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Supercritical carbon dioxide extraction of carotenoids from tomato 'Admiro' F1

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The supercritical carbon dioxide extraction (SCE-CO₂) is increasing interest because of its suitability for extraction and purification of compounds having low volatility or which are susceptible to thermal degradation. In this work the SCE-CO₂ of biologically active, high valued compounds carotenoids from tomato 'Admiro' F1 peels mixtures with seeds and pulp was investigated. The extracts were analysed by high-performance liquid chromatography. Freeze dried tomatoes were submitted to SCE-CO₂ extraction using a pressures from 200 to 550 bar and temperatures from 40 to 80 °C. The content of carotenoids (lycopene and β-carotene) in extracts were analyzed by high-performance liquid chromatography. Supercritical fluid extraction from tomato peels with seeds and pulp at 380 bar and 60 °C allowed the recovery of 80% of the lycopene and 85% of the β-carotene. The extraction yields and the amounts of lycopene and β-carotene depend on the experimental conditions. The product obtained by SCE-CO₂ at 380 bar and 60 °C contained the highest concentration of lycopene (18 mg/100ml) and β-carotene (5 mg/100ml).

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