CHEMICAL CHARACTERIZATION OF A COMMERCIAL ESSENTIAL OIL OF CARQUEJA (BACCHARIS TRIMERA)

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Carqueja is a herb widely used for the treatment of diabetes mellitus. Despite this, nobody knows which are actually the compounds responsible for its medicinal properties, but some of them may be associated with the terpenic compounds of its essential oil. For instance, the intraperitoneal administration of carquejol to rats is able to reduce blood cholesterol levels by 5-10%. Thus, the present study aims to chemically characterize a commercial essential oil of Carqueja that will be used to study the influence of its oral consumption on the metabolism of diabetic rats. This oil was analyzed by gas chromatography combined with a flame ionization detector or mass spectrometry, using a fused silica SPB-1 capillary column. The identification of compounds was based on mass spectra data, standard compounds co-elution and retention indexes. The total phenolic content of a methanol solution of the essential oil (2.5 mg mL⁻¹) was established by the Folin-Ciocalteu method. The antioxidant activity was evaluated by the 2,2-diphenyl-1-picrylhydrazyl assay, using five methanol solutions of the essential oil (10, 60, 120, 150 and 200 mg mL⁻¹) to make the curve of the antioxidant capacity that was employed to calculate the IC₅₀ of this matrix. Until now, fifteen (15) compounds have been identified as components of this essential oil. These compounds can be divided in four subclasses: monoterpenes (5 members), oxygenated monoterpenes (2), sesquiterpenes (6) and oxygenated sesquiterpenes (2). The presence of two important chemical markers of the carqueja essential oil (carquejol and carquejyl acetate) have suggested that this commercial sample was actually genuine. Carquejyl acetate was the major compound found in this essential oil: (46.24 ± 4.21)%. The total phenolic content of the oil was 12.6 ± 1.4 mg of gallic acid equivalent/g of essential oil. The IC₅₀ value found for this essential oil was 137.70 mg mL⁻¹. This value was about 1,480 times bigger than that found for rutin (IC₅₀ = 0.093 mg mL⁻¹) and 16,200 times bigger than that calculated for gallic acid (IC₅₀ = 0.0085 mg mL⁻¹), both used as positive controls. This means that this essential oil is a much weaker antioxidant than rutin and gallic acid.

Keywords: Baccharis trimera, commercial essential oil, chemical characterization.

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