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Extraction Of Natural Coloured Pigments From Amaranthus (Amaranthus Cruentus) Leaves And Its Application In Food Product

The food industry is embracing the formulation of natural colour based products to cater to the rising demand for nutritious and eco-friendly food colour options instead of artificial colour. Natural colour have a smaller environmental footprint. In this study, we explore the extracting natural-colored pigments from Amaranthus (Amaranthus cruentus) leaves and their application in food products. We focus on Utilizing Amaranthus cruentus pigments for enhancing ice cream aesthetics. Our objective is to Extract natural colour pigments, characterize with UV and FTIR, then incorporate into ice cream for enhanced color and flavor. We have used soaking extraction method and microwave assisted extraction method with different solvent such as Distilled water, Ethanol and Acetone for extracting the natural color pigments from Amaranthus cruentus leaves and incorporate into Ice-cream. The optimization of natural coloured based ice- cream was achieved through the application of sensory evaluation by using the 9-Point Hedonic Scale. Results revealed that the flavored and unflavored values are ranging from 5.5 to 8.5 for response mean for colour, texture, flavour, test and overall acceptability. The Ice cream exhibited a proximate composition indicated total sugar content of $8.43 \pm 0.2\%$, and added sugar content of $6.87 \pm 0.01\%$, Total Fat $11.89 \pm 0.2\%$ and sucrose $6.87 \pm 0.2\%$. The melting rate of ice cream was determined to be approximately 30°C . The Ice cream shows colour difference (ΔE) value for different extract for Distilled water and ethanol were $\Delta EDW-E \approx 0.224 \pm 0.05$, Ethanol and Acetone $\Delta EE-A \approx 0.319 \pm 0.05$ and Acetone and distilled water was $\Delta EA-DW \approx 0.1005 \pm 0.05$. The overrun percentage was 32.0% by considering the weight of the mix and the weight of the ice cream. Overall, this study provides valuable insights into the composition and characteristics of natural colour based ice cream, showcasing its potential as a health beneficial and flavorful food colour option, contributing to the development and acceptance of natural colour based products in the food industry, and offering alternative choices for health conscious consumers

Keywords: *Amaranthus, Extraction, Ice cream, Natural pigment, Sensory.*

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