollahi

Abstract: Many medicinal plants have been identified in Traditional Iranian Medicine (TIM) for the treatment of Peptic Ulcer (PU) but they are still unknown to scientific community. In the present study anti PU activity of these remedies were systematically reviewed and identified. For this purpose, medicinal plants proposed for the management of PU in TIM were collected from TIM sources and they were searched in modern medical databases like PubMed, Scirus, Sciencedirect and Google Scholar to find studies confirmed their efficacy. Findings from modern investigations support the claims of TIM about the efficacy of many of these plants in PU. For example, the oleogum resin of *Boswellia carterii* and *B. serrata* as a beneficial remedy for PU in TIM were demonstrated to have wound healing, cytoprotective, antisecretory, antacid, prostaglandin production and inflammatory modulating properties. Fruit and leaves of *Myrtus communis* was found to be antioxidant, anti *H. pylori*, wound healing, antisecretory, antacid and cytoprotective. The aerial part from *Melissa officinalis* exerts its beneficial effects in PU by antioxidant, anti *H. pylori*, prostaglandin elevating, cytoprotective, antisecretory, antacid and leukotriene reducing properties. Furthermore, *Polygonum* species demonstrated its function on PU with prostaglandin enhancement, inflammatory modulation, wound healing, cytoprotection, antacid, antioxidant and anti-*H. pylori* activity. In contrast, for some of herbal remedies used in TIM such as *Dolichos lablab* flower, *Symphytum* species, *Zizyphus spina-christi* fruit, *Alisma plantago-aquatica*, *Cupressus sempervirens* fruit, *Acacia Arabica* gum, *Cyperus* species root, *Althaea officinalis* flower and *Nymphaea alba* flower there is no enough evidence in modern medicine to prove their effectiveness in the management of PU. Pharmacological and clinical studies for evaluation of efficacy of these herbs in PU and their possible mechanisms of action are recommended.

How to cite this article:
Mohammad Hosein Farzaei, Roja Rahimi, Zahra Abbasabadi and Mohammad Abdollahi, 2013. An Evidence-based Review on Medicinal Plants used for the Treatment of Peptic Ulcer in Traditional Iranian Medicine. International Journal of Pharmacology 9 (2): 108-124, 2013. (DOI: 10.3923/ijp.2013.108.124)

Evaluation of the Antidiarrhoeal and Antidiabetic Activities of the Leaf Aqueous Extract of *Syzygium cordatum* Hoscht. ex C. Krauss (Mytraceae) in Rodents

M. Deliwe and G.J. Amabeoku

Abstract: *Syzygium cordatum* Hoscht. ex C. Krauss is widely used by traditional medicine practitioners to treat many ailments including diarrhoea and diabetes. Despite the folklore use, little evidence can be found in literature to corroborate the claims of therapeutic success of the plant species. The objective of the study was to investigate the antidiarrhoeal and antidiabetic activities of the leaf aqueous extract of the plant species in mice and rats, respectively. The antidiarrhoeal activity of the leaf aqueous extract of *S. cordatum* was investigated using castor oil-induced diarrhoeal test. The antidiabetic activity of the plant extract was studied using streptozotoxin-induced diabetes in rats. Acute toxicity study of plant extract was also carried out using a standard method. Leaf aqueous extract of *S. cordatum* significantly reduced the number of diarrhoeal episodes, decreased the stool mass and delayed the onset of castor oil-induced diarrhoea in mice. Loperamide was shown to protect the animals against castor oil-induced diarrhoea. Both the leaf aqueous extract of *S. cordatum* and chlorpropamide significantly lowered the blood glucose levels in both normal and streptozotoxin-induced diabetic rats. The LD50 value obtained for the plant extract was over 4000 mg kg^{-1} orally. The results obtained suggest that the leaf aqueous extract of *S. cordatum* has both antidiarrhoeal and antidiabetic activities. This justifies the folklore use of the plant species by traditional medicine practitioners to treat diarrhoea and diabetes. The relatively high LD50 value obtained for the leaf aqueous extract shows that the plant species is non toxic to mice.

