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23rd International Conference on

Herbal and Alternative Remedies for Diabetes and Endocrine Disorders

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Posters



23rd International Conference on

HERBAL AND ALTERNATIVE REMEDIES FOR DIABETES AND ENDOCRINE DISORDERS

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Phytosterols isolated from *Aloe barbadensis* Mill., restore reproductive and metabolic complications in Letrozole-induced PCOS mouse model

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Statement of the Problem: Polycystic Ovary Syndrome (PCOS) is a multifactorial reproductive disorder which affects 4-12% of women and is a leading cause of female infertility worldwide. PCOS is related to dyslipidemia, hyperandrogenism and hyperinsulinemia. Treatment of these dysfunctions is by administration of steroid analogues and insulin sensitizers. However, the use of these synthetic drugs gives rise to severe side effects. Hence, there is an immediate pre-requisite of an alternative herbal therapy. The purpose of this study is to understand the role of phytosterols isolated from *Aloe barbadensis* Mill., towards management of PCOS.

Methodology & Theoretical Orientation: Aloe vera gel was extracted used petroleum ether and the extract thus obtained was fractionated using silica gel column chromatography. Phytochemical screening, thin layer chromatograph, HPTLC and GC/MS were done to characterize the obtained phytosterols. Letrozole (0.5 mg/kg body weight) induced PCOS mouse model was fed orally with the isolated phytosterol for 60 days. After completion of the treatment, several metabolic as well as reproductive parameters were evaluated.

Findings: Detailed phytochemical screening demonstrated the presence of several phytosterols such as beta-sitosterol, stigmasterol and campesterol. Upon treatment with the isolated phytosterols, letrozole induced PCOS mouse model showed an improvement in the glucose sensitivity, restored lipid profile and estrus cyclicity, decreased the serum testosterone levels and increased the serum progesterone and estradiol levels. The animals also exhibited disappearance of the peripheral cysts, which is a hallmark of PCOS. The phytosterols elicit their effectiveness by getting bio-transformed into oxysterols, which can further influence molecular pathways that mainly regulate steroidogenesis and lipid metabolism.

Conclusion & Significance: This study is first of its kind which demonstrates the direct effect of phytosterols isolated from Aloe vera gel at molecular level towards management of PCOS, thereby, adding to its overall potential and economic viability at national and international level.

Biography

Arpi Dey is currently a PhD student at the Department of Biochemistry, The Maharaja Sayajirao University of Baroda, India. She has been extensively trained in the domain of reproductive endocrinology. She has contributed greatly to the development of novel herbal therapeutics by exploring the knowledge of Indian heritage of Ayurveda. She has expertise in animal handling, phytochemistry, molecular biology and cell-culture techniques.

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Uncaria tomentosa* prevents non-alcoholic steatohepatitis and improves insulin sensitivity in diet induced and genetic obese mice*Layanne C C Arauj, Isadora C Furig, Gilson M Murata, J Donato Jr, Silvana Bordin, Rui Curi and Carla R O Carvalho**
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The Non-Alcoholic Fatty Liver Disease (NAFLD) is a clinical manifestation of metabolic syndrome. With the worldwide increase in obesity, there is also a burden of NAFLD that is estimated in the range of 20-30%. NAFLD includes the benign hepatic steatosis and the hepatic steatosis associated with inflammatory infiltrates, the Non-Alcoholic Steatohepatitis (NASH). NASH may lead to liver cirrhosis and to Hepatocellular Carcinoma (HCC) and about 10 to 20% of people with NAFLD develop NASH. Therefore, we investigated the effect of the herbal extract *Uncaria tomentosa* (Ut) (50 mg/kg, crude extract, for 5 consecutive days) on the Non-Alcoholic Fatty Liver Disease (NAFLD) of the Diet-Induced Obese (DIO) and genetically obese (ob/ob) mice. Both obese mice exhibited lipid droplets in the liver. The DIO mice had macro vesicular steatosis, whereas the ob/ob mice exhibited micro vesicular steatosis. The Ut treatment induced 35% and 20% reduction in the number of lipid droplets in the both obese animals, respectively. The Ut treatment reduced the serine phosphorylation of IRS-1 by 25% and by 40%, in the liver of DIO and of ob/ob mice respectively. Furthermore, the Ut treatment improved the inflammatory balance in the liver of both obese animals. There were reduced pro-inflammatory index (mRNA IL-1b/IL-10) to approximately 20% and decreased the pro-macrophage activation (mRNA F4/80/Arginase-1) to 12% in the DIO mice and reduced to 39% the pro-macrophage activation in the ob/ob mice compared to respective vehicle controls. Results herein reported, prompted to the conclusion that *Uncaria tomentosa* not only improves insulin sensitivity but also transforms NASH to a benign hepatic steatosis in two distinct models of obese mice. These effects are associated with a reduction in inflammatory conditions and decreased liver steatosis (steatohepatitis).

