

Effects of Pressure and Temperature on the Extraction of Benzyl Isothiocyanate by Supercritical Fluids from *Tropaeolum majus* L. Leaves

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Abstract : *Tropaeolum majus* L. is a native plant to South and Central America, used since ancient times by our ancestors to combat different diseases. Glucotropaeolin is one of its main components, which when hydrolyzed, forms benzyl isothiocyanate (BIT) that promotes cellular apoptosis (programmed cell death in cancer cells). Therefore, the present research aims to evaluate the effect of the pressure and temperature of BIT extraction by supercritical CO₂ from *Tropaeolum majus* L. The extraction was carried out in a supercritical fluid extractor equipment Speed SFE BASIC Brand: Poly science, the leaves of *Tropaeolum majus* L. were ground for one hour and lyophilized until obtaining a humidity of 6%. The extraction with supercritical CO₂ was carried out with pressures of 200 bar and 300 bar, temperatures of 50°C, 60°C and 70°C, obtained by the conjugation of these six treatments. BIT was identified by thin layer chromatography using 98% BIT as the standard, and as the mobile phase hexane: dichloromethane (4:2). Subsequently, BIT quantification was performed by high performance liquid chromatography (HPLC). The highest yield of oleoresin by supercritical CO₂ extraction was obtained pressure 300 bar and temperature at 60°C; and the higher content of BIT at pressure 200 bar and 70°C for 30 minutes to obtain 113.615 ± 0.03 mg BIT/100 g dry matter was obtained.

Keywords : solvent extraction, *Tropaeolum majus* L., supercritical fluids, benzyl isothiocyanate

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