CONFERECE PROCEEDINGS

3rd International Conference on Biotechnology, Bio Informatics, Bio Medical Sciences and Stem Cell Applications (B3SC), 01-02 July 2016, Singapore

01-02 July, 2016
Conference Venue
Nanyang Technological University, Nanyang Executive Centre, Singapore
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Carcinogenic and Organo toxic compounds in milk

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Abstract
Milk Adulteration has been a serious health issue since the last few decades because of increasing population, industrialization and urbanization of cities like Delhi. Milk is a major diet component for every individual, from infant to adult. Consumption of adulterated milk may cause serious developmental disorders in children. The aim of the present study is to analyse various toxic substance in milk samples collected from different zones of Delhi Capital Region by GC-MS. We observed 41 toxic compounds with varied degree of toxicity like Benzene and related compounds, phthalates and plasticizers, pesticide degradative products and Savoring agents in the samples. These compounds are reported to have ecotoxic, carcinogenic, mutagenic and organotoxic properties. The presence of such toxic substances may not show immediate effects but might cause a serious threat later in the life.

Key words: Carcinogenic; Mutagenic; Pesticides; Organotoxic; Phthalates; Plasticizers; Eco toxic.

Isolation and identification of microorganisms from sewage water showing high L–Asparaginase and low L-Glutaminase enzyme activity by 16srRNA amplification

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Abstract
L-Asparaginase (EC 3.5.1.1) belongs to a group of homologous amidohydrolases family, which catalyzes the hydrolysis of the amino acid L-Asparagine to L-Aspartate and ammonia. L-Asparaginase enzyme is used to treat cancers like melanoma, lung cancer, renal cell carcinomas, acute Lymphoblastic Leukemia (ALL) and hepatocellular carcinomas. The reason for using L-Asparaginase enzyme for treatment is that the tumor cells have an unusually high requirement for amino acids like Arginine and Asparagine. The enzyme, Asparagine synthetase in healthy cells converts aspartate to asparagine by using ATP as energy source but tumor cells cannot synthesize sufficient endogenous L-Asparagine due to very low levels of L-Asparagine synthetase and therefore are dependent on serum levels of Asparagine for their proliferation and survival. Administration of L-Asparaginase to tumor cells deprive them from L-Asparagines sources and lead to apoptosis. However, healthy cells escape unaffected as they are capable of synthesizing Asparagine de novo with the aid of the enzyme L-Asparaginase synthetase. Currently E.Coli and Ervinia chrysanthami L Asparaginase are being used to treat acute lymphoblastic leukemia but the limitation to biomedical application of this enzyme is its short life and instability for the processes of production and treatment and side effect of L-glutaminase activity in some cases. In the present study we isolated colonies by serial dilution on differential media, screened them for L-Asparaginase enzyme presence, and then enzyme activity for L-Asparaginase and L-Glutaminase was assayed in isolated colonies. Specific activity for L-Asparaginase was calculated and the best 10 samples showing high L-Asparaginase activity were sent for 16SrRNA sequencing to Yaazh xenomics,Madurai for identification. Five microorganisms were identified after sequence and submission to Gen bank. The data was analyzed statistically to select microorganism for having high L-Asparaginase activity and low L-Glutaminase activity for further study.

Key Words: Anti tumor enzyme, Apoptosis, L-Asparaginase, L-Glutaminase,
## Bioactive molecules from Artabotrys hexapetalus L. leaves

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### Abstract

The methanol extract of Artabotrys hexapetalus leaves possess high free radical scavenging activity, antibacterial activity and anti cancer activity. From the methanol extract n-Hexadecanoic acid and Z-8-Methyl-9-tetradecenoic acid, Propanoic acid, 2-methyl, pentyl ester, Octahydro-2(1H)-quinolinone, trisaccharide molecules have been isolated and tested their efficacy found that good antioxidant and cell cytotoxicity activity. The remaining partially purified fractions contain high antioxidant capacity with various in vitro models and anticancer activity. Here we concluded that the methanol extract of A.hexapetalus leaves and their fractions highly potent against various free radicals and MCF-7 cell line. This is the primary lead to produce novel biological agent from A.hexapetalus leaves.

### Key words: Artabotrys hexapetalus, antioxidant, phytoconstituents

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## Zika Virus: A Phylogeny-Based Drug Target Study

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### Abstract

Zika virus (ZIKV) is an emerging mosquito-borne virus recently linked to intrauterine growth restriction including abnormal fetal brain development. The recent outbreak of ZIKV reached pandemic level resulting in an alarming public health emergency. At present there is limited understanding of the infectious mechanism and no approved therapy. Nonstructural protein 5 (NS5) is essential for capping and replication of viral RNA and comprises a methyltransferase (MTase) and RNA dependent RNA polymerase (RdRp) domain. Although the crystal structure of ZIKV NS5 is not yet reported, structures of flavivirus NS5 domains are structurally conserved. We used bioinformatics approaches to obtain
the structure and a phylogeny based strategy is applied to target the druggable sites. This work provides the means for an emergency preparedness, to address a socioeconomic burden to a significant generation in the affected countries.