Biography

Layanne C C Arauj has her graduation degree in Biomedicine, Masters in Cell and Molecular Biology and she is currently a Doctoral student in Human Physiology at the Biomedical Sciences Institute of the University of São Paulo, working on various subjects like obesity, insulin resistance, hepatic steatosis and intestinal microbiota in the Laboratory of Intracellular Signaling.

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Kinetic of α -amylase inhibition by *Salvia mirzayanii* extract and its fractions, as a model for treatment diabetesSoheila Moein¹, Mahmood Reza Moein², Elham Pimoradloo³ and Mahmood Vessal⁴¹Hormozgan University of Medical Sciences, Iran²Shiraz University of Medical Sciences, Iran³Islamic Azad University, Iran⁴Islamic Azad University of Shiraz, Iran

Introduction & Aim: Type-2 Diabetes Mellitus (T2DM) affects a large population worldwide. This disease is a complex heterogeneous group of metabolic disorders including hyperglycemia and impaired insulin action and/or insulin secretion. Amylase inhibitors can reduce carbohydrate digestion rate and have the potential to prevent development of type-2 diabetes mellitus. The Labiatae is one of the largest plant families grown globally and one of the members of this family is *Salvia mirzayanii* Rech. F. & Esfand, which used for treatment diabetes. In present study, inhibitory potential of *Salvia mirzayanii* extract and its different fractions were investigated.

Methodology & Theoretical Orientation: Ethanol extract of this plant leaves was fractionated using petroleum ether, chloroform, ethyl acetate and n-butanol solutions. To measure enzyme inhibition enzyme, substrate and samples were mixed and for evaluation mode of inhibition, constant amounts of α -amylase were incubated with increasing concentrations of substrate. Acarbose was used as a standard.

Results: The results showed that ethanol extract of *Salvia mirzayanii* was the most potent inhibitors of α -amylase in comparison with the other samples. All the samples exhibited uncompetitive inhibition except Petroleum ether fraction which showed competitive inhibition.

Conclusion & Significance: Ethanol extract of *Salvia mirzayanii* showed the highest α -amylase inhibitory activity. In this study, most of the samples are uncompetitive inhibitors and one of the advantages of these inhibitors is that they would be effective at lower concentrations of substrate in comparison with competitive inhibitors which require higher concentrations of the substrate for the same effects.

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The personalized nutritional model for the patients with type-2 diabetes mellitus during Ramadan

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Statement of the Problem: Ramadan Fasting is the 28 days period with 2 meals (the Suhur and the Iftar) and the deprivation from food, water and perioral drugs at light period. Therefore, appropriate nutrition is the main theme of therapeutic education-the module (Ramadan and Type-2 Diabetes Mellitus (T2DM)).

Purpose: This study is to develop the nutritional model for the patients with T2DM during Ramadan, which was based on the national plants, herbs and mineral water.

Methodology & Theoretical Orientation: In the observational study 78 patients with T2DM (40-65 years age) were included. They fasted during Ramadan and learned at the school for patients T2DM with therapeutic module Ramadan and T2DM with nutritional education. We accessed the metabolic status and the effectiveness of our nutritional recommendations.

Findings: The following recommendations were the most effective: (1) Cumin oil intake (2 caps before the Suhur and the Iftar), (2) Natural liquids (mineral water, fresh tomato juice, green tea with saponins from blackcurrant, mint, cinnamon, hawthorn, rosehip, flax, ginseng), (3) The Suhur: 100 gr the low-fat cottage cheese, salad with nut oil and lemon, green bean with yogurt, lentil, oatmeal, red or brown rice without salt, (4) The Iftar: The meat and fish meals with the additional inulin-containing products (topinambur, garlic, onion, dandelion), (5) The mineral waters with hydrosulphates and hydrocarbonates and (6) The bathing with the natural plants (coniferous, wormwood, rosehip, lavender, mint, lemon, chamomile, rose, celandine, marigold, nettle).

