

Chemical composition, antioxidant, anti-inflammatory and antitumor activities of *Eucalyptus globulus* Labill.

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Eucalyptus globulus L. is used in folk medicine throughout the world and its essential oils are widely used in modern pharmaceutical, food, and cosmetic industries. In this study, *E. globulus* leaves were extracted using three solvents (methanol, chloroform and hexane). The polyphenolics were quantified with HPLC and the volatiles analyzed by GC/MS with antioxidant, anti-inflammatory and antitumor activities. Results have shown a hierarchy of antioxidant and anti-inflammatory activity for three extracts as hexane > chloroform > methanol extracts with DPPH, FRAP, and oxygen radical absorbance capacity, respectively. A similar order of results was observed for antitumor activity by potato disc and colorimetric assays. The GC/MS analysis led to the identification of 1, 8-cineole (eucalyptol) as a major constituent of methanol (48.2%), chloroform (35.5%), and hexane (5.8%) extracts. Different phenolic acids (gallic acid, ellagic acid, syringic acid, and vanillic acid) and flavonoids (quercetin, rutin, and catechin) were highly abundant in methanol extract. The methanol extract of *E. globulus* exhibited the maximum antioxidant, anti-inflammatory, and antitumor activities. These results demonstrate *E. globulus* leaf extracts may be used as a potential source of bioactive compounds with remarkable antioxidant, anti-inflammatory, and antitumor activities.

Keywords: Eucalyptol, Flavonoids, Polyphenolics