Modeling a novel drug eluting stent with a dual-delivery approach to prevent early restenosis

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Abstract
Restenosis is one of the main issues after stent insertion. To avoid this happening, some antiplatelet drugs such as Aspirin or Clopidogrel are orally being administered after surgery. However, due to the risk of bleeding, the first dose of drug is delayed for several hours depending on the patient condition. This delay may cause early closure of the arteries. It seems that using of drug eluting stents by which the antiplatelet drug is released into blood to cease platelet coagulation in early hours of convalescence may overcome this problem. This technology would be of great help to patients when arriving to the clinics. In this work, a mathematical model is presented to attain the drug release profile in the lumen and wall of artery. Furthermore, the effects of different parameters such as pulsatile flow of blood, non-Newtonian behaviour of blood, and polymer diffusion coefficient on drug release profile are studied in order to achieve the optimal design for drug eluting stents.

Evaluation of Cultural Condition for Bacterial Protease Production by Pasteurella pneumotrop

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Abstract
Bacterial proteases are among the most important hydrolytic enzymes and have been studied extensively since the advent of enzymology. Pasteurella pneumotrop is a gram-negative, rod-shaped bacterium that is frequently affects the upper respiratory tracts, digestive tracts of animals. Pasteurella pneumotrop showed best enzymatic spectrum and optimum enzyme activity in pH range of 8-9 and temperature of 50°C- 60°C. Soybean meal extract was the best nitrogen source for protease production whereas sucrose was the best carbon source. All the selected metal ions and inhibitors enhanced the enzyme production of all the selected bacterial isolates. The most important aspect of proteases is their optimum pH of activity. The alkaline proteases, Max activity in pH 8-9, hydrolyze extended spectrum of peptide bands and are inactivated with metal chelators. The detection
and isolation methods of *Pasteurella pneumotrop* are based on resistance of their endospores to high temperatures such as 50ºC for 10 minutes. Maximum protease enzyme activity with *Pasteurella pneumotrop* on the basis of inhibition zone and enzyme production. Maximum activity on 4th day. After peak value there was gradual decrease in activity. Our findings are with the close *Pasteurella pneumotrop* alkaline in nature as they showed their activity up to pH 9 and there after declined. Maximum activity at 60ºC. Sucrose and soyabean meal were found to support maximum protease activity. Showed decreased activity at both concentration of metal ion inhibitors. The effect of various metal ions (BaCl2, MgSO4, K2HPO4, CoCl2, CaCl2 and CuSO4,) inhibitors (sodium azide, EDTA and HgCl2) were tested for protease activity. Heavy metals ions (Cu2+, Hg2+, Ag+) have been known to act as non-competitive inhibitory of enzymes. There is no competition for active sites of enzyme by inhibitor and it fixes itself with some other site of enzyme. As a result, the physical structure of enzyme is altered. Therefore, such enzymes considered as metallo proteases. The present paper has been devoted towards better understanding of the various cultural conditions of this bacterial protease and their promising use in industries.

Keywords *Pasteurella pneumotrop*, soyabean meal extract, protease production.

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**Ckd Stages Analysis by Using Skin Texture**

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**Abstract**

The GFR rate is often used as a powerful discriminating classifier for tasks in medical diagnosis of kidney failure. The renal function measurements are important for the diagnosis and treatment of kidney disease, proper medication dosing, interpretation of possible uremia problems, and decision-making regarding when to initiate renal transplant therapy. Chronic Kidney Diseases (CKD) is being observed as a great challenge to the Medical and health industry with a great impact on a mass population of the world. The efficient and effective method of forecast and classification of functional abnormalities of kidney was obtained by using Glomerular Filtration Rate (GFR) which indicates the functionality of kidneys and it was obtained by using Modification of Diet in Renal Disease (MDRD) equation, CKD equation and the data’s are analyzed by using statistic algorithm. In this paper Skin texture was consider as a new parameter and modifies the GFR calculation method based on the skin texture of the CKD patient.

Keywords: Glomerular Filtration Rate (GFR), Chronic Kidney Diseases (CKD), Modification of Diet in Renal Disease (MDRD).

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**Novel Flexor Tendon Repair Technique Using A Titanium Button: A Conceptual Exploration**

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3rd International Conference on Biotechnology, Bio Informatics, Bio Medical Sciences and Stem Cell Applications (B3SC), 01-02 July 2016, Singapore Nanyang Technological University, Nanyang Executive Centre, Singapore
### Abstract

**Purpose:** A novel 4-strand flexor tendon repair using titanium disc-plates, known as “Ti button technique”, was developed.

