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Research papers

Adverse drug reactions and associated factors in a cohort of Sri Lankan patients with non-communicable chronic diseases

anika LGT, Jayamanne S, Coombes J, Coombes I, Wijekoon CN

Antioxidant activity of some Sri Lankan endemic medicinal plants

Weerasinghe WPNW and Deraniyagala SA

Development and validation of a survey instrument to assess attitudes of healthcare professionals on using 2D bar-code technology: an extension of the Technical Acceptance Model

Samaranayake NR, Cheung BMY

Extemporaneous formulation and stability assessments of piroxicam loaded virgin coconut oil based creamy emulsions

Pasansi HGP, Sakeena MHF

Reviews

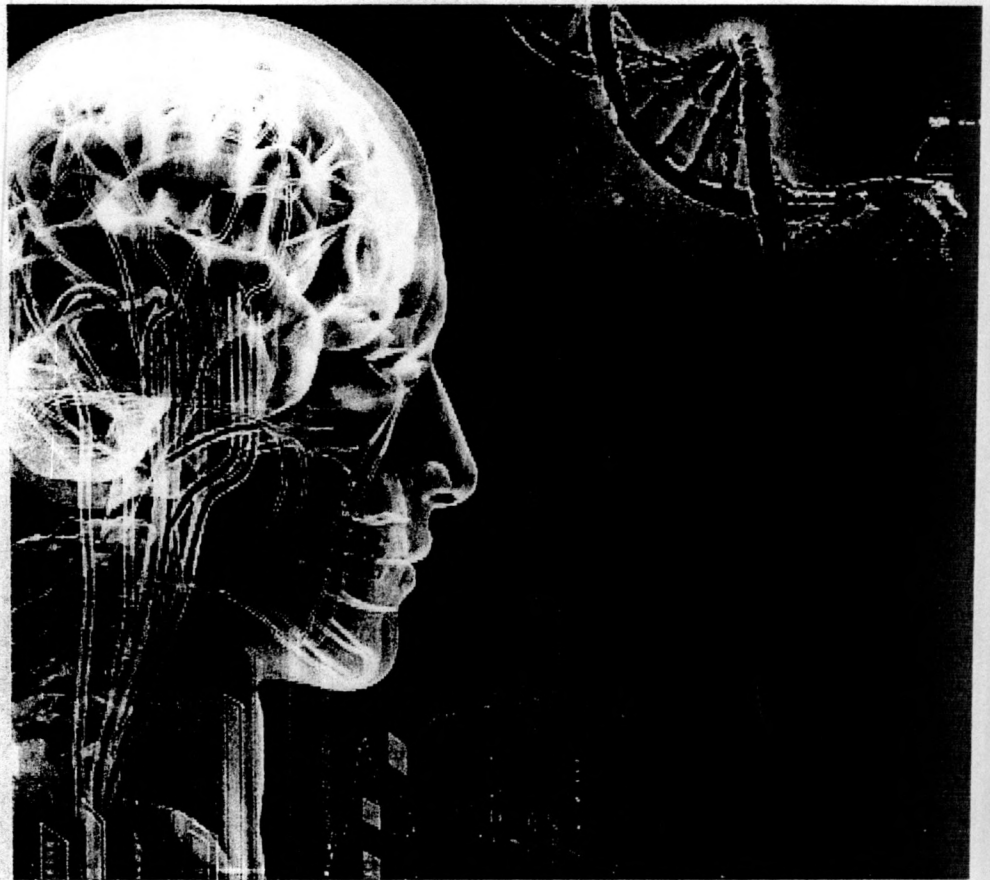
Overcoming challenges to medicines use by visually disabled patients in Sri Lanka: A review of pioneering local research and the international trends

Weeraratne CL

Short communications

Phylum Echinodermata - A source for biologically active compounds: A Review

Ilangakoon HP, Jayasuriya WJABN



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Abstracts

OP 1

Is IR a better indicator to assess diabetes mellitus: A study among diabetics and non diabeticsDissanayake NP¹, Senarathne TKRR¹, Athiththan LV², Hettiaratchi UPK²¹Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura²Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura

Insulin resistance (IR) is the main cause of type 2 diabetes mellitus and one of the most common underlying factors of metabolic syndrome. C-peptide is suggested as a better indicator of endogenous insulin secretion than insulin itself. The objective of this study was to determine the best parameter among fasting blood glucose (FBG), fasting serum insulin (FSI), fasting serum C-peptide (FSC), and IR to assess diabetes mellitus.

The study was carried out in diabetic (n=30) and non-diabetic (n=30) adults aged 35-55 years. Subjects were enrolled from a clinic attached to University of Sri Jayewardenepura. Venous blood sample (1.5 mL) was obtained after 10 hours overnight fast and FBG, FSI and FSC levels were analyzed using standard kits. IR was calculated using following equation.

$$\text{HOMA-IR} = \frac{\text{FSI } (\mu\text{U/mL}) \times \text{FBG (mmol/L)}}{22.5}$$

Results were analyzed using SPSS version 21.

