Effect of Substitution of Wheat Flour with Nile Tilapia Bone Powder on The Quality Characteristics of Cashew Nut Cookies

Suwalee Fong-in¹, Pattarapan Phosri¹, Suttikarn Suttiprapa¹, Tanabodee Pimpangan¹, and Niramon Utama-ang²,³

¹Division of Food Science and Technology, School of Agriculture and Natural Resources, University of Phayao, Phayao 56000, Thailand.
²Division of Product Development Technology, Faculty of Agro-Industry, Chiang Mai University, Chiang Mai 50100, Thailand
³Rice Product Research Unit, Faculty of Agro-Industry, Chiang Mai University, Chiang Mai 50100, Thailand

*Corresponding author. E-mail: suwalee.fo@up.ac.th
https://doi.org/10.12982/CMUJNS.2020.0062

Received: December 27, 2019
Revised: April 13, 2020
Accepted: April 20, 2020

ABSTRACT

This study was conducted to determine the effects on the quality of cashew nut cookies substituted with Nile tilapia bone powder (NTBP), at various levels. Cookies had a*, hardness and their spread ratio varied significantly. Color parameters showed significant changes after enhancement with NTBP. The L*, b*, and whiteness values decreased but the a* value increased. Results showed that the addition of NTBP significantly increased the moisture, protein, fiber and ash content of the samples, while the carbohydrate content decreased. Additionally, a drastic increase in calcium content was observed in the-substituted cashew nut cookies, when compared with wheat cookie samples used as a control. The cashew nut cookies substituting NTBP up to 20% had the highest scores of sensory properties. These results suggested that the NTBP substitution level at 20% was the suitable level which having acceptable physicochemical and organoleptic qualities while further increasing high calcium richness.

Keywords: Nile tilapia bone, Cashew nut cookies, Calcium, Substitution