**Methods:** Ti button technique uses 4-0 Fiberloop to anchor a pair of “buttons” on the tendon surface. Twenty porcine flexor tendons were repaired using Ti button technique and Lim-Tsai repair equally for comparison purposes. The ultimate tensile strength (UTS), load-at-2mm gap, repair stiffness and mode of failure were tested using a mechanical tester. Subsequently, twenty cadaveric flexor digitorum profundus tendons were repaired with either technique, and subjected to gliding resistance measurement at the A2 pulley using a custom-made jig. Mean data were compared using student’s t-test at 0.05 significance level.

**Results:** The Ti button technique had higher UTS \( p = 0.003 \) and repair stiffness \( p = 0.02 \), but comparable load-at-2mm gap \( p = 0.29 \). 70\% of Ti button technique tendons failed by suture rupture, while 60\% of Lim-Tsai technique tendons failed by suture pullout. At \( n = 2 \), Ti button technique had gliding resistance of \( 1.8 \pm 0.3 \) N and friction coefficient of \( 1.1 \pm 0.8 \), while Lim-Tsai had \( 1.9 \pm 0.6 \) N and \( 1.5 \pm 0.5 \) respectively.

**Conclusion:** With better biomechanical performance, Ti button technique appears promising for flexor tendon repair.
Abstract
Multifunctional nanostructures have received great deal of attention in biomedical area due to their capabilities in the development of new therapeutic and diagnostic agents. Silver and iron oxide nanoparticles, owing to their specific characteristics, are considered to develop bifunctional nanostructures for magnetic delivery of silver nanoparticles as cytotoxic agent toward cancer cells. Magnetic-silver nanostructures were synthesized via optimized chemical conditions; through the reduction of silver ions in the presence of iron-oxide nanoparticles using three different reducing agents (glucose, maltose and sodium citrate). Their physicochemical characteristics were determined using UV-vis spectroscopy, XRD, TEM, SAED, FTIR spectroscopy, AAS, VSM, and DSC. Cytotoxic activities were evaluated against HepG2 cell line. Apoptosis induction was investigated through flow cytometry and the influence on bax gene expression level was analyzed using quantitative real time PCR. Fabricated nanostructures, which exhibited differences in size, silver content, magnetic saturation value and cytotoxicity, represented sufficient superparamagnetic properties and considerable cytotoxic and apoptotic activity. Furthermore, the up regulation of bax gene expression suggested the involvement of the intrinsic pathway of apoptosis. Combined properties of silver and magnetic nanoparticles in the bifunctional nanostructures, provide a great potential to be exploited in the cancer therapy.
### Abstract

**Purpose:** The purposes of this study were to compare perceived and actual 10-year risk for cardiovascular disease (CVD), and to evaluate the influence of cardiovascular risk factors on perceived CVD risk in outpatients with rheumatoid arthritis (RA) in Korea. Additionally, the attainments of cardiovascular disease prevention guideline goals by three levels of CVD (low, moderate, and high) risk were presented.

**Methods:** This cross-sectional study collected data from 208 outpatients with RA. Actual CVD risk was estimated with the Systematic Coronary risk evaluation (SCORE) chart and goal attainments were assessed with the EULAR guidelines. Actual CVD risk and perceived risk was compared with cross-tabulation. Chi-square tests were used to evaluate differences in cardiovascular risk factors by perceived risk. Levels of goal attainment were presented with percentages.

**Results:** Among patients with RA, 14% were identified to be at high risk for CVD; 39.9% at moderate risk, and 46.2% at low risk, and there were substantial gaps between actual and perceived CVD risk. Use of antihypertensive or lipid lowering medications significantly increased the chance of perceiving patients with RA to be high risk for CVD. Diabetes, smoking, physical inactivity, or obesity did not affect perceived risk. The proportion of patients with RA who did not meet the prevention guideline goals was substantial.

**Conclusion:** Patients with RA at increased risk for developing CVD need to be managed as soon as possible to attain the guideline goals and accordingly to lower their risk for future CVD.

**Key words:** Cardiovascular disease; Guideline Adherence; Perception; Rheumatoid Arthritis; Risk

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### Effects of Internet Addiction on Heart Rate Variability in School-Aged Children

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**Abstract**

**Background:** The internet has been gaining worldwide popularity in the recent years, but a loss of control over internet use might lead to negative impacts on our daily lives. **Objectives:** This study explored the effects of internet addiction on autonomic nervous system function through heart rate variability (HRV) analysis.

**Methods:** This was a cross-sectional design. Data were collected from 240 school-aged children who completed the Chinese Internet Addiction Scale and Pittsburgh Sleep Quality Index questionnaires. HRV was measured by spectral analysis. Independent *t*-test was used to compare differences in characteristics and HRV between groups. A two-way ANOVA was used to examine group differences of the HRV.

**Results:** Internet addicts had a significantly lower HF%, LnHF, LnTP, and a significantly higher LF% than those of non-addicts. Internet addicts who suffered...
from insomnia had a higher LF%, and a lower HF%, LnHF, and LnTP compared to non-addicts who did not have insomnia.

