Formulation of a Syrup having Functional Properties using Leaf Extract of Costus igneus

Mayoorika¹, T., *Jayanath¹, N. Y. and Selvaluxmy², K.

¹Department of Food Science and Technology, Faculty of Agriculture, University of Peradeniya, Peradeniya.

²Herbal Technology Scetion, Industrial Technology Institute, Thalahena, Malabe *jayanathny@agri.pdn.ac.lk

Thebu plant (Costus igneus) is commonly available in Sri Lanka and is underutilized though it is reported to have different health benefits. In this study, a herbal syrup was formulated using a hot water extract from Thebu plant's leaves, and its antioxidant and antidiabetic potentials were assessed. Leaves were dried in a hot air tray dryer (50 °C), powdered and stored in air-tight containers at 4 °C. Presence of alkaloids, saponins, flavonoids, terpenoids, tannins, steroids and cardiac glycosides in the powder was identified while alkaloid and saponin levels were quantified. The powder was extracted using hot water (5 g of powder in 500 mL) at 40 °C for 30 min with continuous stirring. Syrup formulations with different excipients were prepared initially and three formulations were tested for preference by a ranking test using a semi-trained panel. The selected formulation was observed for organoleptic properties and tested for physicochemical properties. Both the syrup and the extract were subjected to quantify antioxidants and anti-amylase activity of the syrup was determined. The powder was found to be positive for all the tested phytochemicals with 10.0 and 24.3 mg/g of alkaloids and saponins respectively. The formulation developed using methylcellulose (8 g), sorbitol (4 g), glycerine (1 mL), lime solution (4 mL) and benzoic acid (0.2 g) with 150 mL of the extract was found to be preferred mostly. The syrup is a viscous liquid with a light yellowish colour and a slightly sweet taste. The viscosity, specific gravity and pH values of the syrup were 1.61×10⁻³ Pa S, 1.2 and 5.6 respectively. The total polyphenolic content of the extract and syrup were found to be 210.6±0.3 and 75.7±0.1 mg gallic acid equivalents/mL respectively. Total flavonoid contents of them were 148.6±0.1 and 68.4±0.1 mg quercetin equivalents/mL respectively. The syrup was positive for anti-amylase assay with an IC_{50} value of 740.1±0.3 mg/L.

Keywords: Costus igneus, Herbal syrup, Phytochemicals, antioxidants activity, anti-amylase activity