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Recovery of anthocyanins and other phenolic compounds from purple eggplant peels and pulps using ultrasonic-assisted extraction

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Highlights

- Anthocyanins and other phenolic compounds were extracted from fresh purple eggplant,
- Optimal conditions for maximizing extraction yield using conventional, grinding and ultrasounds were determined,
- Extraction of phenolic compounds were improved by the use of ultrasonic probe,
- SEM images revealed cell denaturation after ultrasound treatment.

Abstract

In order to enhance the extraction efficiency of anthocyanins and other phenolic compounds from fresh purple eggplant parts (peels and pulps), conventional extraction, grinding process and assisted ultrasonic probe were used. The effects of both ultrasonic time and maceration conditions including pH medium, ethanol/water mixture, temperature and nature of particles (square and ground) were evaluated. Among the examined parts, the peels were found to be rich in anthocyanins. The obtained results showed that the most efficient factors for the extraction of polyphenols are pH medium, nature of particles and temperature. It was found that a temperature of 75 °C and pH 2.0 were the best values to achieve high yield of polyphenols from the ground peels treated for 60 min. Under these optimal conditions, the total yield of phenolic compounds was 23.101 mg GAE/g DM. However, an ultrasonic time of 30 min produced 29.011 mg GAE/g DM in square peel extracts using acidified water as solvent. Further, in terms of total phenolic content, both colorimetric and HPLC

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