Conclusions: Internet addiction was associated with higher sympathetic activity and lower parasympathetic activity. The autonomic dysregulation associated with internet addiction might partly result from insomnia, but the mechanism still needs to be further studied.

key words: children, internet addiction, insomnia, heart rate variability

Willingness of Participating in an Internet-based Training on Public Health Service among Primary Healthcare Workers in China

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Abstract

The objective of this study was to explore the willingness of primary healthcare workers (PHWs) to join an Internet-based training (IBT) on public health service using a questionnaire survey. A total of 788 PHWs from Hubei province in central China joined this study, of which 77.3% prefer to join a pure IBT or a mixture of IBT and face to face (F2F) training, and 22.7% prefer to join a pure F2F training. Age or sex is not significantly associated with their training preferences ($P>0.05$). Education background, computer literacy, study motivation, and work place are significantly associated with their training preference. PHWs graduated from middle school or below are more likely to join F2F training than those with a higher education level (OR=2.51, 95%CI:1.34-4.69). Although there are few PHWs without computer literacy in our sample, these are more likely to join F2F training (OR=9.62, 95%CI: 3.95-23.42). Participants joining public health service training due to passive motivations prefer to get F2F training compared with those with active motivations (OR=6.27, 95%CI: 4.18-9.40). PHWs in rural areas, especially those in villages, prefer to F2F training than those in urban areas, (PHWs in rural towns: OR=2.72, 95%CI: 1.23-6.03; PHWs in rural villages: OR=3.13, 95%CI: 1.47-6.68). In multi-variable analysis, working in rural villages, joining training due to passive motivations and lacking of computer literacy are still significantly associated with F2F training. This study can help to identify the PHWs of high willingness to join an IBT on public health service and suggest implement training for these firstly.

Household Food Security among Myanmar Migrants in Tha Chin Sub-District, Samut Sakhon Province, Thailand

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Abstract
The global population is continuing its growth after Great Famine, Black Death and Second World War. In July of 2015, it was estimated to reach 7.3 billion and it may continue to reach 11.2 billion in upcoming 2100 (UN, 2013). In previous era, this may be a good news for people, as they want to grow more and more. But, nowadays it is not a good news for our future generation as many problems become more and more severe and dangerous with that much population such as sharing food and water, sharing own territories, competition for land and resources, tightening living spaces, population displacement, religion and ethical crisis, racism, and many others. Among these problems, displaced population (migration) and food security become very important issues, as these problems are currently present in every continent of the world. Migration can be divided into internal and external migration. In internal migration, groups of people migrate from one place to another place within the same country, but in external, they pass through the national border to go to another country. Problems related with economic migrants (migrant workers), brain drainage, and political or conflict migrants (refugee) are threatening not only the developing countries but also the third countries in northern hemisphere. So, migration is the problem of the whole world. Food insecurity is one of the most important problems, which are related to migrants. In native countries, it becomes top problem as farmers and food product workers go away for various reasons and there are not enough work force to replace them to produce food and food products for local people. In host country, native people and migrants become to share food and food products, and this lead to increase food prize and get impact upon food security. Thailand it known to be one of the top food exporters of the world and its economy can stand at the top list of the region. Therefore, many cheap workers from neighbors came into Thailand as migrants or refugee, as neighboring countries suffered for civil wars, ethnic conflicts and economy break down. Among these migrant workers, Myanmar people stand as the largest migrant community in Thailand. 2014 Myanmar National Census showed that 1,418,472 Myanmar residents (812,798 men and 605,674 women) were living in Thailand. Food security can be measured in various ways (food production, food access and food utilization). For community level, there are more than ten measurement methods (scoring, categorizing, etc.), which are widely used in international organizations to measure food security or insecurity. The research gap is that most of the previous measurements and researches use only one measurement method for each paper to estimate food security. Therefore, we used three measurement methods which are Household Food Insecurity Access Scale (HFIAS) which is aimed to measure food security quantity and psychological condition, Household Dietary Diversity Score (HDDS) which is aimed to measure food security quality and diversity, and Body Mass Index (BMI) which is aimed to measure food utilization of each household member. We measured by primary data collection (cross-sectional descriptive and analytical study) to 200 Myanmar migrant households with purposive sampling method and research objective is to describe and analyze household food security.
status among Myanmar migrants in Tha Chin Sub-district, Samut Sakhon Province, Thailand. Each question form include five question sets (socio-demographic status, food access, HFIAS, HDDS and BMI) and all the questions were interviewed to household food provider except BMI which is measured to all household members (except children, pregnant women and chronic patients). The result showed that migrant families are food secured in quantity assessment and no psychological problems upon food security but they are not food secured in quality (diversity) way, as many of them were unable to eat all required (desired) food groups. BMI of most of the family members are being in normal range because they are current physical workers in factories and industries. After analyzing with socio-demographic status and food access factors, quality (diversity) impairment is related with young age and being male of household food provider, major ethnic type of family, low total income and low daily food expenditure. After getting results, we informed the local charity organizations, NGOs and local authority about the required food groups among Myanmar migrant people.

