and commonly cultivated in South-eastern Asia and pacific region tropical islands. The leaves of this plant were extracted using hexane, ethanol, methanol and ethyl acetate. The obtained extracts were used to determine the antityrosinase activity and the antioxidant activities. Inhibitory activity of the mushroom tyrosinase method was used to determine the antityrosinase activity. All the three samples (ethanol, methanol and ethyl acetate) showed some antityrosinase activity. The most effective activity (48% inhibition) was observed for the ethanol extract with the concentration of 0.25 mg/mL. The standard (kojic acid) showed only 22% inhibition at the same concentration. However, when the ethanol extract concentration was raised the antityrosinase activity declined. This observation was opposite to the behaviour of standard and the other methanol and ethyl acetate extracts followed a similar trend to that of ethanol. In DPPH radical scavenging activity, the highest percentage scavenging activity was shown by the ethyl acetate extract (IC_{50} = 0.895 mg/mL) compared to the other two extracts ethanol and methanol. In comparison, the standards' (BHT) activity was higher the level of the sample extracts (IC50 = 0.739 mg/mL). The reducing capacity was showed by all the sample extracts, (ethanol, methanol and ethyl acetate). Among that ethyl acetate extract showed the best reducing ability. However their reducing power was below the level of standard, ascorbic acid. So, when comparing the three extracts ethanol, methanol and ethyl acetate; ethanol showed the most effective inhibition activity at 0.25 mg/mL concentration which was greater than the standards' inhibition activity at the same concentration. The DPPH scavenging activity was shown by two extracts except the methanol extract. From that ethyl acetate extract showed the highest scavenging activity. The reducing capacity was shown by all the sample extracts and among those also ethyl acetate showed the best reducing activity. But their reducing power was below the level of the standard. Therefore, according to the results *Polyscias balfouriana* L.H.Bailey leaves show some positive antityrosinase and antioxidant activity.

Keywords: Tyrosinase, enzyme, melanin, inhibition, *Polyscias balfouriana* L.H.Bailey, antityrosinase, antioxidant

Abstract No: TO 18

Potential hypoglycemic activity of *Kaempferol rhamnoside* isolated from *Olax zeylanica* (Malla) leaves

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Olax zeylanica (Olacaceae) is a green leafy vegetable endemic to Sri Lanka. The unmatured leaves have been extensively used as a vegetable by the rural population of Sri Lanka and known to have good hypoglycemic properties. However, the plant has received very little scientific attention on its medicinal values. As a part of a program to identify hypoglycemic natural products from Sri Lankan edible plants, we report herein the isolation of a kaempferol-3,7-O-alpha-L-dirhamnoside from the methanol extract of Olax zeylanica leaves and its alpha glucosidase and alpha amylase inhibitory activities. Air dried leaf powder (150 g) was sequentially extracted at room temperature with Hexane, Dichloromethane and Methanol. Crude extracts were subjected to alpha amylase (Dinitro salicylic acid method) and alpha glucosidase inhibitory (p-nitrophenyl glucopyranoside method) activities. Crude methanol extract showed significant alpha amylase and alpha glucosidase inhibitory activities, hence subjected to further investigations. Methanol extract was diluted with water and partitioned with chloroform. Upon settling, the aqueous methanol layer gave a yellow precipitate which was recrystallized by hot

methanol/water mixture to give a pale greenish yellow amorphous solid (300 mg) which showed characteristic UV absorption peaks at 252 nm and 347 nm indicated the presence of flavanol skeleton. ^{1}D NMR (1H-CD3OD) signals from δ 3.38 ppm to δ 5.6 ppm, in duplicates, and 13C-CD3OD signals from δ 70 ppm to δ 110 ppm, showed the presence of two hexose units. The presence of up field ^{1}H NMR signals at 0.96 ppm and δ 1.284 ppm (J=5.6-6 Hz), and two up field ^{13}C NMR signals around δ 15 ppm indicated the presence of two rhamnosyl methyl groups. Two anomeric H signals at δ 5.41 ppm and δ 5.57 ppm (coupling constants J =1.6 Hz), and two anomeric C signals at δ 102 ppm further confirmed the presence of two alpha rhamnosyl residues. The ^{1}H NMR signals at δ 7.80 (2H, d, J =8.7 Hz) and δ 6.95 ppm (2H, d, J =8.5 Hz) precisely matched with the 1H chemical shift values of B ring protons of flavanol structure (H-2′, H-6′ and H-3′, H-5′, respectively). Two meta-coupled doublets (J =2.1 Hz) at δ 6.46 and 6.72 ppm were attributed to the C-6 and C-8 protons of A ring protons of flavanol structure. 2D-NOESY and HSQC (CD3OD) spectral data indicated that the two alpha rhamnosyl residues were attached to the 3rd and 7th positions of the flavanol skeleton. These spectral data proved the structure of the isolated compound to be the kaempferol-3,7-O-alpha-L-dirhamnoside with the molecular formula $C_{27}H_{30}O_{14}$; Molecular Mass 578.16 (Experimental m/z 577.28 [M-H]). Isolated Kaempferol-3,7-O-alpha-L-dirhamnoside showed significant alpha glucosidase inhibitory activity and alpha amylase activity with IC50 values of 84.7 ± 1.7 μM and 5.9±0.37 μM respectively (n=3). For Acarbose positive control IC_{50} values were 74.0 ±2.0 μM and 3.1±0.08 μM respectively (n=3). Chemical structure of Kaempferol-3,7-O-alpha-L-dirhamnoside from Olax zeylanica and its antioxidant activity has been previously reported. Further the same compound has been identified in Bauhinia forficate which is a widely used antidiabetic herbal remedy in Brazil and from two Legume species, *Vicia faba* and *Lotus edulis*. The findings of this study provide some scientific evidence for the ethnomedicinal use of *Olax zeylanica* as a functional food against diabetes mellitus.

Keywords: *Olax zeylanica*, Hypoglycemic activity, Kaempferol rhamnoside

Abstract No: TI 7

Biosynthesis, Characterization, Photocatalytic and Fluorescence quenching activity of Zinc Oxide nanoparticles

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Green synthesis of nanoparticles *via* biological entities has gained significant interest as an emerging technology due to the toxicity of nanoparticles (NPs) associated with conventional chemical synthesis processes. The present study focuses on the green synthesis of zinc oxide NPs using extracts of stems and leaves of *Sauropus androgynus* and *Oxalis corniculata* plants, which are used as biological capping and stabilizing agents from zinc acetate dihydrate (metal precursor). Semi-conducting zinc oxide NPs have gained great interest in the field of medicine, micro-electronics, and in water remediation. Zinc oxide NPs were synthesized by varying reaction conditions such as volume of plant extract (1 mL, 2 mL and 5 mL) and metal precursor concentration (0.01 mol dm^{-3} – 0.02 mol dm^{-3}) at a pH of 12. The synthesized NPs were collected by centrifuging and dried at a temperature of 60 °C for 14 hours. The formation of zinc oxide NPs in the reaction mixture was determined by Ultraviolet-Visible Spectroscopy and was characterized by Scanning Electron Microscopy, and Fourier Transform Infrared spectroscopy. The SEM images reported that the average size of zinc oxide NPs synthesized at optimum conditions was in the range of 79-89 nm with spherical, hexagonal and rod-shaped. Further the photocatalytic degradation and fluorescence quenching ability of zinc oxide NPs were studied. Photocatalytic degradation activity of zinc oxide NPs was determined by the degradation of 5 ppm solution of Methylene Blue dye under the illumination of