Conclusion & Significance: The personalized nutritional model for the patients with T2DM during Ramadan includes nutrition with saponin and insulin-containing food, cumin oil, mineral water with hydrosulphates and hydrocarbonates in combining with the plant bathing. Those recommendations should be included in the therapeutic education at another T2DM-School.

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Concept of adult immunization and guidelines for vaccination in diabetes

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Diabetes has emerged as a disease of major public health importance affecting the rich and the poor alike. Conventionally, comprehensive diabetes management is aimed at preventing micro and macro vascular complications. However, morbidity and mortality due to infections are also significant. In developing countries, the concept of adult immunization is far from reality. According to the World Health Organization (WHO), the mortality rate due to pneumococcal infections averages 10-20%, while it may exceed 50% in high risk groups. It is estimated that people with diabetes are almost three times at higher risk of death due to pneumonia-related complications. Considering the economics of immunization in a developing country, providing free vaccines to all adults may not be a practical solution, although the free universal immunization program for children is in existence for several decades. There is no consensus on the use of vaccines in diabetes subjects in developing world. However, there are some clinics offering routine pneumococcal, influenza and other vaccinations. Patients with diabetes have a deranged immune system making them more prone for infections. Hospitalization and death due to pneumococcal disease and influenza are higher in diabetes patients. They, like other healthy individuals, have a normal humoral response to vaccination with clinically significant benefits. The American Diabetes Association, Advisory Committee on Immunization Practices, Centers for Disease Control and Prevention, World Health Organization, United Kingdom Guidelines and several other scientific organizations have well defined guidelines for vaccination in diabetes.

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Teucrium polium: Benefits versus risks

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Teucrium Polium (TP), family Lamiaceae or Labiatae is a shrub growing mainly in Mediterranean countries. Also, the herb is distributed in the rocky hills and deserts of Sini Egypt, Iran, Turkey, Jordan, Palestine, Saudi Arabia, Greece, etc. TP is collected by the natives from April to August and stored as dry materials for medicinal use. The aqueous extract of the plant has a pleasant aromatic odor and a characteristic bitter taste. Also, TP was used in folk medicine for centuries to treat different human ailments. In children and adult's TP is used as antispasmodic, anti-diabetic, to treat rheumatism and in peptic ulcer, a coolant, a carminative. The volatile oil of TP contains several phytochemicals such as mono- and sesquiterpenes that may be responsible for the potent spasmolytic effects of the isolated intestine of rabbits and rats as well as the isolated heart of the rabbit. Other important components of TP are flavonoids, and the terpenoids, alkaloids and terpenoids. Unlike the benefits of TP, the toxicity of the plant use is not well studied. The acute administration of TP mice model was exhibited in a significant increase in enzymes leaked to serum such as: ALT, ALP, ADH and GGT. Such increases clearly indicate hepatotoxicity, while the pathological picture of the liver exhibited lobar hepatitis, infiltration of lymphocytes, coagulation necrosis and fatty changes of the liver. In conclusion, the herbal preparations have to be subjected to rigorous investigation to elucidate the efficacy and the safety before of the plant is used by human.

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Diabetes awareness

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The aim is to educate the audience through the provision of information on diabetes. This disease is far too prevalent in our society and unfortunately there is no cure! What is currently practiced is an attempt to control one's blood sugar with medications which themselves have adverse effects on the body. It is for this reason that I believe that the only effective way to treat diabetes is by its prevention. I will therefore focus on attempts at preventing this disease. Among the various attempts of prevention are: (1) healthy lifestyle (2) weight management and (3) physical activity. Having observed the devastation caused by the disease, affected individuals suffer from head to toe. The brain is affected with increased incidence of Alzheimer and Dementia among individuals who suffer with the disease. There is an increased incidence of visual disturbances which may lead to blindness. The circulatory disturbances lead to foot ulcers, the diabetic foot and worst amputations. There is an increased incidence of heart disease, myocardial infarction and strokes among diabetes. And in men there is an increased incidence of impotence with diabetes which has its effects on family life and the man's self-esteem. Every 17 seconds, a patient in the World is diagnosed with diabetes. Researchers argues more than 371 million people across the Globe have diabetes. This figure is predicted to rise over 550 million by 2030. There is an urgent need to address this disease. After this devastating information, the good news is the condition is preventable. So, the next time you are tempted to overindulge in the foods we love, remember you may be eating yourself into a disease state for which there is no cure.

