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A study of anthocyanin extraction methods from high anthocyanin purple corn cob hybrid: KPSC 901, and application of the extract powder

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Statement of the Problem: Anthocyanins are compounds extracted from natural origins, and can be used as a natural colorant. The high anthocyanin corn hybrid Kasetsart Purple Corn Single Cross (KPSC) 901 (*Zea mays L.*) is a new purple corn single cross-hybrid in Thailand. Methodology & Theoretical Orientation: Anthocyanin extraction from KPSC 901 purple corn cob by new extraction methods, including microwave-assisted, ultrasound-assisted and ohmic heating techniques were studied and compared with the conventional heating method (solid : liquid ratio = 1:20) to select the best method for upscaling extraction. The extract was later concentrated and freeze-dried before quantity analysis. Findings: The optimal process for anthocyanin extraction was microwave-assisted extraction which gave a total anthocyanin content (TAC) of 397.1 mg/100 g corn cob powder. The extract powder had TAC and total phenolics content values of 3,446 and 20,915 mg/100 g powder, respectively. Conclusion & Significance: In this research, microwave-assisted extraction is the optimized method, which can help to efficiently extract anthocyanins and phenolic compounds from purple corn cob by using only water as a solvent for producing colorant powder. The powder dissolved in water and had a deep red color so it could be used in functional foods as a natural colorant and/or a source of active ingredients, depending on the concentration used.

Biography

Withida Chantraponchai is an Assistant Professor at the Department of Product Development, Faculty of Agro-Industry, Kasetsart University, Bangkok, Thailand. She studies Food Science at University of Massachusetts at Amherst, USA. At Kasetsart university, she is responsible in teaching color evaluation and sensory evaluation. Her current research interests are development of natural colorants from local produces and their applications; and influence of food additives on sensory characteristics of food products.

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