Condition and Consequences of Dengue in India: A Case Study in Bihar

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Abstract
The present paper analyses the status of dengue in India as well as its causes and consequences. The number of dengue cases has been steadily rising since 2007 in India with just 5,534 cases recorded by the report of Ministry of Health, Govt. of India. With 55,063 cases recorded during the October, 2013 there has been a ten-fold increase over six years. Bihar is one of the states of India which is more or less affected from dengue since 2006. Dengue fever is also known as ‘Break bone fever’ or ‘Dengue Hemorrhagic Fever’. It is a mosquito-borne tropical disease caused by the dengue virus. Dengue virus is transmitted by female mosquitoes mainly of the species Aedes aegypti. The disease is widespread throughout the tropics, with local variation in risk influenced by rainfall, temperature and unplanned rapid urbanization. This paper also tries to show the risk factors of dengue fever. It analyses the facts through primary as well as secondary data. In 2015, dengue cases have been also increased in India as well as Bihar. Patna Medical College and Hospital (PMCH) has been witnessing a steep rise in dengue patients in recent days. At present time, there is strong commitment at both a national and international levels to tackle the growing number of dengue cases. The World Health Organization (WHO) has declared dengue to be hyper endemic in India. WHO also believes unplanned urban development, poor water storage, and unsatisfactory sanitary conditions are the main causes of the increase in India. As well as gaining strength in the backward state like Bihar’s large urban centers, dengue is also becoming more widespread across rural areas, with the majority of district now reporting cases.

Keywords: Dengue, Break bone fever, Temperature, Rapid Urbanization, Disease.
Dual Wavelength Surgical Diode Laser

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Abstract
During invasive procedures, the risk of excess bleeding or infections arise due to the increased surface contact with air and tissue removals. In order to prevent such outcomes it is better to consider Selective Vaporization for tissue removal, during which a laser beam directed through a sterilized optic fiber is applied to said tissue. This causes a considerable increase in the absorption of hemoglobin and water, facilitating a minimally-invasive, fast and secure way of reducing unwanted or faulty tissue with instantaneous coagulation and almost no bleeding, different tissue reactions arise from various laser wavelengths, for example, a 980 nm laser results in high water and hemoglobin absorption which causes intracellular water to evaporate and leave vaporized cells as a protective coating on treated tissues, also the wavelength of 1470 nm has the highest water absorption rate and combined with the 980 nm laser creates the optimal surgery tool. These two wavelengths can be utilized in combination or singular, in pulsed and continuous modes. This results in better patient outcomes, patient/physician satisfaction and improved results over traditional tissue removal methods. This Laser product ensures the complete and irreversible removal of unwanted tissue. Different tissues call for different types of wavelength combinations in order to achieve optimal coagulations or tissue interactions. One of the factors that cause complications is the different cutting depths needed in various surgical settings, since improper configuration of the Laser product may result in surgical complications and unwanted tissue damage, these settings amongst many others are pre-configured at Takfam Co., the leading Laser manufacturer in the Islamic Republic of Iran.

Our product is equipped with an internal control unit, designed and preconfigured at Takfam Industries and is configurable through the user interface and preset values that ensure proper operation, cooling, and calibration, almost completely through power dedication to each module. An internal power meter monitors laser output and takes action in events of excess laser energy in order to reduce the diode laser output and eventually avoid tissue damage, this also facilitates easier calibration for the user. There is also a cooling mechanism designed in order to monitor and decrease diode temperature in an event of overheating.

In this paper the simulations ran in order to test and improve this laser product and also the clinical trials held in order to support such claims have been disclosed.

Impact of waste management training intervention on knowledge, attitude and practices of teaching hospital workers in Pakistan

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Abstract
Objective: The aim of this study was to evaluate the sustainability and effectiveness of training as an intervention to improve the knowledge, attitude and practices of hospital workers on health care waste management.
Method: We conducted this quasi-experimental study in two tertiary care teaching hospitals in Rawalpindi in October 2013. Training, practical demonstrations and reminders on standard waste management were given to 138 hospital workers in one hospital and compared with 137 workers from the control hospital. We collected data 18 months after intervention through a structured questionnaire to assess the impact of the intervention. We used paired t-test to compare the scores on knowledge, attitude and practices at baseline and first follow up and final impact assessment. Chi square test was used to compare group variables between intervention and control groups.
Results: After 18 months since intervention the mean scores on knowledge attitude and practices differed statistically significantly since baseline and intervention group had statistically significantly better knowledge positive attitudes and good health care waste management practices (p < 0.001). Health care and sanitary workers in intervention group scored statistically significantly higher (p < 0.001).
Conclusion: Trainings of health and sanitary workers on health care waste management guidelines were sustainable among the intervention group after 18 months which shows the positive impact of our intervention. It is recommended that the trainings as intervention be included in the overall policies of the public and private sector hospitals in Pakistan and other similar settings.
Key words: Hospital workers, Waste management, Knowledge attitude and practice, Intervention, Training

A survey on Relationship of Spirituality with the Perception of suffering and Quality of Life in Patients with Type 2 diabetes

