



Abstract

Green-Extraction Methodologies for Recovering Bioactive Compounds from Endemic Fruits: Corcolen (*Azara dentata*)[†]

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Abstract: There is a great demand for the recovery of bioactive compounds from by-products and side streams in the food and cosmetic industries. More sustainable extraction methodologies are being chosen, such as pulsed electric field (PEF) assisted extraction, supercritical fluid extraction (SFE), pressurized liquid extraction (PLE), and ultrasound-assisted extraction. Endemic fruits represent a great and little-explored source of biomolecules that can become potential candidates for the study of new drugs and support the use of native species in functional foods or nutraceuticals. Some phenolics from Chilean fruits proved to have potential in the prevention of non-communicable or chronic diseases. The study aimed to produce polyphenolic-rich extracts from corcolen (*Azara dentata* Ruiz & Pav) by non-thermal methodologies. Two extracts were obtained by means of SFE, using CO₂ and ethanol as co-solvents, and PLE using water as a solvent. The total antioxidant capacity, total phenolic content, carbohydrates, and proteins of both extracts were analyzed. The resulting phenolic content of the extracts obtained by SFE and PLE was 5.37 ± 0.38 and 21.17 ± 0.57 mg GAE/g sample, respectively. The total antioxidant capacity was 3.22 ± 0.47 and 18.05 ± 1.25 mg Trolox/g sample for the SFE and PLE extracts, respectively. Moreover, corcolen composition was characterized by LC-TOF chromatography, being chrysoeriol 7-O-glucoside, isorhamnetin 7-O-rhamnoside, isorhoifolin, rhoifolin, kaempferol 3-O-feruloyl-sophoroside 7-O-glucoside, kaempferol 3-O-feruloyl-sophorotrioside, spinacetin 3-O-(2-p-coumaroylglucosyl) (1→6)-apiosyl (1→2)-glucoside, cyanidin 3-O-(xylosyl-(6-caffeoyl-glucosyl)-galactoside), the eight more predominant flavonoids. The different extraction methodologies allowed the obtaining of extracts with an interesting antioxidant capacity, rich in polyphenols, that could potentially find several applications as dietary supplements, ingredients for cosmetic formulations, or additives in food.

Keywords: corcolen (*Azara dentata*); pulsed electric field; supercritical fluid extraction; pressurized liquid extraction; antioxidants



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