

DEVELOPMENT AND QUALITY ASSESSMENT OF ROBUSTA COFFEE (*Coffea canephora*) INCORPORATED HARD-BOILED AND MILK-BASED SOFT CANDIES

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The market value of Robusta coffee has been greatly limited due to its strong bitter taste. To address this limitation, this study aims to develop value-added hard-boiled candies (HC) and milk-based soft candies (SC) by incorporating Robusta coffee to increase its market appeal. Three formulations (18%, 24%, 30% coffee for HC and 7%, 11% and 15% coffee for SC) for each type of candy were prepared by incorporating aqueous extracts (coffee: water ratio of 1:4) of dark roasted Robusta coffee into basic ingredients: sugar, glucose syrup and water. In addition, only SC was added to sweetened condensed milk and vegetable fat. The best formulation of either candy type was selected via sensory evaluation using 33 untrained assessors. The proximate composition and physicochemical properties of selected formulations of each candy type were analyzed. Furthermore, the shelf stability of both candies was measured over one month based on Total Plate Count (TPC), Yeast and Mold Count (YMC), pH, color (L*, a*, and b*) and caffeine content at every two weeks under the ambient conditions. According to the results, the proximate composition such as moisture, ash, fat, and protein contents of HC and SC were, 1.15±0.29 and, 8.31±0.04%; 0.20±0.05 and, 1.45±1.11%; 0.34±0.24 and, 14.16±1.30%; 0.89±0.38 and, 2.18±1.45%, respectively. Physicochemical properties including sulfated ash, acid insoluble ash, reducing sugar, and sucrose content of HC and SC were, 0.52±0.01 and, 1.27±0.04%; 0.03±0.02 and, 0.15±0.10%; 22.73±2.36 and, 10.66±0.16%; 53.07±1.90 and, 63.53±1.85%, correspondingly. The TPC and YMC of both products were detected within the safe range (<10³ CFU g⁻¹, <10² CFU g⁻¹ respectively). For the same two products, caffeine content, pH and some color values (a* and b*) were not changed significantly ($p > 0.05$) during the storage period. In conclusion, these value-added hard-boiled and milk-based soft candies could be a commercially viable option for enhancing the market value of Robusta coffee.

Keywords: Aqueous coffee extract, Caffeine, Condensed milk, Sugar