Diabetic subjects showed significantly higher mean FBG (145.47±71.29 mg/dL) (p=0.001), FSI (10.59±6.77μU/mL) (p=0.026), FSC (2.56±1.63 ng/mL) (p=0.001) and IR value (3.6±2.6) (p<0.001) compared to non-diabetic subjects (78.15±8.30 mg/dL, 5.82±2.65μU/mL, 1.07±0.60 ng/mL and 1.12±0.53 respectively). So IR has showed

the most significant difference between two groups. FBG had a weak correlation with FSI (r=0.277), a moderate correlation with FSC (r=0.403), and a strong correlation with IR (r=0.795). FSI showed strong correlations with FSC (r=0.665) and IR (r=0.727) whereas FSC had strong correlation with IR (r=0.665) at 0.01 significance level.

Even though all assessed parameters were elevated in diabetic subjects, this study finding suggests that IR is a better indicator to assess diabetes mellitus than FBG, FSI and FSC.

OP 2

Risk of pharmaceutical contaminations; Cloxacillin contamination and prevalence of cloxacillin resistant bacteria in environmental samples, Sri LankaManage L. R.¹, Gunarathne C. P.¹, Manage P.M.^{2*}¹B. Pharm Degree Programme, Department of Allied Health Sciences, Faculty of Medical Sciences, University of Sri Jayewardenepura.²Department of Zoology, Centre for Algae and Water Quality, Faculty of Applied Sciences, University of Sri Jayewardenepura.

Antibiotics are an important group of pharmaceuticals used extensively in health care for the treatment and prevention of microbial infections. Antibiotic resistance has become a major health concern; thus, there is a growing interest in exploring the occurrence of antibiotic resistant bacteria in environment. Cloxacillin (CLOX), a broad spectrum penicillin type antibiotic, is commonly used for community acquired pneumonia, superficial skin infections, cellulitis etc. The present study focused on quantification of CLOX and isolation of cloxacillin-resistant (CLOX^r) bacteria from ten wastewater discharge drains in some selected hospitals, Sri Lanka. Solid-Phase Extraction (SPE) and High Performance Liquid Chromatography (HPLC) were employed to quantify CLOX. Isolation of CLOX^r bacteria was done by standard pour

plate method, after 14 days of enrichment. Minimum Inhibitory Concentration (MIC) was observed at 60- 720 ppm via 96-well plate method and pour plate method.

Among selected locations the highest concentration of CLOX was recorded as 8.815 ± 0.002 ppm in Karapitiya hospital effluent and contamination was ranged between 8.815 ± 0.002 ppm to 0 ppm. CLOX^r bacteria were identified (>360ppm MICs) as *Staphylococcus aureus*, *Escherichia coli*, *Enterobacter ludwigii*, *Bacillus* sp., *Bacillus cereus* and *Pseudomonas aeruginosa* by 16S rRNA sequencing. MIC values for each bacterial strain were recorded as 540 ppm, 660 ppm, 600 ppm, 660 ppm, 660 ppm and 540 ppm respectively.

The antibiotic concentrations observed in most effluent water samples have exceeded the maximum permissible level (< 0.001 ppm-water) given by the World Health Organization for aquatic environment. Thus, continuous monitoring and further studies are needed to get baseline information on contamination status of antibiotics, in order to prepare guidelines and strategic plan for the country to minimize health issues related to antibiotic resistance.

OP 3

Evaluation of antibacterial activity of *Memecylon umbellatum* Burm. F. and isolation of antibacterial compounds from *Memecylon umbellatum* Burm. F. bark
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Bacteria resistant to antibiotics have made a necessity to have new antibacterial drugs in the future. The objective of this research was to evaluate the antibacterial activity of different parts of *Memecylon umbellatum* Burm. F. (Kora Kaha), an ethnomedicinal plant belongs to the family Melastomataceae, and to isolate bioactive compounds using the bioassay guided fractionation.

Methanolic extracts of leaves, bark and root of the plant were used for initial antibacterial studies against *Staphylococcus aureus*, *Escherichia coli*, *Bacillus subtilis* and *Pseudomonas aeruginosa*. Powder of the bark was successively extracted with hexane, dichloromethane, ethyl acetate and methanol using sonication, and dried extracts were tested for antibacterial activity. Fractionation and isolation of antibacterial compounds in dichloromethane extract of the bark was carried out using column chromatography.

Methanolic extracts of the bark showed the highest activity against gram positive bacteria while possessing minimum activity against *E. coli* and no activity against *Pseudomonas* sp. Methanolic extract of leaves and root showed minimum activity against gram positive bacteria only. Hexane, dichloromethane and ethyl acetate extracts of the bark showed significant activity towards gram positive bacteria. However, the highest Concentration dependent antibacterial activity (2500 – 100 µg/disc) was observed for the dichloromethane extract. After three column purifications of the dichloromethane extract, a fraction which exhibited the activity towards *Staphylococcus* sp. was isolated. Phytochemical screening of the dichloromethane extract revealed the presence of flavonoids and steroidal saponins.

This research revealed that bark of *Memecylon umbellatum* Burm. F. is a potential source for antibacterial compounds and further purification of the fraction is required to determine structure.

OP 4

Incidence and nature of adverse drug reactions in four government sector hospitals in Sri Lanka

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