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Evaluation of the medical and dietary management of type-2 diabetes mellitus among urban and rural dwellers of Ughelli South Local Government Area of Delta State, Nigeria

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Statement of the Problem: The primary goal in the treatment of diabetes is for patients to maintain proper metabolic control and to reduce the risks of health complications. However, poor patient education on the management of diabetes including self-monitoring and control of glycaemia, non-adherence to treatment regimen have been reported to contribute to poor diabetes care and treatment outcomes. This research work evaluated the medical and dietary management of type-2 diabetes mellitus among urban and rural dwellers of Ughelli South Local Government Area of Delta State, Nigeria.

Methodology: The study utilized a cross-sectional design and qualitative methods among 20 type-2 diabetes mellitus patients, 10 each from both urban and rural area selected purposively. The research instrument was an in-depth interview guide, which was analyzed thematically, interpreted and the findings discussed.

Findings: The study revealed that persons aged 45years and above had a high risk of developing type-2 diabetes and there was high level of awareness of type-2 diabetes among the subjects. However, urbanization influenced the level of understanding of the disease and compliance with recommended medical and dietary therapy. In addition, factors such as religious belief in faith healing, herbal remedies, ignorance, low socio-economic status and poor access to health facility were found to influence the participants' attitude to effective medical and dietary management of type-2 diabetes.

Conclusion & Significance: Urban subjects demonstrated a better knowledge and management of the disease than their rural counterpart. Recommendations are made for the Ministry of Health to carry out a massive awareness campaign and screening programs in rural areas to identify cases of type-2 diabetes among the high-risk group.

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Evaluation of effect of Krishnadi choorna in management of Tamak shwas W.S.R. to bronchial asthma

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In the current study, 60 patients of *Tamak Shwas* have been selected randomly divided in two groups. The patients showing classical symptoms of *Tamak Shwas* such as *Shwaskruchhrata* (dyspnoea), *Kasa* (cough), *Ghur-Ghurak Shabda* (wheezing or rhonchi) during night, *Kasten Shleshma Moksha* (difficult in expectoration), *Kasten Bhashya* (difficult in expectoration), *Anidra* (insomnia) etc., were included in this study. For the present study we were given Krishnadi Choorna orally. It reduces respiratory rate effectively and increases expansion of chest, breath-holding time and peak expiratory flow rate and sustained maximal inspiration which was highly significant statistically as compared with tab. Deriphyllin. Out of 30 patients included in group A none patients showed total relief in symptoms, 7 patients was markedly improved (50 to 75%), 21 patients were improved (25 to 50%), 2 patients were unchanged (less than 25%). Out of 30 patients included in group B none patient showed total relief in symptom, 3 patients were markedly improved (50 to 75%), 26 patients were improved (25 to 50%), 1 patients were unchanged (less than 25%). At the end of the study, it was found that *Krishnadi Choorna* in group A is more effective than in group B.

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A clinical study on the anti-diabetic effect of an Indian fruit *D. indica*

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Non-communicable diseases have been rising steadily in India and are second only to communicable disease in terms of their contribution to the disease burden. Amongst the NCDs, the prevalence of Diabetes mellitus has been rising at an alarming rate. Diabetes mellitus is a clinical syndrome characterized by hyperglycemia due to absolute or relative deficiency of insulin. People with diabetes have an increased risk of developing many serious health problems. Consistently high blood glucose levels can lead to serious diseases affecting the heart and blood vessels, eyes, kidneys, nerves and teeth. In addition, people with diabetes also have a higher risk of developing infections. Despite tremendous progress made into the understanding of the etiopathogenesis, diagnosis and management of diabetes mellitus an efficient, cost effective drug for long term management of diabetes remains elusive. Because of the limitations in the presently available oral hypoglycemic agents the use of alternative therapies that can manage diabetes efficiently and safely is now encouraged amongst the scientific community. Open non-comparative trial was done with powder of the trial drug *D. indica* to explore and study its efficacy in the management of diabetes. The effect of the drug *D. indica* on the Fasting Blood Sugar (FBS) is found to be statistically highly significant in each follow up ($P < 0.001$). In case of Post Prandial Blood Sugar (PPBS) with the mean difference had increased gradually from 180 ± 5.6 to 168.45 ± 12.1 and 155.9 ± 16.7 at 8, 16 and 24 weeks of treatment, respectively. The results of the therapeutic trial showed that the trail drug *D. indica* was very effective in controlling the blood glucose level. The result of the RCT proves that use of plant based anti-diabetic agents can be very valuable to manage diabetes mellitus and its complications.

