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Research Abstracts

Extraction of Caffeic Acid from Residual Coffee Pulpe

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Abstract: Coffee pulp is the main solid waste obtained from the wet processing of coffee, as it constitutes approximately 41% of the wet weight of the coffee cherry. Coffee pulp is highly enriched with carbohydrates, protein, and minerals, as well as measurable amounts of tannins, polyphenols, caffeine, and caffeic acid. The widespread use of caffeic acid ranges from drink additives, cosmetics, and tea products, to medical applications, as a result of its antibacterial, antiviral, antioxidant, and anticancer properties. In addition, caffeic acid is used as a precursor in the synthesis of drugs for the treatment of HIV. In this study, the two methods employed for caffeic acid extraction were leaching (A), and a pre-treatment with ultrasound (B). In (A) this method, the extraction was carried out using dried pulp, which was heated on a stove at 70°C for 24 hours. Afterwards, 10 grams of dried pulp were leached using an ethanol solution (50/50) at 60°C for 1 hour. was filtered and concentrated under vacuum. The presence of caffeic acid was determined via Thin Layer Chromatography (TLC; Similar to the method above, 10 grams of dried pulp were placed in a flask containing an ethanol solution, which was then sonicated for 6 hours in an ultrasonic waterbath. The subsequent steps were carried out as in (A). The use of ultrasound in method (B) helped improve the extraction of caffeic acid via leaching, as this method increased the final yield 3-fold. Finally, it was observed that heating the pulp caused its color to become darker, which may have a negative impact on the extraction procedure

Keywords: Coffee pulp, caffeic acid, extraction

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