Nutritional quality and sensory evaluation of dabai-fortified cocoa bar

ABSTRACT

Defatted dabai (Canarium odontophyllum Miq.) parts are considered good sources of antioxidants. This study aimed to determine the nutritional values and antioxidant properties of dabai cocoa bars and the sensory profile scores of different parts of dabai fruits (oil, oleoresin, and kernel). The second part of this study included the formulation of dark dabai cocoa bars using different percentages (5%, 10%, 15%, 20%, 25%, and 35%) of dabai kernel. The antioxidant activities of the dark dabai and dabai cocoa bars were determined on the basis of DPPH free radical scavenging and thiobarbituric acid reactive species assays. The panelists of the sensory study were asked to score specific sensory attributes using a hedonic scale. Results of the triangle test indicated that the flavor score of the dabai cocoa bar with 40% dabai oleoresin was low and its other sensory scores (aroma and overall acceptability) were also lower than those of the other types of dabai and dark dabai cocoa bars. Furthermore, the dark dabai cocoa bars with 5–35% dabai kernel exhibited an improved formulation, and the cocoa bar containing 20% dabai kernel presented the lowest lipid peroxidation value and higher overall acceptability score than the cocoa bar with 5% dabai kernel. However, the cocoa bar with 5% dabai kernel achieved the highest estimated total phenolic content and DPPH radical scavenging capacity. The β-carotene bleaching inhibition of the dark cocoa (DC) bar was not significantly higher than the cocoa bar with 40% dabai oleoresin. Lastly, the sensory acceptance score of dabai cocoa bars was lower than that of the DC bar due to the crispiness of dabai kernel and the astringent taste of dabai parts. Thus, dabai kernel preparation should be optimized further.

Keyword: Chocolates; Canarium odontophyllum; Cocoa butter; Exotic fruit; Sensory attributes; Nutritional quality; Chocolate; Food property; Functional properties; Textural properties; Sensory properties; Calory; Color