

Laurus azorica: Valorization through Its Phytochemical Study and Biological Activities

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Abstract: *Laurus azorica* (Seub.) Franco is an endemic species from the Azores traditionally used in all the islands as a seasoning in cooking. The studies carried out with this species refer mainly to its essential oils. The study that has been developed here allowed for the first time to determine the chemical composition and biological activities of the ethanol extract, fractions, and pure compounds from *L. azorica*. The hexane fraction was analyzed by GC-MS and revealed the presence of 48 compounds, belonging mainly to fatty acids, fatty alcohols and terpenes, being the family of fatty alcohols identified here for the first time in the genus *Laurus*. Three sesquiterpene lactones, costunolide, 11,13-dehydrosantonin and reynosin, were isolated for the first time in *L. azorica* from the same fraction, and structurally characterized using spectroscopic techniques. The compounds identified belong to families known to have relevant medicinal and nutritional properties. Regarding antioxidant activities, the results obtained showed moderate radical scavenging effect of extracts and fractions, while in the β -carotene bleaching assay, costunolide was shown to be the most active ($IC_{50} = 4.08 \pm 0.76 \mu\text{g/mL}$), about 3.6 times more active than the standard, gallic acid, which presented $IC_{50} = 14.56 \pm 0.13 \mu\text{g/mL}$. Although the inhibition of extracellular matrix degrading enzymes was not detected, the ethanol extract showed good inhibitory activity of tyrosinase, with an IC_{50} of $12.04 \pm 0.23 \mu\text{g/mL}$, only 6.6-fold lower than the control kojic acid. The results presented deepen the knowledge about a little studied species, opening new perspectives for the development of value-added applications in the food and cosmeceutical field.

Keywords: *Laurus azorica*; GC-MS profile; sesquiterpene lactones; radical scavenging activity; β -carotene bleaching; anti-tyrosinase; costunolide; 11,13-dehydrosantonin; reynosin; fatty alcohols

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1. Supplementary Materials:

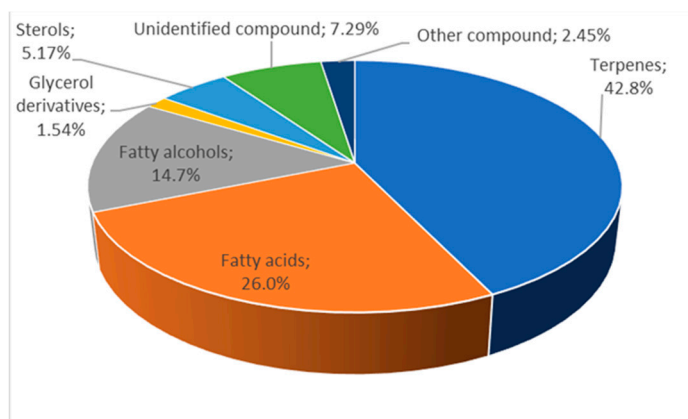


Figure S1. Graphic representation of chemical composition of *L. azorica* lipophilic fraction (%) by natural compounds families.

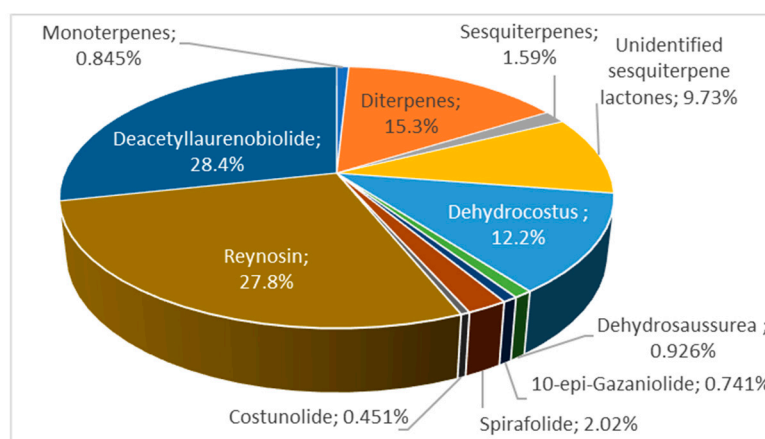


Figure S2. Graphic representation of the terpenoid composition of *L. azorica* lipophilic fraction.