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Comparison of anxiolytic effects of the homeopathic complex vita-C 15 in comparison with *Aconitum napellus* in the acutely stressed C57BL6 mice

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Anxiety, phobias and stress are the main mental health problems among the Malaysian population, with global prevalence varying from 8% to 18%. Even so, less than 30% who suffer these disturbances seek treatment. The objective of this study is to evaluate and compare the anxiolytic effects of *Aconitum napellus* and Homeopathic complex vita-C 15 in the acutely stressed C57BL6 mice by using the fecal corticoid test, Open Field Test (OFT) and c-fos, NMDAR 2B, NPY 1R and NPY 2R activity through the hippocampus. A double blinded randomized controlled study is conducted at Animal Laboratory of Cyberjaya University College of Medical Sciences (CUCMS). All the animals are acclimatized to constant laboratory conditions for 14 days before starting the experiments. Prior to the experiment, a pilot study is performed to identify the most suitable and ideal potency for the homeopathic remedy of *Aconitum napellus*. The animals are tested (n=3) per group on the potency of 6 C, 30 C and 200 C. The treatments are carried out over 9 days. 48 male C57BL6 mice (n=6), 4-5 weeks of age are used. They are randomly selected and divided into two groups. Group-I is the healthy control group of mice which are not exposed to acute stress. Group-II (stress group) comprise of mice expose to acute restraint stress. Prior to restraint stress, the treatments given are *Aconitum napellus* 30 cH, Homeopathic complex vita-C 15, Diazepam and placebo. Then the results are evaluated by fecal CORT test and open field test by comparing the anxiolytics between pre-test and post-test. *Aconitum napellus* 30 cH and Homeopathic complex vita-C 15 are expected to be more effective and can reduce the occurrence of anxiety in the acutely stressed C57BL6 mice. Thus, research into prevention and supportive therapies is necessary and beneficial for this disorder.

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Beneficial effect of *Amorphophallus paeoniifolius* in the management of diabetic neuropathy

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Present study was undertaken to evaluate the effect of tubers of *Amorphophallus paeoniifolius* in the treatment of diabetic neuropathy. *Amorphophallus paeoniifolius* (Araceae family) have been widely used as a potential natural medicinal product in traditional Indian Ayurveda. Animals were divided in 4 groups (n=6), diabetes was induced by STZ 60 mg/kg, IP and treated with methanolic extract of *Amorphophallus paeoniifolius* at of 250 mg/kg and 500 mg/kg p.o. dose for 3 weeks. Measurement of blood glucose level was used to determine diabetes. For determination of diabetic neuropathy tail flick, swim endurance test and Rota-road method were used. There was significant increase ($p<0.01$) in the blood glucose level in negative group compared to control group of rats. There was decrease ($p<0.01$) blood glucose level in STZ+AP extract (250 mg/kg) and STZ+AP extract (500 mg/kg) treated group compared to Negative-control Group. There was significant increase ($p<0.01$) in time to flick the tail of diabetic rats compared to control group which were significantly improved in STZ+AP extract (250 mg/kg) and STZ+AP extract (500 mg/kg) treated group compared to Negative-control group. Muscle strength was significantly decreased ($p<0.01$) in rats treated with STZ analyzed on Rota-rod apparatus. There was significant improvement ($p<0.01$) in muscle strength in STZ+AP extract (250 mg/kg) and STZ+AP extract (500 mg/kg) treated group compared to negative-control group. Mobility time was decreased in negative group measured in force swim test and treatment with STZ+AP extract (250 mg/kg) and STZ+AP extract (500 mg/kg) shows significant improvement in mobility time treated group compared to negative-control group. Present study concludes that methanolic extract of *Amorphophallus paeoniifolius* may be useful in treatment and management of diabetic neuropathy.

