

Abstract

In Vitro Inhibitory Effects on Pancreatic Lipase and α -Glucosidase Activity by Extracts and Fractions of *Lavandula angustifolia* L. from Southern Italy [†]

Rosa Tundis * , Anna R. Cappello and Monica R. Loizzo 

Department of Pharmacy, Health and Nutritional Sciences, University of Calabria, 87036 Rende, Italy

* Correspondence: rosa.tundis@unical.it

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Abstract: *Lavandula angustifolia* is one of the most popular medicinal plants, and is a rich source of bioactive compounds. Most of the studies on lavender have focused on its essential oil and its use as a sleep aid, calmative, fragrant, insect repellent and flavoring agent. This work is aimed at investigating, for the first time, the potential role of *L. angustifolia* in the management of metabolic syndrome (MetS), one of the major and escalating public-health and clinical challenges worldwide. Herein, the aerial parts of *L. angustifolia*, collected in June 2021 in the “Parco Nazionale del Pollino”, Southern Italy, were subjected to extraction by maceration with ethanol. Then, the total extract was partitioned with solvents at different polarities such as *n*-hexane, dichloromethane and ethyl acetate. The extract and fractions were evaluated for their ability to inhibit alpha-glucosidase as well as lipase. The ethanol extract remarkably inhibited α -glucosidase and lipase (IC₅₀ of 2.55 and 30.50 μ g/mL, respectively) better than the positive control acarbose and orlistat (IC₅₀ of 35.51 and 37.12 μ g/mL, respectively). The most active fraction was dichloromethane with an IC₅₀ of 14.67 and 17.64 μ g/mL, against α -glucosidase and lipase, respectively. Taking into account the obtained results, *L. angustifolia* could be used for the formulation of new products; however, further preclinical studies will be needed to confirm its in vivo efficacy, as well as to prove the safety of the tested extracts and fractions.

Keywords: *Lavandula angustifolia*; ethanolic extract; fractionation; metabolic syndrome; lipase; alpha-glucosidase



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