

BIOLOGICAL ACTIVITY OF *Brassica oleracea var capitata* EXTRACTS OBTAINED BY SC-CO₂

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Brassica oleracea var capitata, known as white cabbage, has been widely studied due to its pharmacological properties. Based on these aspects, this work is focused on the supercritical CO₂ (SC-CO₂) extraction, characterization and evaluation of biological activity of white cabbage, since, at the best of our knowledge, there is no works focusing on SC-CO₂ extraction for this plant. The experiments were performed in a laboratory-scale unit, which consists of a CO₂ reservoir, two thermostatic baths, a syringe pump and a jacketed extraction vessel. Amounts of around 20 g of dried white cabbage leaves were fed into the extraction vessel and extractions carried out for 2 hours using a constant mass CO₂ flow rate of 2 g.min⁻¹. A central composite design was carried out to evaluate the effects of temperature (20 to 60°C) and pressure (100 to 250°C). Results showed that the extraction variables affect the extraction yield, which ranged from 0.1 to 0.45 wt%, being the highest value obtained at 60°C and 250 bar. The major compounds indentified in the extracts were hexadecanoic acid and cyclopropane octanoic acid. From the antioxidant activities of the extract, it was seen that the SC-CO₂ white cabbage extracts inhibited 78% and 59% of the antioxidant action of superoxide and DPPH radicals, respectively. Antimicrobial tests demonstrated that SC-CO₂ extracts had activity against *Staphylococcus aureus*. The results obtained in this work are promising for the development of a phytotherapeutic drug, since the SC-CO₂ extracts of white cabbage presented a significant antioxidant and antimicrobial activities.

Keywords: White cabbage, supercritical CO₂ extraction, biological activity.

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