

Formulation and Sensory Evaluation of Malted Drink Powder Incorporated with Selected Legumes, Seeds, and Rhizomes

MWP Sandupama^{1#} and MAJ Wansapala²

¹ Department of Food Science and Technology, Faculty of Applied Sciences,
University of Sri Jayewardenepura, Sri Lanka

#psandu1996@gmail.com

The study aims to address the prevailing nutritional deficiencies in society by formulating micronutrients and bioactive compounds rich malted drink while replacing palm oil, the most common fat source of commercially available malted drinks with an underutilized seed. For the formulation of the malted drink, Soybean (*Glycine max*) flour, malted green gram (*Vigna radiata*) flour, Watermelon seed (*Citrullus lanatus*) flour, and Ginger (*Zingiber officinale*) powder were selected as the major ingredients. An appropriate experimental design was selected for the product formulation and the best formulation among the formulated samples was screened out through three sensory evaluation sessions. In each session, the sensorial acceptance of the samples was evaluated by a semi-trained panel with 30 members, in terms of appearance, aroma, taste, mouthfeel, and overall acceptability, under a five-point hedonic scale. For the evaluation of responses, Friedman and Wilcoxon test statistics along with radar diagrams were analyzed by IBM SPSS 25 statistical software. The selected experimental design for the product formulation was Taguchi's L8 Orthogonal array. Eight malted drink powder samples were formulated according to it. There was a significant difference among the eight formulations in terms of all the sensory attributes at a 95% confidence interval. The formulation which was incorporated with 52.17% of Soybean flour, 26.00% of malted green gram flour, 17.39% of Watermelon seed flour, and 4.34% of Ginger powder, obtained the highest mean rank in terms of all the sensory attributes. Thus, it acquired the highest sensorial acceptance, and it could be screened as the best formulation among all eight malted drink samples.

Keywords: malted drink, Taguchi's L8 design, sensory evaluation