

Functional Properties of Sunflower Protein Concentrates Extracted Using Different Anti-greening Agents- Low-Fat Whipping Cream Preparation

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Abstract : By-products from sunflower oil extraction, such as sunflower cakes, are rich sources of proteins with desirable functional properties for the food industry. However, challenges such as sensory drawbacks and the presence of phenolic compounds have hindered their widespread use. In this study, sunflower protein concentrates were obtained from sunflower cakes using different anti-greening solvents (ascorbic acid (ASC) and N-acetylcysteine (NAC)), and their functional properties were evaluated. The color of extracted proteins ranged from dark green to yellow, where the using of ASC and NAC agents enhanced the color. The protein concentrates exhibited high solubility (>70%) and antioxidant activity, with hydrophobicity influencing emulsifying activity. Emulsions prepared with these proteins showed stability and microencapsulation efficiency. Incorporation of protein concentrates into low-fat whipping cream formulations increased overrun and affected color characteristics. Rheological studies demonstrated pseudoplastic behavior in whipped cream, influenced by shear rates and protein content. Overall, sunflower protein isolates showed promising functional properties, indicating their potential as valuable ingredients in food formulations.

Keywords : functional properties, sunflower protein concentrates, antioxidant capacity, anti-greening agents, low-fat whipping cream

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