



MEDICAL THERAPIES AND PHARMACOLOGY

MOLECULAR COMPOSITION OF ACTIVE CHIOS MASTIC GUM COMPOUNDS, TERPENES, FOR USE IN COSMETIC, NUTRACEUTICAL, MEDICAL DEVICES AND PHARMACEUTICAL APPLICATIONS.

Nicola Volpi⁽¹⁾ - Fabio Galeotti⁽¹⁾ - Serena Lazzaro⁽²⁾ - Ezio Abbiati⁽²⁾

University Of Modena & Reggio Emilia, Department Of Life Sciences, Modena, Italy⁽¹⁾ - Phytoitalia S.r.l, R&d, Corbetta (mi), Italy⁽²⁾

Chios mastic gum is a resin generated by the plant *Pistacia lentiscus* var. *chia*, generally cultivated in the southern part of the Greek island of Chios. *P. lentiscus* is a very ancient plant and it has been used since many centuries. Recent studies have associated specific pharmaceutical properties of Chios mastic gum with its particular molecular components. Its gastro-intestinal, antioxidant, anti-inflammatory, antidiabetic, antimicrobial and anticancer activity, as well as its beneficial effects in oral hygiene and in skin care are largely documented. It is also used as a seasoning in Mediterranean cuisine, in the production of chewing gum, in dentistry, and for the relief of epigastric pain and protection against peptic ulcer.

The active components contributing to its therapeutic effects belong to the class of terpenes. Triterpenic acids, in particular, possess various biological capacities such as anti-inflammatory, antioxidant, antiatherogenic, antihyperlipidemic, anti-tumor, antidiabetic and hepatoprotective effects.

The present study deals with new recent analytical approaches useful for the determination of Chios mastic gum terpenes and evaluation of its quality. A qualitative and quantitative characterization of mastic gum biomolecules is of interest to "design" extracts having specific and powerful biological activities. We developed and validated an analytical procedure for quantification of bioactive substances in Chios mastic gum, in particular HPLC-(UV)-ESI-MS for an accurate assessment of these compounds.

In conclusion, due to its large heterogeneity and based on its fine structural characterization and composition, further studies may generate novel mastic gum products possessing specific biological activities for new and specific applications able to produce a beneficial effect in one or more physiological functions, to increase well-being and decrease the risk of suffering from a particular medical condition.