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Ghajari H
Abstract
Background: Spirituality can be an important source of coping with the disease, reduce feelings of suffering and improving quality of life in patients with chronic diseases. Objectives: The purpose of this study was to determine the Relationship of Spirituality with the Perception of suffering and Quality of Life in Patients with Type 2 diabetes.
Materials and methods: This was a descriptive-correlation study. Participants were 145 patients with type 2 diabetes of rural health clinics and valiasr hospital in khoorramshahr city which were selected via stratified random and available sampling methods. Data collection tools were version of 29-item of the spiritual questionnaire (Parsian and Dunning), Experience and Perception of Suffering Questionnaire (Schulz) and version of 26-item of the Quality of Life Questionnaire (World Health Organization). Data were analyzed with using of SPSS version 16 software and by using Pearson's correlation, T-test, ANOVA, Post Hoc and Stepwise Regression analytical statistics.
Results: The spirituality average scores were 79/41±15/82, Perception of Suffering average scores 54/89±2/14 and Quality of Life 74/44±1/65. There was a significant negative relationship between spirituality and feeling of suffering (p<0.05) and significant positive relationship between spirituality and quality of life (p<0.0001).
Conclusion: A strong correlation between spirituality with quality of life and, Suffering in patients with type II diabetes, demonstrate the roles and responsibilities of healthcare providers, including physicians and nurses and patient's family in Meeting the varied spiritual and religious needs of patients Along with therapeutic actions. Paying attention to improve spiritual health also is important in education programs for these patients.
Keywords: Spirituality, Suffering, Quality of Life, Type 2 diabetes.
Clinical and radiographic comparison of the effect of Platelet Rich Plasma, Platelet Rich Fibrin and induced bleeding in the revascularization of tooth with necrotic pulp and open apex. A clinical study

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Abstract

Introduction: A tooth with necrotic pulp and open apex is always a special challenge to the clinicians with respect to its management. An ideal outcome for such tooth should be regeneration of pulp-like tissue into the root canal. There are several newer methods of revascularization. The present study has confined itself with the comparison of platelet rich plasma (PRP), platelet rich fibrin (PRF) and induced bleeding technique in the revascularization procedure.

Materials and Methods: 60 patients were randomly categorized into three groups. Induced bleeding group, PRF group and PRP group. The age group of the patients ranged from 6 years to 28 years, 32 males and 28 females. Institutional ethical clearance was obtained and informed consent was taken. All the patients were clinically healthy with no underlying systemic illness. Schei’s ruler was used to measure the changes in the root length and root thickness in order to standardize the measurements.

Results: Clinically none of the patients presented with pain, reinfection or radiographic enlargement of the pre-existing apical pathosis in all the 3 groups. PRP gave quicker results with respect to periapical wound healing compared to PRF and Whole Blood when used in the revascularization of tooth with necrotic pulp and open apex. PRP was better than PRF and induced bleeding with respect to periapical wound healing when used in the regenerative endodontic procedures.

Conclusion: On analysing the pros and cons of the techniques performed, it is wise to establish induced bleeding technique as the standard endodontic procedure for revascularization of a non-vital immature permanent tooth.

Key words: Revascularization, open apex, Platelet Rich Plasma, Platelet Rich Fibrin, Schei’s Ruler.

Characterization of Indigenous Bacillus Thuringiensis Strains Based on Their Cry Genes and Cry Protein Profile

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Abstract

*Bacillus thuringiensis* (Bt) is widely used biopesticide. The aim of this study was to characterize indigenous *Bt* strains by their Cry protein profiling and to establish a correlation between the *cry* genes and their Cry protein profile. Through analyzing 21 strains by SDS-PAGE at 20, 40 and 72 hours, prominent protein bands were assigned presumptive Cry protein classes based on their molecular weight. From the whole cell protein profile at different time, it was observed that the molecular weight of the Cry proteins obtained from the indigenous *Bt* strains were in the range from 17 to 165 kDa. Cry1A class was the most prevalent among the strains. Cry2, Cry3, Cry6, Cry9 and cytotoxin class of endotoxins were also frequently found. *Bt* strains harboring potential Cry toxin classes (Cry1, Cry2, Cry3 and Cry9) were subject to PCR for the confirmation of the presence of respective *cry* genes. Twelve of the isolates showed the presence of Cry1A toxin and *cry1A* gene. Four isolates were found to contain both Cry3 toxin and *cry3* gene, four isolates showed the presence of *cry9* gene and only one isolate showed the presence of the *cry2* gene only. Thus correlation between the *cry* gene and Cry protein class was found. From the chronological protein profiles of the isolates it was presumed that protease activity might be present that was degrading the Cry proteins gradually. Ten of the isolates showed increasing protease activity while their protein concentration decreased with time. Finally RAPD genotyping of the isolates showed close relationships among the strains that contained *cry1A* and *cry9* genes.

