

Supercritical fractionation of antioxidants from algerian *Opuntia ficus-indica* (L.) Mill. seeds

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Description

The recovery of active ingredients from vegetable wastes is a very attractive research field for the development of a sustainable economy. In order to revalue the waste from the extraction of oil of *Opuntia ficus-indica* seeds, in this study cakes resulting from the pressing were macerated in ethanol and then a Supercritical Antisolvent Fractionation (SAF) technique was used for the recovery and enrichment of the antioxidants present in the ethanolic extract. Catechin, epicatechin, and ferulic acid, as characteristic antioxidant components, were identified and quantified by HPLC in the fractions obtained through SAF. A series of 11 SAF experiments was programmed by Response Surface Methodology (RSM) to optimize the recovery of the original extract and the yield in antioxidants. Optimal SAF conditions were: 15 MPa pressure, 30 g min⁻¹ CO₂ flow rate, and 13.6 MPa, 10 g min⁻¹ CO₂ flow rate for extract mass ...