How to cite this article:
M. Deliwe and G.J. Amabeoku, 2013. Evaluation of the Antidiarrhoeal and Antidiabetic Activities of the Leaf Aqueous Extract of *Syzygium cordatum* Hoscht. ex C. Krauss (Mytraceae) in Rodents. International Journal of Pharmacology 9 (2): 125-133, 2013. (DOI: 10.3923/ijp.2013.125.133)

Involvement of Gamma Aminobutyric Acid in the Anticonvulsant Effect of the Leaf Methanol Extract of *Ruta graveolens* L. (Rutaceae) in Mice

A.H. Ahmad and G.J. Amabeoku

Abstract: The possible involvement of gamma aminobutyric acid (GABA), in the anticonvulsant effect of *Ruta graveolens* L. was investigated by studying the effect of the leaf methanol extract against seizures elicited by either pentylenetetrazole (PTZ), bicuculline, picrotoxin or N-Methyl-DL-Aspartic acid (NMDLA) in mice. Leaf methanol extract of *Ruta graveolens*, phenobarbitone, diazepam and muscimol significantly antagonized seizures induced by PTZ, bicuculline or picrotoxin. Combined treatment of sub-effective doses of *R. graveolens* and muscimol significantly antagonized seizures induced by PTZ, bicuculline or picrotoxin. Dimethylsulfoxide (DMSO) or phenytoin did not significantly affect the seizures produced by PTZ, bicuculline or picrotoxin. *Ruta graveolens*, phenobarbitone, diazepam, phenytoin or DMSO did not significantly affect seizures produced by NMDLA. LY233053 significantly antagonized seizures produced by

NMDLA. Combined treatment of sub-effective doses of LY233053 and *Ruta graveolens* did not significantly alter NMDLA-induced seizures. The phytochemical qualitative analysis of the plant species showed the presence of tannins, cardiac glycosides, saponins, flavonoids, triterpene steroids and alkaloids. The LD50 value obtained following oral administration of the leaf methanol extract of *R. graveolens* was above 4000 mg kg^{-1}. The HPLC fingerprint of the plant species revealed certain characteristic peaks at 350 nm. The data obtained in this study, indicate that the leaf methanol extract of *R. graveolens* has anticonvulsant activity. The data obtained also indicate that GABA mechanism may probably be involved in the anticonvulsant effect of the plant extract. The relatively high LD50 obtained for the plant species, given orally, indicates that it is safe in mice.

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Bee Venom Reduces Fungi Induced Bronchial Epithelial Cells Activation Through Down Regulation of NF-κB

Seung-Heon Shin, Mi-Kyung Ye, Jung-Kyu Kim and Kwan-Kyu Park

Abstract: Bee Venom (BV) has been used as treatment against a variety of inflammatory diseases. Studies have demonstrated anti-inflammatory effect of BV. This study aimed to clarify the potential clinical efficacy of BV concerning the anti-inflammatory effect on bronchial epithelial cell. BEAS-2B cells were exposed to *Alternaria alternata* and *Aspergillus nigra* with or without BV. IL-6, IL-8 and granulocyte macrophage colony-stimulating factor were measured to determine the activation of epithelial cells. Nuclear factor kappa B (NF-κB) and activator protein 1 expression and activity were determined with Western blot analysis and ELISA. Cytotoxicity of BV was measured using a CellTiter-96® aqueous cell proliferation assay kit. Cell survival was significantly decreased concentrations at 10 μg mL^{-1}. Fungi induced IL-6 and IL-8 production was effectively inhibited by BV. BV suppressed fungi induced NF-κB expression and *Alternaria* induced NF-κB activation. BV seems relatively safe and is of potential value for the treatment of airway inflammatory diseases.

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Electron Microscope Study of Gall Extract from *Quercus infectoria* in Combination with Vancomycin against MRSA Using Post-Antibiotic Effect Determination

D.F. Basri, N. Jaffar, N.M. Zin and L. Santhana Raj

Abstract: The galls from *Quercus infectoria* have been considered as an alternative phytotherapeutic treatment against Methicillin-Resistant *Staphylococcus aureus* (MRSA) infection. The aim of the study was to examine the mode of action of the combined effect of an extract of *Quercus infectoria* with vancomycin against MRSA. The acetone extract from the *Q. infectoria* was prepared from dried gall powder and the Post-Antibiotic Effect (PAE) time of acetone extract was determined in combination with vancomycin and singly, against American Type Culture Collection (ATCC) 43300 strain using the checkerboard assay. The morphology and ultrastructural changes of MRSA using scanning and transmission electron microscope following 6 h treatments, was also observed. The mean difference of PAE time between the combination and vancomycin was insignificant ($p>0.05$). This indicated that the acetone extract from *Q. infectoria* did not significantly prolong the PAE time of vancomycin. Morphology changes in the combination-treated cells showed no evidence of bacterial lysis although cytoplasmic damage was visible from ultrastructural studies. The antagonistic activity of the combined antibacterials shown by electron microscopic study did not correlate with PAE synergism. The acetone extract from *Q. infectoria* antagonized the bacteriolytic action of vancomycin by acting at the same site of action at different point in the peptidoglycan cycle. This finding indicated that tannin-based medicinal plant targets enzymes involved in the synthesis of MRSA cell wall.

