Abstract

Protein is a macronutrient, important for growth and muscle building in metabolism. Whey Protein Concentrate (WPC) as a high-quality protein is desirable to use in food product formulation for protein enrichment. Cookies showed an increasing consumption trend from 2013-2017, therefore it was chosen for protein enrichment with WPC. WPC-enriched cookies were made with a 0%, 5%, 10%, 15%, and 20% WPC to flour concentration (w/w). Analysis was conducted on proximate composition, texture, color, and hedonic sensory test. Proximate analysis results showed that cookies meets *Standar Nasional Indonesia* (SNI) requirements. However, only 20% WPC-enriched cookies reached the minimum protein concentration (12 g) requirements set by BPOM for food product labelling to be known as source of protein. Results showed that WPC-enriched cookies increased in hardness significantly along with the increasing WPC concentration 1485.00 gram-force (gf), 1797.00 gf, 2224.25 gf, 2701.00 gf, and 3185.75 gf at 0% to 20% of WPC concentration samples, respectively. The 0% WPC-enriched cookies showed *L* value of 67.48, *A* value of 30.03, and *B* value of 29, and 20% WPC-enriched cookies showed *L* value of 50.98, *A* value of 58.5, and *B* value of 31.95. These indicated that WPC-enriched cookies tend to have a darker and more brownish-red color compared to that of 0% sample. Changes in texture and color were attributed to increased Maillard reaction, which occurred from the presence of protein and reducing sugars in high heat condition. Hedonic acceptance results indicated that overall acceptance amongst 0%, 5%, and 10% WPC-enriched cookies do not significantly differ. Protein enrichment in cookies with WPC could be done successfully up-to 10% concentration. Further changes to the formulation however, is required to produce cookies with source of protein label, as only 20% sample met the requirement.

Keyword: *Cookies, Whey Protein Concentrate (WPC), WPC-enriched cookies, Protein, Maillard reaction, Texture, Color, Sensory analysis,*