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Formulation of *Myristica fragrans* Pericarp Incorporated Natural Seasoning Powder

Madushika, N.H.*, Wansapala, M.A.J.

Department of Food Science and Technology, University of Sri Jayewardenepura, Nugegoda, Sri Lanka.
**harshanimadushika037@gmail.com*

Abstract

The aim of this study was to formulate *Myristica fragrans* pericarp incorporating natural seasoning powder because nutmeg pericarp contains valuable compounds and essential oils that can impart many benefits to the consumers. *Myristica fragrans* is one of the most expensive and versatile spices in the world as it contains many valuable bioactive compounds and micronutrients. Most of the occasions, its pericarp or flesh parts are thrown away without taking a use which causes waste generation and environmental pollution. To formulate the seasoning powder, dried powders of *P. ostreatus, Moringa oleifera, Murraya koenijii, Allium sativum L.* and nutmeg pericarp which was prepared using infrared dry blanching were mixed according to the Taguchi's L_8 orthogonal array. The best formulation was selected undergoing four sensory evaluation stages with 9-point Hedonic scale using 120 untrained panelists and the data were statistically analyzed using the Friedman test and Wilcoxon sign rank test. Proximate composition (i.e. moisture, protein, fat, carbohydrate, ash and crude fiber %), antioxidant activity, total phenolic content, pH, and mineral profile of the selected formulation were analyzed by following the standard procedures of AOAC. Total plate count, yeast and mold count of the new product packed in triple laminated packaging were evaluated to assess the shelf life and storage stability at the room temperature (27 ºC). The proximate composition of the newly developed seasoning powder was recorded 7.7±0.12 moisture%, 16.4±0.18 ash%, 15.3±0.33 crude fiber%, 10.0±0.21 protein%, 48.8±0.14 carbohydrates% and 1.7±0.07 total fat% respectively. The ash content and the total fat content were recorded as lower values. Total phenolic content and the antioxidant capacity were recorded as higher values in the new formulation. Higher amounts of Calcium (340.69±0.01), Sodium (2124.46±0.08), Potassium (850.58±0.01), Magnesium (103.69±0.01), Zinc (2.89±0.01), Iron (5.30±0.07) and Copper (0.61±0.01) in mg/L were recorded as the mineral profile of the new seasoning powder. The pH was a less value which indicates a slight acidity in the new product. The total plate count, yeast and molds count of the product was recorded as zero for two months of period. Overall the study concluded that, the developed product can be contributed to provide micronutrients and bioactive compounds to the consumer, and consequently would be an ideal solution for the waste generation and environmental pollution.

Keywords: *Nutmeg pericarp, Waste management, Micronutrients, Bioactive compounds, Seasoning powder*