Control of Fusarium Wilt of Chilli (*Capsicum annuum*) Through Different Fungicides and Biocontrol Agents

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Abstract

Fusarium wilt of chilli (*Capsicum annuum*) is most serious disease in Pakistan and causes many losses. It has broad range of crops on which it has potential to attach. Present study was conducted *in-vitro* and *in-vivo* conditions using the four isolates of *Trichoderma* and four isolates of *Pseudomonas* these are used as biocontrol agents and have capacity to minimize the effect of fusarium wilt of chilli. Following chemicals (mancozeb 75 WP, carbendazim 50 WP, Ridomil Gold, Antracol, and Cordate) was used at 250ppm, 500ppm and 750ppm in lab and field conditions. In Laboratory, evaluation of Chemicals and biocontrol agents under CRD design was done. Food poison technique and dual culture technique was used in *in-vitro* conditions. Maximum growth inhibition was (0.52cm) was expressed by Carbendazim 50 WP followed by Antracol (2.35cm), Ridomil Gold (2.36cm), Cordate (2.71cm) and Mancizeb 75 WP (2.75cm) as compared with control (96.71cm). Among four *Trichoderma* isolates, maximum inhibition was noticed in *T.*
viride. *Pseudomonas fluorescens* [Pf- I] was most efficient with 73.26% inhibition. Most susceptible variety of chilli sky red was tested in field against these chemicals mancozeb 75 WP, carbendazim 50 WP, Ridomil Gold, Antracol, under RCBD design at research area of Department of Plant Pathology University of Agriculture Faisalabad to determine their response against Fusarium wilt of chilli. Maximum reduction in disease (25.06%) was expressed by Carnedazim 50 WP followed by Mancozeb 75 WP (30.14%), Antracol (40.47%), and Cordate (46.47%) as compared to control (65.09%). Carbazan 50 WP and *T. viride* performed better among all chemicals and biocontrol agents. So these two products are recommended against Fusarium wilt of chilli.

Key words: *Capsicum Annuum*, Biocontrol, *Fusarium Oxysporum*, Dual Culture technique

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**Ratio of Film Density as an Indicator of Breast Cancer**

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**Abstract**

Cancer is the number two cause of death after cardiovascular disease. Breast cancer is a type of cancer that has the highest incidence in women, ie 38 per 100,000 women in the world. The initial diagnosis of malignancy of breast cancer is a very important thing, therefore, needs a diagnostic tool that can detect abnormalities in the breast. The purpose of this study was to determine the value range of the index as an indicator of breast cancer diagnostics through MATLAB 7.1-based software that has been developed previously. Gray level data retrieval is done by cropping the Region of Interest (ROI) of normal breast tissue (I_n), ROI breast cancer tissue (I_c), and ROI without object (I_o). The index value is calculated.
by comparing cancer gray level pixel ROI cancerous tissue with gray level pixel ROI patient’s normal tissue. Systematically cancer index value can be expressed in the equation \( n = \frac{\ln(T_x/I_o)}{\ln(T_n/I_o)} \). The value of the gray level image radiograph image radiograph breast cancer and normal breast can be differentiated, so that the gray level image analysis of radiographs can be used as a reference in determining the diagnosis of breast cancer. Software calculation results obtained value of normal breast tissue gray level \((I_n)\) range from 22 to 42, the value of gray tissue of breast cancer \((I_x)\) ranges from 143 to 210 with a value of gray without object \((I_o)\) is 1. So the range of values obtained ranged payudaraayang cancer index 1, 39 to 1.67. The results of this research may be used as one of the factors determining the consideration of quantitative radiographic image diagnosis based computers, thereby reducing inter radiologist subjectivity in determining breast cancer.

**Keywords:** digital image, breast cancer, gray level

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GICHNDM1603060  
Hypolipidemic Effect of the Lyophilized Fruit Pulp of Guyabano, Annona muricata Linn. (Fam. Annonaceae) in Atherogenic Diet-Induced Hyperlipidemia in Albino Rats  
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**Abstract**

Introduction: In 2011 Coronary Heart Disease (CHD) caused 57,864 or 13.73% of total deaths in the Philippines according to WHO. The age adjusted death rate of 121.63/100,000 population ranks Philippines at number 79 in the world. Projected deaths by CHD may reach 11.1 million globally by 2020. Hyperlipidemia is a significant risk factor in the development of CHD. Any significant reduction in mortality and/or disability from this disease will come from prevention and not cure. Therefore increased awareness and reduction of risk factors maybe the best lines of defense. Guyabano (Annona muricata Linn.) has been found to contain sterols and triterpenoids, constituents which have been attributed lipid lowering properties. The fruit pulp extract is lyophilized and the hypolipidemic property is explored through comparison with atorvastatin (Lipitor).

