

Development and Quality Evaluation of Gluten-Free Baby Rusk using *Madathawalu* rice (*Oryza sativa* L.) and Mung bean (*Vigna radiata*) Composite flour

*Udakanda¹, S.S and Kandegama¹,W.M.W.W.

¹Department of Horticulture and Landscape Gardening, Wayamba University of Sri Lanka, Sri Lanka

*Corresponding E-mail: sujeekasasini1@gmail.com

Rusks are widely consumed baby snacks that are commonly produced using wheat flour. Wheat flour was reported to cause health issues due to gluten. This study aimed to produce a nutritious, gluten-free baby rusk using a local grain flour composite made out of a traditional rice variety (*Madathawalu* rice) and mung bean to eliminate the health hazards. The sensory attributes, physical properties, and proximate compositions of the novel composite rusks were evaluated and compared with baby rusks made with wheat flour as the control. The combination of 70% *Madathawalu* rice and 30% Mung bean (T2) resulted in the highest sensory attributes and was selected as the accepted formulation. The best sample was further analyzed for physical properties, proximate analysis, and shelf-life evaluation. The new formulation reported a relatively lower diameter (52.41 mm) and spread ratio (9.26 mm) while it had a higher weight (12.22 g) and thickness (5.67 mm) compared to the control (55.37 mm, 11.44 mm, 10.22 g, and 4.85 mm correspondingly). The traditional rice and mung bean-based new formulation (T2) demonstrated a darker color due to the nature of its main ingredients. Rusks from T2 had higher protein (17.03%), crude fiber (2.50%), and ash (2.23%) contents compared to the corresponding levels of 11.68%, 1.65%, and 1.44%, in the control sample. The new rusk formulation demonstrated significantly lower crude fat (15.10%) content than the control (19.57%). Moisture levels have increased to 4.12% in new flour composite rusk and to 5.89% in the control after 21 days of storage. Based on the moisture content, the new rusk has indicated a comparatively longer shelf life. The new rusk could be commercialized as a nutritious and gluten-free product and it may create a competitive opportunity in the baby food market.

Keywords: Baby rusk, Food allergy, *Madathawalu* rice, Mung bean