Chemical Profiling and biological effect of the essential oil from Pistacia lentiscus var. chia

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Pistacia lentiscus L. var. chia, a mastic tree variety endemic to Chios Island, Greece, is renowned for producing Chios mastic gum, an aromatic resin traditionally used in medicine, gastronomy, and cosmetics [1]. The present study initially investigates the composition of its essential oil (EO) using GC–MS analysis. Overall, 33 volatile compounds were identified representing 96.6% of the total EO content. Monoterpene hydrocarbons were the dominant class, with α-pinene (61.4%) as the major constituent, followed by myrcene (5.6%), β-pinene (5.0%), trans-verbenol (3.7%), perillene (3.5%), tricyclene (2.7%), α-pinene oxide (2.2%), and caryophyllene oxide (2.1%). These results confirm the consistent presence of key markers, including α-pinene and β-myrcene, and offer valuable data for the authentication and quality assessment of Chios mastic essential oil. Chios mastic has been widely recognized for its medicinal properties for over 2500 years, exhibiting a range of health benefits, including anti-inflammatory, anti-bacterial, antioxidant, anticancer, cardioprotective, and hepatoprotective activities [2],[3]. Thus, the biological effect of this essential oil was then investigated regarding its anticancer potential with very promising results in breast cancer epithelial cells MDA-MB-231, compared to normal cells.

References

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Figures

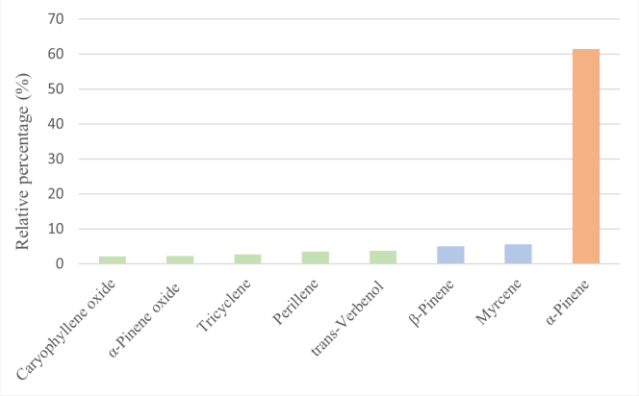

Figure 1: The main constituents (relative percentage ≥2%) of *Pistacia lentiscus* L. var. *chia* resin essential oil.

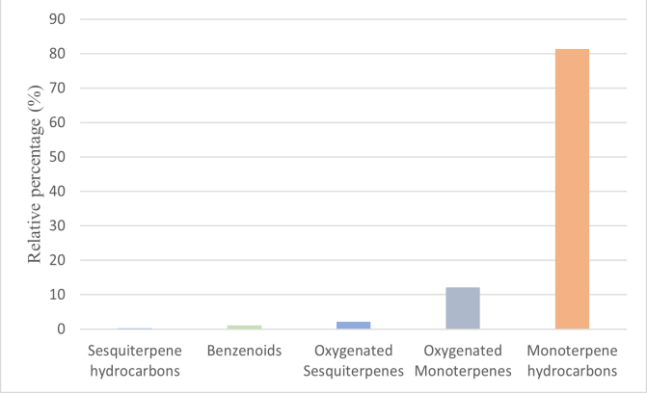

Figure 2: The chemical groups identified in *Pistacia lentiscus* L. var. *chia* resin essential oil.