Development of Cheese as an Antioxidant Functional Food with the Addition of Orthodox Black Tea

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Abstract	COVID-19 and the increase in degenerative diseases are the reasons for the high consumption of functional foods. This study investigated the physicochemical, sensory, and functional characteristics of cheese enhanced with orthodox black tea. The primary research materials were 40 liters of fresh cow's milk, orthodox black tea (OBT), mesophilic bacteria (Lactococcus lactis), animal calf rennet, and CaCl2. An experimental completely randomized design (CRD) was employed in the study to four treatments, namely control (T0), and the addition of 0.5% OBT (T1), 1% OBT (T2), 1.5% OBT (T3), and 2% OBT (T4). Each treatment was repeated four times and performed in duplicate. The observed variables were physical properties (colors and textures), chemical properties (moisture content, total solids, pH, and total titratable acidity), antioxidant activity, and sensory properties of cheese. The results showed that adding OBT up to 2% produced significantly different levels of pH, total titratable acidity, values (L*, a*, b*), hardness, antioxidant activity, and sensory properties of cheese. No significant difference was observed in the moisture content, total solids, and stickiness of cheese. Conclusively, incorporating OBT up to 2% in cheese making tends to increase the functional properties of cheese that include the a* value, total titratable acidity, and antioxidant activity, but it also decreases the L* and b* values, hardness, and pH value. The panelist's preference was the highest for cow's milk cheese with the addition of 0.5% OBT.
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