

Environmental sustainability in the production of grappa with the use of mould-resistant grape varieties: the aroma characterisation of distillates

Grappa is the most important Italian spirit and its production includes elements of history, tradition, and culture of the transalpine country. In accordance with EU laws, grappa is obtained from the fermentation and distillation of the pomace, eventually added with fermentation lees and water. Grappa is one of the richest fruit distillates in volatile compounds that confer to the product its characteristic fragrance. The aroma is largely due to the volatile compounds present in the raw materials, in particular alcohols, esters and carbonyl compounds formed during the alcoholic fermentation, but also to grape aromas such as terpenols and norisoprenoids, that confers grappa the distinctive floral scents.

In a recent context where consumers pay an increasingly attention to sustainability and eco-friendly aspects in the decision-making process, the use of mould-resistant grape varieties would be an opportunity for grappa producers as it can be reduced the pesticide utilization in grape management and hence production costs. Some of these varieties have recently been authorized in Italy for winemaking, however the knowledge about their aptitude for grappa production is limited so far.

The present work focused on the sensory active compound characteristics of distillates experimentally obtained from seven mould-resistant varieties recently planted in northern Italy: Aromera, Bronner, Helios, Johanniter, Muscaris, Solaris and Souvigner Gris. The grapes were harvested at maturity for the production of wine over three consecutive vintages and were processed in order to manage separately wine and marc according to a standardized protocol. The marc was fermented in triplicate under controlled conditions and each batch was distilled using an experimental distiller, similar to those traditionally used in Northern Italy. The gas chromatography coupled to mass spectrometry [1] and flame ionisation detector [2] of the heart fractions revealed important differences between the various products. In particular, the varieties Muscaris and Aromera showed a relevant content in terpene compounds, responsible of floral scents.

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