

## **Formulation of fiber-rich drink powder mix from Ridge Gourd (*Luffa acutangula*) and evaluation of its quality parameters**

Avanjan H.G.S.D,<sup>1</sup> Binduhewa A.M.C.U\*<sup>2</sup>, Kariyawasam K.M.G.M.M.<sup>1</sup>

<sup>1</sup>*Department of Biosystems Technology, Uva Wellassa University, Badulla, Sri Lanka*

<sup>2</sup>*Food Technology Section, Modern Research & Development Complex, Industrial Technology Institute, Malabe, Sri Lanka*

Constipation is often a result of insufficient fiber and inadequate fluid intake of individuals. Ridge gourd is a natural remedy for constipation due to its fiber-rich nature. However, traditional curry of ridge gourd is less preferred and modern community demand for convenient and more attractive products. Therefore, this study aimed to develop a pineapple-flavored, fiber-rich drink powder mix using ridge gourd. Ridge gourd powder (RGP) and pineapple powder (PD) were produced using heat pump dehydration techniques (moisture content 5-8%). The powder was formulated with varying ratios of RGP and PD. A powder containing 85% mucilage polysaccharide (Fybogel) served as a control. The sensory evaluation conducted by an 8-trained panelists using a 7-point hedonic test, determined the optimal powder ratios. The resulting product underwent testing for Total soluble solids (TSS), color, pH, solubility, viscosity, crude fiber, and ash content through standard methods. Microbiological testing was carried out to determine the product's shelf life. The formulation containing 4% (w/w) luffa powder and 6% (w/w) pineapple powder exhibited the best sensory properties. The product demonstrated TSS ( $4.76 \pm 0.05^\circ\text{Brix}$ ), color ( $L^* 20.5 \pm 0.02$ ), pH ( $4.79 \pm 0.07$ ), and viscosity ( $50.54 \pm 0.63 \text{ cP}$ ) values similar to that of the control. Additionally, it showed higher solubility ( $61.77 \pm 0.69\% \text{ w/v}$ ), fiber ( $36.46 \pm 0.21$ ), and ash ( $8.85 \pm 0.07$ ) contents compared to the control. Shelf-life testing revealed a one-month shelf life under refrigerated conditions. Therefore, this study demonstrated the potential application of ridge gourd and pineapple powder in developing a drink powder rich in fiber, exhibiting favorable physicochemical and sensory characteristics.

**Keywords:** Constipation, Dehydrated powder Fiber-rich drink, Pineapple powder, Ridge gourd

\*Corresponding author: udayani@iti.lk