

Extraction and microencapsulation of bioactive compounds from pomegranate (*Punica granatum* var. Wonderful) residues

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© 2017 Institute of Food Science and Technology Pomegranate peels and seeds are industrial residues considered interesting sources of punicalagin (PU) and punicic acid (PA), respectively. To optimise their extraction process and protect them against environmental factors, pomegranate residues were extracted with supercritical CO₂ (SC-CO₂) using a Box-Behnken design and then optimal extracts encapsulated by spray-drying applying a 2² central composite design. Peel extracts showed a PU content of 0.4–9.5% with optimal extraction conditions of 400 bar, 43 °C and 20% ethanol. On the other hand, SC-CO₂ seed extracts showed a PA content of 65.1–78.4% with 450 bar, 48 °C and 10% ethanol as optimal extraction parameters. Otherwise, the encapsulation efficiency of SC-CO₂ extracts was significantly affected by core/wall material ratio and its quadratic effect. This parameter ranged from 35.1% to 72.4% for peel extracts and from 68.2% to 92.7% for seed extracts. Results showed that the proposed t