



NUTRITIONAL AND SENSORY PROPERTIES OF FINGER MILLET (*Eleusine coracana*) FLOUR INCORPORATED BISCUITS

Jayawardana S.A.S.1*, Samarasekera J.K.R.R.1, Hettiarachchi G.H.C.M.2 and

Gooneratne J.1

1 Industrial Technology Institute, Sri Lanka.

2 Department of Chemistry, Faculty of Science, University of Colombo, Sri Lanka.

sachini@iti.lk

Among ready-to-eat snacks, biscuits hold an important position. Majority of biscuits are high in carbohydrate, fat and calorie, while low in dietary fiber and have become unhealthy snacks for daily consumption. Alternating the ingredients used in biscuits with potential nutritive ingredients would be beneficial to improve the nutritional quality of biscuits. Our previous studies confirmed that locally grown finger millet (*Eleusine coracana*) varieties are good sources of dietary fiber, micronutrients and antioxidants compared to commonly consumed cereals including rice and wheat. Due to popularity and large diffusion, biscuits have been frequently considered as a vehicle for healthy substances. This study was conducted to formulate biscuits by replacing refined wheat flour (RWF) with finger millet flour (FMF) and to study nutritional and sensory properties of those biscuits. Locally grown Oshadha finger millet variety was used for the study. Four biscuit samples were formulated replacing different percentages of RWF with FMF and physicochemical and microbiological properties were determined. Sensory attributes of biscuits were evaluated and data were statistically analysed using Kruskal-Wallis non parametric ANOVA and the best product was selected. Proximate composition and *in vitro* antioxidant properties of the selected FMF incorporated biscuit (FMB) were determined and compared with a control biscuit (CB) prepared using RWF. Data of each experiment were statistically analysed. FMF incorporated biscuits are complying with SLS specification for biscuits. According to results of sensory evaluation, biscuit sample produced by adding 50% FMF was selected as the most preferable biscuit among tested products. Total dietary fiber (TDF) and minerals contents of FMB are significantly ($p < 0.05$) higher than those of CB. FMB exhibits significantly high ($P < 0.05$) antioxidant activities for all the investigated antioxidant properties, when comparing with CB. Replacement of RWF with FMF in biscuit formulation enhances the nutritional properties of biscuits, including TDF, minerals and antioxidants contents, without affecting the sensory properties and converts them to healthy choices for daily consumption. Therefore, introducing finger millet flour incorporated biscuit in daily diet may play an important role in prevention and dietary management of diet-related and oxidative stress associated chronic diseases.

Keywords: *Antioxidants, Biscuits, Dietary fiber, Finger millet, Functional foods*