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Anti-inflammatory Activities for the Extracts and Carpinontriols from Branches of *Carpinus turczaninowii*

Ha Na Ko, Tae-Heon Oh, Jong Seok Baik, Chang-Gu Hyun, Sang Suk Kim and Nam Ho Lee

Abstract: Development of natural products possessing anti-inflammatory activities has been the focus of research in our laboratory. In this study, the extract from *Carpinus turczaninowii* branches was studied and their anti-inflammatory constituents were identified. The aqueous ethanol extract was fractionated successively to afford n-hexane, ethyl acetate, n-butanol and aqueous layers. Upon anti-

inflammatory tests for Nitric Oxide (NO) production, using RAW 264.7 cells, the ethyl acetate fraction exhibited potent inhibitory activities without causing cell toxicities. The ethyl acetate fraction was subjected to further purification to isolate carpinontriol A and carpinontriol B as active constituents. These diarylheptanoid compounds were isolated for the first time from this plant. The isolates reduced the lipopolysaccharide (LPS)-induced secretion of NO and IL-6 productions in a dose-dependent manner in RAW 264.7 cells which indicates their anti-inflammatory effects. Based on these results, it was suggested that *C. turczaninowii* extracts containing carpinontriols A and B could be considered potential anti-inflammatory agents for pharmaceuticals or cosmetics.

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Study on the Pharmacokinetics Drug-drug Interaction of Danmo Capsules with Prednisone in Rats

Bin Ren, Binghua Wei, Ruiming Li, Liang Huang, Xiaodan Hong, Xiaohua Fu and Xiao Chen

Abstract: The Danmo Capsule (DMC) is a widely used patent Chinese botanic drug, prepared with the extract of *Radix salviae miltiorrhizae* and *Ecliptae prostratae*. Drug-drug interaction of DMC and prednisone was investigated in rats via *in vivo* pharmacokinetic studies. After pretreatment with DMC at daily dosages of 0.432 g kg^{-1} for 14 consecutive days, there were significant decrease in the peak plasma concentration (C_{max}) of prednisone (from 174.6±32.9 ng mL^{-1} to 68.2±35.2 ng mL^{-1}, $p<0.01$) and in the area under the plasma concentration-time curve ($AUC_{0-2.5h}$) of prednisone (from 225.9±55.8 h.ng mL^{-1} to 128.8±37.5 h.ng mL^{-1}, $p<0.05$), respectively. In contrast to prednisone, the C_{max} of prednisolone was significantly increased from 155.9±40.4 ng mL^{-1} to 333.20±95.8 ng mL^{-1} ($p<0.05$) and the AUC_{0-8h} of prednisolone was significantly increased from 467.5±35.3 h.ng mL^{-1} to 757.3±105.4 h.ng mL^{-1} ($p<0.01$), respectively. However, no statistically significant differences for the elimination half-life ($t_{1/2}$) and Mean Residence Time (MRT) of prednisone and prednisolone were detected. In conclusion, the increased C_{max} and AUC of prednisolone showed co-administration with DMC significantly increased exposure of prednisolone.

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Antimicrobial Activity of 8-Hydroxyquinoline and Transition Metal Complexes

S. Srisung, T. Suksrichavalit, S. Prachayasittikul, S. Ruchirawat and V. Prachayasittiku

Abstract: Heterocyclic compounds like 8-hydroxyquinoline (8HQ) and derivatives have been found in natural products and therapeutics. Herein 8HQ and metal complexes of 8HQ-5-substituted (X) uracils, X = I, NO_2 (1-6) were investigated for their antimicrobial potency. The complexes 1-6 exhibited growth inhibition against many strains of gram-positive and gram-negative bacteria with minimum inhibitory concentrations (MICs) of 575.71-718.76 μM. The investigated compound 8HQ was shown to be a very strong antimicrobial agent with the MIC of 27.58 μM that comparable to ampicillin (MIC 26.93 μM), the reference drug. The activity of 8HQ mostly was observed for resistant pathogens, gram- positive bacteria e.g. *Staphylococcus aureus*, *Enterococcus faecalis* and diploid fungus, *Candida albicans*. The findings reveal 8HQ as the very potent antimicrobial agent and a series of 8HQ transition metal complexes as novel antimicrobials as well as the applications of 8HQ for the design and synthesis of new and potential therapeutic lead compounds.

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