A NOVEL MARSHMALLOW FROM UNDERUTILISED *DIOSCOREA ALATA (DANDILA), SONNERATIA CASEOLARIS* (MANGROVE APPLE) AND *LIMONIA ACIDISSIMA* (WOOD APPLE)

S.W. Weerasooriya*#, S. Jayakody, R.G.S. Wijesekara, and G.A. Prathapasinghe

Faculty of Livestock Fisheries & Nutrition, Wayamba University of Sri Lanka, Makandura, Sri Lanka

**Correspondence E-mail: shathiwishmiweerasuriya@gmail.com, Phone: +94701000972*

#Presenting Author

Abstract: Enhancing the nutritional value of confectionary foods is a global requirement. Using underutilized crops for novel confectionery enables solutions for food shortages and opens up avenues for unprivileged communities to enter the food industry. This paper presents the results of nutritionally enhanced marshmallows using underutilized *Dioscorea alata* (Dandila), *Sonneratia caseolaris* (Mangrove apple), and *Limonia acidissima* (Wood apple) and made without added glucose syrup. Two flavors were developed using 80% boiled *D. alata* combined with 20% *S. caseolaris* and *L. acidissima.* A semi-trained panel (n=13) ranked the products using a seven-hedonic scale. Physical and chemical parameters, proximate composition, shelf life, antioxidant activity, flavonoids, phenols, HPLC sugar content were analyzed for the most preferred flavour. Results indicated a significantly higher customer preference for novel marshmallows over commercially available marshmallows. Further, results showed no significant differences in taste, aroma, colour, and consumer acceptability between the two distinct flavours of the mangrove apple and wood apple. Mangrove apple marshmallow was selected as the most preferred flavour. Mangrove apple-enriched marshmallows exhibited significantly higher nutritional values than commercial counterparts, with lower sugar (31.69±0.92%) and carbohydrate (47.4±0.51%) content, and increased crude protein (8.30±0.51%), crude fiber (1.10±0.03%), total phenol (0.20±0.01 mg/GAE g DW), flavonoid (6.83 mg/Rutin 100g DW), and total antioxidant capacity (0.13±0.01 TE mg/g). A 10 g of developed marshmallow contained fructose of 0.41±0.00 mg, sucrose of 2.88±0.10 mg, and glucose of 0.54±0.08 mg. The marshmallows had a similar texture to commercial marshmallows and could be stored at room temperature for up to 5 days or refrigerated for up to one month without significant color or texture variation. This new marshmallow could be commercialized for the confectionery industry.

Keywords: Antioxidant capacity*; Dioscorea alata*; Marshmallow*; Sonneratia caseolaris*; Underutilized crops