

**APPLICATION OF CEYLON CINNAMON (*Cinnamomum zeylanicum*) OIL
AND OLEORESIN AS A QUALITY ENHANCER OF DESICCATED
COCONUT INCORPORATED COOKIES**

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Ceylon cinnamon is commonly used as a natural flavoring agent due to the presence of cinnamaldehyde and its associated health benefits. A study was conducted to evaluate the suitability of applying cinnamon oil and oleoresins to enhance the overall quality of desiccated coconut-incorporated cookies. Initially, the optimum concentrations of cinnamon oil and oleoresin for the product formulations were determined through a sensory evaluation (n=30; untrained panelist), with an ideal concentration found to be 0.1% (w/w) and 0.5% (w/w) respectively. Afterwards, the key parameters such as fat, ash, protein content, acidity of extracted fat, acid-insoluble ash content, moisture content, total polyphenol contents, and keeping quality [based on total plate (TP), and yeast and mold (YM) counts] for three treatments: cookies with cinnamon oil (T₁), cinnamon oleoresin (T₂), and untreated control sample without cinnamon flavor (T₃), were assessed. The highest fat (33.68±0.18%) content was obtained in T₁. The ash content (5.75±0.54%) was higher in T₃ than the other two cookies. There was no significant difference ($p>0.05$) in protein content (12.04±0.01%) among three cookies. The acidity of extracted fat (<1%), acid-insoluble ash (<0.05%) and moisture content (<6.00%) were within the permissible levels in both T₁ and T₂. The total polyphenol content of T₁ (4.36±0.00 mg GAE g⁻¹) and T₂ (4.00±0.01 mg GAE g⁻¹) were noticeably increased compared to the control (2.84±0.00 mg GAE g⁻¹). The TP and YM counts of T₁ and T₂ were also found within the acceptable range (<2×10⁴ and <2×10³ CFU g⁻¹ respectively) throughout the three-month storage period compared to the control, which exceeded the acceptable range. In conclusion, based on the consumer preference results from the duo test, along with the preservation effect and color of the cookie, the application of cinnamon oleoresins as the flavoring agent is the most effective method to enhance the overall quality.

Keywords: Acid insoluble ash, Acidity of extracted fat, Cinnamaldehyde, Flavoring agent, Polyphenol