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Insulin sensitizing effect of cinnamon

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In our 14 month of clinical study, the commonly used Indian spice Cinnamon showed excellent results in pre-diabetic and newly diagnosed diabetic patients. In our clinical study, we have tested the blood sugar lowering and insulin-sensitizing effects of Cinnamon (*Cinnamomum cassia*). In our study, we have used 3 gm of cinnamon in capsules to people with diabetes for 90 days. In 45 days, improvements in both fasting blood sugar and in LDL (bad) cholesterol evidenced. Although some clinical trial results have been equivocal, several have shown benefits of cinnamon on glucose, lipid and insulin levels. Studies also showed, cinnamon can potentiate insulin action and improve insulin resistance and glucose metabolism, although the detailed biochemical mechanisms aren't completely clear. Bioactive compounds in cinnamon affect several steps in insulin signaling pathways. For example, research has shown that certain water-soluble polyphenol compounds (type A polyphenols) extracted from cinnamon may increase insulin sensitivity by inhibiting an enzyme (a tyrosine phosphatase) that inactivates insulin receptors. Other research has found that water-soluble cinnamon polyphenols increase insulin-dependent proteins (GLUT-4) required for glucose uptake by adipose and muscle cells. Cinnamon extracts also may decrease proteins involved in glucose production in the liver (gluconeogenesis). In addition, cinnamon compounds have antioxidant and anti-inflammatory actions, which may play a role in reducing insulin resistance and diabetes complications. The consumption of cinnamon is associated with a statistically significant decrease in levels of fasting plasma glucose, total cholesterol, LDL-C and triglyceride levels and an increase in HDL-C levels. However, no significant effect on hemoglobin A1c was found. The high degree of heterogeneity may limit the ability to apply these results to patient care, because the preferred dose and duration of therapy are unclear.

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In vivo screening of the extract of *Solenostemon monstachus* and *Ocimum gratissimum* for the management of type-2 diabetes

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Diabetes is one health challenge that can restrict someone the benefit of a smooth and promising life. It is a costly disease, placing a high financial burden on the patient and the healthcare system. If poorly managed or left untreated, it can cause blindness, loss of kidney function and conditions that require the amputation of digits or limbs. To avoid these complications, we investigated the efficacy of the mixture of a locally use herbs use for the management of the condition in Africa *Solenostemon monstachus* and *Ocimum gratissimum*. The investigation was in two phases-the first phase involves the use of zebra fish, while 25 volunteer's human were studied in the second phase. The fishes were induced with diazinon (a chemical that causes hyperglycemic in animal and human). After 96 hours, they were transferred to distilled water. The control fish were not treated with the herb but hyperglycemic with the diazinon. To obtain more significant results, blood sugar responses were monitored at different times after administration of herbs mixture at different dosages. The fish were not fed during this period. In each case, the changes in the different treatments were compared with the control. All the doses of the herb gave positive results (range between 45-112 mmol/L). The human volunteers with ascertained medical records and are suffering from type 2 diabetes were given the dose that maintained the sugar level between 75-85 mmol/L thrice daily. The volunteers were advised to eat without restriction for 96 hours. At the end of the investigation, their sugar level was measured. The sugar level of the patients ranged between 61-89 mmol/L, which is within the normal range. This finding revealed the efficacy of these herbs and holistic investigation of the efficacy of these plants mixture is inevitable and if harness it will reduce the conscientiousness attached to diabetes in our society.

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Holistic perspective for positive health in diabetes due to lifestyle disorders

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In the present fast-track standard of living of people, attributes like stressful living, dietetic incompatibilities and sedentary lifestyle leading to reduced physical activity persuade the manifestation of the disease. In Ayurveda, Madhumeha, a Tridosha predominant disease commonly manifested with Prabhūta Āvila Mūtratā (increased frequency and turbidity of urine) is considered as Non-Insulin-Dependent DM (NIDDM). Stress (Psychology), an unpleasant state of emotional and physiological arousal that people experience in situations that they perceive as dangerous or threatening to their well-being. Stress influences mental health as well as physical health. People who experience a high level of stress may become irritable, socially withdrawn and emotionally unstable. The oxidative stress may be amplified by a continuing cycle of metabolic stress, tissue damage and cell death, leading to increased free radical production and compromised free radical inhibitory and scavenger systems, which further exacerbate the oxidative stress. Structural characterization of the cross-links and other products accumulating in collagen in diabetes is needed to gain a better understanding of the relationship between oxidative stress and the development of diabetes. In the Thoughts of Modern Thinkers, we find yoga as a system of conscious evolution and self-perfection. Meditation is designed to achieve subjective goals such as contemplation, wisdom and altered states of consciousness. A noteworthy attempt ought to be accessible in the field of epidemiology, genetics, molecular biology and synthetic chemistry to uncover substitute course of action to fight against diabetes.