Experimental: In this study the phytochemical constituents of the Guyabano fruit-pulp extract was determined using standard tests. The hypolipidemic effect was evaluated against atorvastatin (Lipitor) as standard drug using albino rats as test animals. Hyperlipidemia was induced using an atherogenic diet of cholesterol. Three concentrations of the fruit-pulp extract were used based on mg/kg body weight; 500, 1000 and 2,000. Results were obtained by comparison of total cholesterol (TC), triglycerides (TG), Low density lipoprotein cholesterol (LDL-c),...
high density lipoprotein cholesterol (HDL-c) and atherogenic index of plasma (AIP). After the tests the test animals were sacrificed and histopathological evaluation of the liver, heart and blood vessels of the atherogenic-diet fed albino rats were conducted. Results and discussion: Bioassay findings show that the Guyabano fruit pulp can control in a dose dependent manner the increase in TC, TG, LDL-c and AIP. It can also decrease HDL-c caused by high fat and high cholesterol diet. Although results were remarkable Guyabano fruit pulp did not prove to be superior to the hypolipidemic effect produced by Atorvastatin. Histopathological analysis of the liver, heart and blood vessels also revealed that the fruit pulp is effective in curtailing the deposition of fats in the liver, heart and blood vessels which indicates potential ability to prevent the recurrence of hyperlipidemia. Phytochemical screening confirmed the presence of diverse constituents such as alkaloids, condensed tannin, polyphenols, reducing sugars, fixed oils, unsaturated steroids, deoxy-sugars and flavonoids which potentially might be responsible for the hypolipidemic effects. Conclusion: Although atorvastatin proved to be superior in lowering TC, TG, LDL-c and AIP and decreasing HDL-c the lyophilized fruit pulp of Guyabano showed a significant lipid-lowering activity which increased as the dose is increased. It is recommended that higher doses be used as the lyophilized fruit pulp extract is relatively safe. The use of Guyabano however is suggested to be taken as a supplement to the diet as the fruit is easily available in the Philippines. Guyabano to some extent is effective in preventing the deposition of fats in the liver, heart and blood vessels. A follow up study should be done wherein the induction of hyperlipidemia is prolonged to thoroughly establish the hypolipidemic property of the fruit. Further studies to investigate the possible mechanisms of action of the hypolipidemic property are hereby recommended.

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GICHNDM1603061

Assessing the Impact of Knowledge on the Attitude towards Organ Donation among Medical and Non-Medical Students in Bhopal, India

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Abstract

Background: There are unending waiting lists for organ procurement against handful of organ donors which induce a big dearth of cadaveric organs for transplantations. India since past several years is facing shortage of organs, where nearly five lakh people die due to non-availability of organs annually. The organ donation rate (ODR) per million population (PMP) for India is 0.26 persons, compared to Spain and Croatia having ODR 36 and 36.5 PMP. Objective: The main purpose of the study was to get a deeper insight into barriers to organ donation in India and analyze if knowledge has any positive impact on attitude towards organ donation. The study also attempts to quantify population’s acceptance for incentivizing donation as in Singapore and adoption of opt-out policy in India for enhancing donation rate like Spain. Methodology: This is a cross sectional study comparing two groups of students from medical and non-medical universities respectively, to see if there is any significant difference in the level of
knowledge among them and whether this difference has any association with their attitude and practice towards donating organs. A total of 608 participants were chosen from 6 different colleges of Bhopal (Madhya Pradesh) India, by convenient sampling. The survey instrument used was a pre-designed questionnaire. Data Entry done by Epidata entry client. The resulting data analyzed using SPSS 21 and Stata 13.

Findings: Results found that none of the demographic factors like gender, age, marital status, religion or education, had any correlation with the current donor status of the population. Though medicos have significantly higher knowledge and attitude towards organ donation, surprisingly the actual numbers of registered donors were higher among non-medical group. Pearson’s analysis observed mild correlation between knowledge and attitude in both the groups clearly indicating that knowledge alone cannot be associated with increased donation rates and several other factors need to be studied. Quantification of this association using regression model indicates, that a unit increase in knowledge level will increase the attitude to donate organs in medical group by 0.5 units, which is further less in the non-medical group being 0.4 units. Other factors identified as barriers to organ donation were, disrespectful handling of body, fear of misuse of organs and lack of support from family in their decision. Amusingly, a big percentage of participants think religion to be the biggest reason for not donating organs, however the review of literatures from major religions consider donation to be one of the highest acts of nobility and altruism. Unlike previous studies, 89% medical and 76% non-medical welcomed incentivization of donors or their families to acknowledge them. Further, more than 50% people in both the groups were positive on the adoption of presumed consent or opt-out policy like in Spain.

Recommendation

1. Religious leaders should be brought in, to motivate people and remove misconceptions and fear of death related issues and focus on the altruistic perspective of organ donation
2. Basic information on organ donation should be included as a part of school and university curriculum
3. A just system of organ procurement and distribution should not only be made, but also be publicized among the masses
4. Motivational messages should be sent through the use of mass media and inspirational public figures
5. Practice of honoring the cadaver should be followed by students and teachers from the starting of medical course session, like in Korea and Thailand

Keywords: - Organ donation, transplantation, monetary incentives, brain-death, opt-out policy
LISTENERS

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