

## Development of Sugar Free Cinnamon Biscuits and Evaluation of Its Quality Characteristics

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P. G. N. H. Dharmasiri<sup>1</sup>, ThushariLiyanage<sup>2(\*)</sup>, S. Vasantharuba<sup>1</sup>

<sup>1</sup>Department of Agricultural Chemistry, Faculty of Agriculture, University of Jaffna, Sri Lanka, <sup>2</sup>Central Research station, Department of Export Agriculture, Matale, Sri Lanka

(\*)Email: thushariphtd@yahoo.com

Biscuits are one of the popular snack food consumed in Sri Lanka. Sugar free biscuits with natural sweetening substances have become popular nowadays due to the health concern of high sugar foods. Cinnamon (*Cinnamomum zeylanicum*) contains a natural sweetening substance named as mannitol in addition to its main active ingredient cinnamaldehyde. This study was carried out to develop sugar free cinnamon biscuits and evaluate its quality characteristics and keeping qualities. Biscuits were formulated by partially replacing wheat flour with rice flour (100:0, 75:25, 50:50, 25:75, 0:100) and fully replacing sugar with cinnamon powder (5g, 10g, 15g) and baking in an oven at 180° C for 10 minutes. The biscuits were subjected to physical, nutritional and sensory analysis to evaluate the suitability for consumption. Based on the results of this analysis, bulk density, thickness, fiber and ash content significantly increased with the increasing level of rice flour while, spread factor and crude protein content decreased with addition of rice flour. Bulk density and spread factor increased while, diameter and thickness decreased with the increasing level of cinnamon powder. Formulation of wheat flour and rice flour (25:75) with cinnamon powder (15g) was found as the most preferred formulation. The nutritional content of this formulation is carbohydrate 56.02%, protein 5.76%, total fat 25.46%, ash 4.02% and fiber 5.07%. Results of the sensory analysis revealed that there was no significant difference between wheat flour sugar free cinnamon biscuit and developed composite sugar free cinnamon biscuit. Aerobic plate count was zero during three months of storage period. Zip lock bags were selected as primary packaging due to its durability and paper board was selected as secondary packaging material due to eco-friendly attributes. In conclusion, cinnamon can be a potential source to replace sugar with longer shelf life and favorable edible qualities.

**Keywords:** Biscuits, sugar free, cinnamon