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Prevalence of dyslipidemia and atherogenic risk among type-2 diabetic outpatients in teaching hospital

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Dyslipidemia is major risk factor of cardiovascular diseases and concurrently, CVDs are responsible for 68% cause of mortality among type-2 diabetes. The study aimed to determine dyslipidemia and atherogenic index, among type-2 diabetic outpatients. A cross-sectional study was conducted. The waist circumference, fasting blood glucose, HbA1c, serum total cholesterol, triglyceride, high density lipoprotein, low-density lipoprotein, coronary risk and atherogenic index were determined. Sociodemographic data were collected with questionnaire. Data were analyzed using SPSS version 23. Out of 152 subjects, 37 (24.3%) were males and 115 (75.7%) were females. The prevalence of hyperglycemia was 74.3%. The prevalence of single dyslipidemia, combined dyslipidemia and mixed dyslipidemia were 63.8%, 15.8% and 1.3%, respectively. Also, 35.3% of subjects had high coronary risk and 5.3% had high atherosclerosis risk. Coronary risk was strongly associated with TC ($r=0.690$, $p<0.0001$) and LDL-C ($r=0.783$, $p<0.0001$). Additionally, atherosclerosis risk was strongly associated with TG ($r=0.817$, $p<0.0001$) and VLDL-C, ($r=0.817$, $p<0.0001$). Logistic regression showed TC, TG, LDL-C had significant effects on coronary risk for cardiovascular diseases (TC: OR=2.640, 95% CI=1.879-3.708, $p<0.0001$, TG: OR=2.549, 95% CI=1.342-4.841, $p=0.004$, LDL-C: OR=4.858, 95% CI=2.902-8.135, $p<0.0001$, respectively). Atherogenic dyslipidemia was high among type-2 diabetics and was significantly associated with high coronary and atherosclerosis risk. Atherogenic dyslipidemia is predisposing factor of CVDs among type-2 diabetics, putting them to high risk of mortality.

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Rosa damascena: A potent medicinal herb

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The present review aims to compile up to date and comprehensive information of *Rosa damascena* with special emphasis on its various scientifically proved pharmacological activities, traditional and folk medicine uses. In this review, we have attempted to highlight the work carried out on different biological activities of *Rosa damascena*. The anti-depressant, hypoglycemic, anti-inflammatory, analgesic, antioxidant, antimicrobial activities of *R. damascena* has been confirmed. The main ingredients of *R. damascena* essential oil responsible for pharmacological activities are geraniol and citronellol. It has been recognized in different traditional system of medicines for the treatment of various diseases of human beings in the form of paste and powder. This plant is traditionally claimed to be used for the treatment of ailments including anti-bacterial and anti-lipase, etc.

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HERBAL AND ALTERNATIVE REMEDIES FOR DIABETES AND ENDOCRINE DISORDERS

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The anti-diabetic effect of *Lupine turmos* compared with anti-diabetic drug Glibenclamide

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Statement of the Problem: The problem of the study lied behind the fact that Sudanese diabetic patients are using some plants as a treatment, without any experimental data on their biological effects, their suitable dose and their role in diabetic treatment. Some diabetic patients are suffering from side effects of anti-diabetic drugs.

Purpose: To determine the biological effects of *Lupine turmos* which is used traditionally by diabetic Sudanese patients comparing with anti-diabetic drug Glibenclamide.

Methodology: The essays of the present study were conducted on albino rats which obtained from the faculty of pharmacy, University of Khartoum, Sudan. 30 albino rats of either sex weighing (135-250 g) and aged two months were used. 6 animals served as control, 6 animals were treated with anti-diabetic drug (Glibenclamide 10 gm/kg-body-weight) and 18 animals (three groups N=6) were administered with three different doses (200, 400 and 800 mg/kg-b.w) respectively. Blood specimens were collected from each group and serum levels of blood glucose, lipid profile and α -amylase concentrations were estimated.

