

Jaboticaba (*Plinia cauliflora*) peel as a source of pectin: comparative evaluation of extraction methods

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Jaboticaba (*Plinia cauliflora*) is a small fruit native to Brazil and its peel is a source of antioxidants and soluble dietary fibers. In this study, the fruit peels were dried and ground, and the resulting flours were evaluated as a source of pectin. Four different extraction methods using ultrasound (US) coupled to microwave heating (MW) and/or enzyme treatment were employed: US extraction followed by low temperature heating (40 °C): (i) in microwave (MW) (3 min) without (method 1) or with cellulase (method 2) or hemicellulase (method 3); or (ii) in a water bath for 5 hours (method 4). Precipitation, washing, drying, grinding and sieving steps completed the processing. The obtained pectins were characterized in terms of their carbohydrate and phenolic profiles. Yields ranged from approximately 18% for methods 1 (US+MW) and 4 (US + water bath heating) up to 22% for US-MW-enzyme assisted extractions (methods 2 and 3). The methods that did not employ enzyme extraction provided low methoxyl pectins, as opposed to high methoxyl pectins obtained after enzyme treatment. MW and water extraction had similar performances. Different neutral sugars were identified in the extracted pectins, in addition to cyanidin-3-O-glucoside and ellagic acid. Cyanidin-3-O-glucoside (C3G) and ellagic acid were the main phenolic compounds found in jaboticaba peel flours, with the C3G content ranging from 104.31 to 176.77 mg/100g, with the higher levels associated to enzyme-free treatments (methods 1 and 4). All pectins from jaboticaba peel presented a reddish tone, good emulsifying properties and high swelling capacity. The pectin extracted using US+MW+hemicellulase (method 3) was the one that presented better emulsifying performance (higher values of emulsifying activity and emulsion stability), being actually more effective than commercially available citrus pectin.