Abstract No: TO 9

Proximate composition of tetra-packed fresh milk in Sri Lankan Market

H. N. Disanayaka[1, 2], Sagarika Ekanayake[2]* and A. A. P. Keerthi[1]

[1] *College of Chemical Sciences, Institute of Chemistry Ceylon, Rajagiriya 10107, Sri Lanka*

[2] *Department of Biochemistry, Faculty of Medical Sciences, University of Sri Jayewardenepura, Nugegoda 10250, Sri Lanka*

**Corresponding author: sagarikae@hotmail.com*

Fresh milk is well-known for its nutritional value and is considered as a healthy food product. In Sri Lanka, fresh milk is marketed as different types and by different manufactures. The objectives of this study were to proximate the composition of different local brands of tetra-packed fresh milk in Sri Lankan market, compare and legitimate the composition as suitable to digest as per the standards. In the study high selling three different local brands (A, B, C) were selected after a market survey. The moisture content, total solid content, ash content, total carbohydrate content, fat content, titratable acidity, total solid not fat (SNF) content and pH were determined (nx5). All the methods used for analyses were either AOAC methods or standard methods. All the values were expressed as mean of five replicates on fresh weight basis and significances were calculated at 95% confidence interval. The average values for moisture and total solid content were 87.82%, 88.37%, 88.03% and 12.18%, 11.63% and 11.97% respectively for A, B and C brands. The average values for ash content were 0.65%, 0.68% and 0.61% respectively for A, B and C brands. Slight variations with respect to the manufacturers were observed for carbohydrate contents (5.50%, 5.53% and 4.01%) and fat contents (3.8%, 3.8% and 4.1%) of A, B and C brands respectively. Titratable acidity which is a measurement of lactic acid in the milk was 0.16%, 0.15% and 0.15% for A, B and C respectively. The samples had a pH of 6.40 and SNF content of 8.4%, 7.8% and 7.9% for A, B and C respectively. Among the parameters studied three brands were not significantly different from each other except for the carbohydrate content. Difference in carbohydrate level may be due to the breed of the cow or due to addition of sugar as flavor enhancers. The moisture content of Sri Lankan fresh milk products was slightly higher than most of other published values. The titratable acidity was within the range of SLSI recommendation. However, the fat content of all three brands was higher than the SLSI value with brand C having the highest fat content. Since SLSI regulations for moisture, ash and carbohydrate content are non-existent these parameters were compared with the literature values and were within the accepted level. Thus, it could be recommended to introduce regulations for these parameters for Sri Lankan milk and milk products for betterment of the fresh milk industry and for the benefit of consumers.

Keywords: Tetra-packed, fresh milk, composition

Abstract No: TO 12

Investigation of Antityrosinase and Antioxidant Activity of *Polyscias balfouriana* L. H. Bailey (Koppa Plant)

E. G. Divyanjalee Suraweera[1] and Kushan C. Weerasiri[2]*

[1] *College of Chemical Sciences, Institute of Chemistry Ceylon, Rajagiriya 10107, Sri Lanka*

[2] *The Open University of Sri Lanka, Nawala, Nugegoda 11222, Sri Lanka*

**Corresponding author: kush.weerasiri@gmail.com*

Tyrosinase is a copper-containing enzyme that catalyses different reactions in melanin synthesis. It is a key enzyme in melanin biosynthesis, involve in determining the colour of mammalian skin and hair. Hence it has gained an important role in the fields of cosmetic, food and pharmaceuticals. *Polyscias balfouriana* L. H. Bailey is a species in the family Araliaceae and native to Australia (Queensland) and Papua New Guinea

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

N. G. D. Anuradha[1], S. M. D. S. Gayathri[1], Gayani Imanthika Dias[1], Thilini Chathurangi Kananke[1], Kapila Tharanga Rathnayaka[1], Rasangi Sabaragamuwa[1], R. M. U. S. K. Rathnayaka[1], Merita Nirmali Wickramaratne[2] and M. G. A. N. Perera[1]*

[1] *Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya 70140, Sri Lanka*

[2] *Faculty of Medicine, Sabaragamuwa University of Sri Lanka, Rathnapura 70000, Sri Lanka,*

**Corresponding author: namalperera@appsc.sab.ac.lk*

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