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Valorization of mangosteen peel waste into functional polysaccharides: Box-Behnken optimization, structural characterization, and skin-related biofunctional properties

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Highlights

- MPP was successfully extracted using the MAE method.
- Extraction parameters for MPP were optimized using the BBD approach.
- The optimum yield of MPP (16.03%) was obtained.
- The optimized MPP exhibited potent antioxidant and anti-tyrosinase activities.
- MPP was an acidic polysaccharide with low molecular weight and high DE.

Abstract

Hyperpigmentation remains a common cosmetic concern with limited safe, natural therapies and an unmet need for value-added uses of agro-waste. This study valorizes mangosteen (*Garcinia mangostana* L.) peel by extracting bioactive polysaccharides (MPP) using microwave-assisted extraction with citric acid monohydrate (CAM) and optimizing conditions by a Box-Behnken design (30% microwave power, 4 min, 1:28 g/mL solid-to-

Outline

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- 1. Introduction
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- CRedit authorship contribution statement
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- Acknowledgement
- Appendix A. Supplementary data
- Data availability

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