

***FLACOURTIA INERMIS* FRUIT EXTRACTS: A POTENTIAL SOURCE OF NUTRITIONALLY USEFUL COMPOUNDS**

**A.G.A.W. Alakolanga, L. Jayasinghe\* and N.S. Kumar**

*Institute of Fundamental Studies, Kandy, Sri Lanka*

*\*ulbj2003@yahoo.com*

*Flacourtia inermis* Roxb. (Family Flacourtiaceae), known as ‘Lovi’ in Sinhala and ‘Batoko plum’ in English, is a moderate sized tree growing in Sri Lanka and is also cultivated in Malaysia and Indonesia. The fruits are round, cherry-sized, and bright red when ripe and have a sour and astringent taste. During the current study, fruit extracts of *Flacourtia inermis* were subjected to several bioassays in order to assess the value of these fruits and fruit extracts as a nutritional supplement. Total polyphenol content was determined as 1.28 g per 100 g of fresh fruits (Folin-Ciocalteu method) using gallic acid as the standard while the anthocyanin content was found to be 107.54 mg/ 100 g of fruits using a pH differential method. Enzyme assays specific for inhibition of  $\alpha$ -glucosidase,  $\alpha$ -amylase and lipase activities of fruit extracts were also studied. Fresh fruits were extracted with ethyl acetate, methanol and *n*-butanol successively and dried extracts were subjected to enzyme inhibitory studies. The EtOAc extract, which showed the highest inhibitory activity against  $\alpha$ -amylase,  $\alpha$ -glucosidase and lipase activity, was subjected to activity guided fractionation and one pure compound (AAL1) was isolated. IC<sub>50</sub> values of AAL1 for  $\alpha$ -glucosidase,  $\alpha$ -amylase and lipase activities were 58.15 ppm, 96.40 ppm and 69.03 ppm respectively. The positive controls used were acarbose for  $\alpha$ -glucosidase (IC<sub>50</sub> was 13.83 ppm) and  $\alpha$ -amylase (IC<sub>50</sub> was 19.85 ppm) respectively. The IC<sub>50</sub> for lipase inhibitory activity of the positive control Orlistat was 55.13 ppm. The antioxidant activity of the compound AAL1 was 6.40 ppm while the antioxidant activity displayed by the positive controls ascorbic acid and BHA were 22.27 ppm and 26.57 ppm respectively. <sup>1</sup>H NMR data revealed AAL1 was hydroxybutanedioic acid, commonly known as malic acid. Results obtained from the study indicate that the biological activities of *F. inermis* fruits, currently an underexploited fruit in Sri Lanka, has potential for incorporation in health giving nutritional supplements.