Findings: The results shows an insignificant difference between the means of blood glucose in the two treated groups, group (4) which was treated with (400 mg/kg-b.w) *Lupine turmos* aqueous extract (blood glucose-111.9 mg/dl) and group (2) with (10 mg/kg-b.w) Glibenclamide (blood glucose-98.416 mg/dl). Cholesterol and triglycerides of treated groups were the same as group (3) with (10 mg/kg-b.w) Glibenclamide, there was no significant difference between two groups and control group. The aqueous extract of the plant inhibited α -amylase enzyme activity at a dose (200 mg/kg-b.w), in group (3) versus group (2) with Glibenclamide drug there was no significant difference between two groups ($p \leq 0.05$).

Conclusion & Significance: It can be concluded from this study that *Lupine turmos* aqueous extract have a hypoglycemic effect by reducing both blood glucose and α -amylase enzyme without any side effects.

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Beneficial effect of *Aloe vera* on renal functions in STZ-induced diabetic nephropathic animal by reducing oxidative stress and electrolyte imbalance

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Diabetic nephropathy is the vascular complications of diabetes diagnosed by increase blood pressure, micro albuminuria and decrease GFR. The present study evaluates the possible beneficial effects of *Aloe vera* Power (AP) on renal functions in STZ induced Diabetic Nephropathic (DN) animal and its possible mechanism. Diabetic nephropathy was induced by single dose of STZ (60 mg/kg of body weight, i.p.) and confirms it by assessing the blood and urine biochemical parameters on 28th day of after its induction. Selected DN animal were treated with AP (150 mg/kg and 300 mg/kg, p.o.) for the period of four week. Biochemical parameters in blood and urine were estimated after four weeks of treatment i.e. 56th day of protocol and oxidative stress parameters like Lipid Peroxidation (LPO), Superoxide Dismutase (SOD), Catalase (CAT) and reduced Glutathione (GSH) were estimated in the tissue homogenate of kidney. It was observed that treatment with AP results in significant improvement in renal function parameters. Results of the study also suggested that AP treated group's shows significant improvement in the oxidative stress parameters like decrease in SOD, CAT and GSH level and increase in LPO level significantly ($p < 0.01$) compared to DN animal. The levels of electrolytes were found to be improved in AP treated DN animal compared to DN animal. Present study concluded that AP ameliorates the renal function by reducing the oxidative stress and electrolyte imbalance in DN animals.

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Prevalence of gestational diabetes in some selected slums of Dhaka city

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Gestational Diabetes Mellitus (GDM) refers to any degree of glucose intolerance with onset or first recognition during pregnancy. This descriptive type of cross-sectional study was conducted to explore the prevalence of gestational diabetes in some selected slums of Dhaka city with a sample size of 236. It was found in the study that the majority of the participants (65.3%) were in the age group 16-25 years followed by 29.2%, 2.5% and 3% were in age group 26-35 years, <15 years and >35 years respectively with mean age 23.74 ± 5.644 years. Most of the respondents 78% were Muslim, 16.1% were Hindu and 5.9% were Christian. Among the respondents, 53% had primary education 12% had SSC, 4% had HSC, 3% had education of graduate and above. But 28% respondents were illiterate. Among the respondents 79.7% were housewife, 9.7% and 5.9% were engaged in service and business and rest 4.7% were day laborer. 76.3% of the respondents had monthly family income between BDT 5001-15000 and 13.6% had it between BDT 15001-25000, 9.3% had BDT <5000 and only 0.8% had BDT >25000. 49.6% of the respondents used supply water, 41.1% used water from rivers and ponds. Rest of them (9.3%) used boiled water. Among the respondents, 94.5% used sanitary latrine and rest 5.5% kacha latrine. 26.7% respondents had diabetes in family and 14% respondents had previous history of GDM. Among them, 78% normal delivery but 22% had caesarean section. Study also revealed that of the bad obstetric history, 68.2% had miscarriage, 6.4% had still birth, 5.1% had preterm baby and 14% had IUD. Study also showed that, 4.7% of the respondents had GDM and rest did not. It was also found that 20.3% of the respondents had hypertension, 55.1% had anemia, 19.1% had jaundice, 33.1% had edema, 40.7% had frequent urination and 14.8% of the respondents had visual problem. There was an association among age and FBG level which was statistically significant with p value <0.014. As GDM is a medical problem and sometimes threatened the life of the mother and baby. Adequate antenatal care should be given to the pregnant ladies for early identification and controlling the problem to avoid complications. Thereby the huge health expenditure for diabetes can be minimized.

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