

**ARTEMISIA UMBELLIFORMIS LAM. AND GÉNÉPI LIQUEUR.
FROM THE FIELD TO THE FINAL PRODUCT: THE IMPORTANCE OF THE
VOLATILE FRACTION IN QUALITY CONTROL**

Barbara Sgorbini, Lorenzo Boggia, Maria Laura Colombo, Arianna Marengo,
Stefano Acquadro, Carlo Bicchi, Patrizia Rubiolo

Dipartimento di Scienza e Tecnologia del Farmaco (DSTF), University of Turin,
Via Pietro Giuria 9, 10125 Torino, Italy - E-mail: barbara.sgorbini@unito.it.

Volatile fraction plays a fundamental role for qualitative and quantitative characterization of aromatic plants and their relative products, i.e. alcoholic beverages. *A. umbelliformis*, commonly known as "white génépi", is traditionally used to prepare a precious liqueur, and it is characterized by a volatile fraction rich in two monoterpenoids, i.e. α - and β -thujone. The maximum content of thujones in *Artemisia*-based beverages is limited to 35 mg/L in the EU¹ because of their recognized activity on human central nervous system. This study reports the results of an investigation to define the geographical origin and thujone content of individual plants of *A. umbelliformis* from different geographical sites, cultivated experimentally at a single site, and to predict the thujones content in the resulting liqueurs, through their volatile fraction. Headspace Solid Phase Microextraction (HS-SPME) coupled with Gas Chromatography-Mass Spectrometry (GC-MS) or directly with mass spectrometry (HS-SPME-MS) were used in combination with chemometric descriptive and predictive tools. HS-SPME-MS was applied to speed-up the total analysis time and to make the adopted method suitable for the screening of a large number of samples.

With both approaches, a diagnostic prediction of: i) plant geographical origin, and ii) thujones content of plant-related liqueurs could be achieved.

1. Regulation (EC) No 110/2008 of the European Parliament and of the Council, Off. J. Eur. Union 2008, 16–54.