

Varietal thiol precursors in Gewürztraminer: effect of clone and grape ripening

PRECURSORES DE TIOLES VARIETALES EN GEWÜRZTRAMINER: EFFECTO DEL CLON Y DE LA MADURACIÓN DE LAS UVAS

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INTRODUCTION

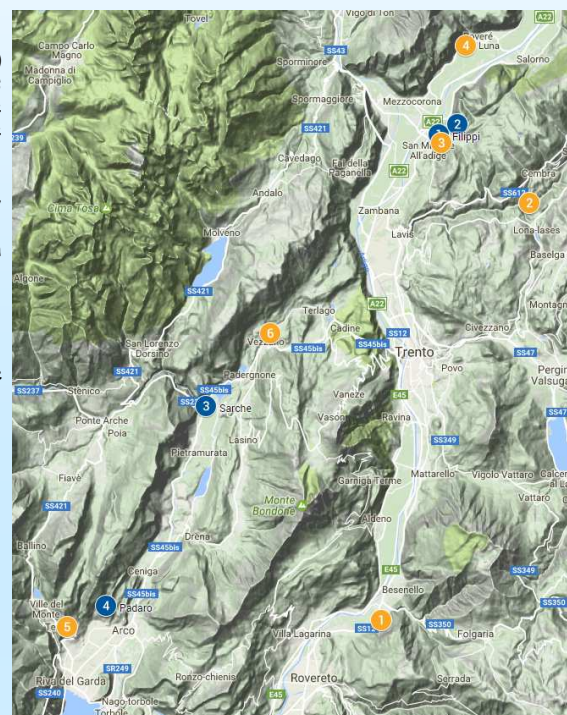
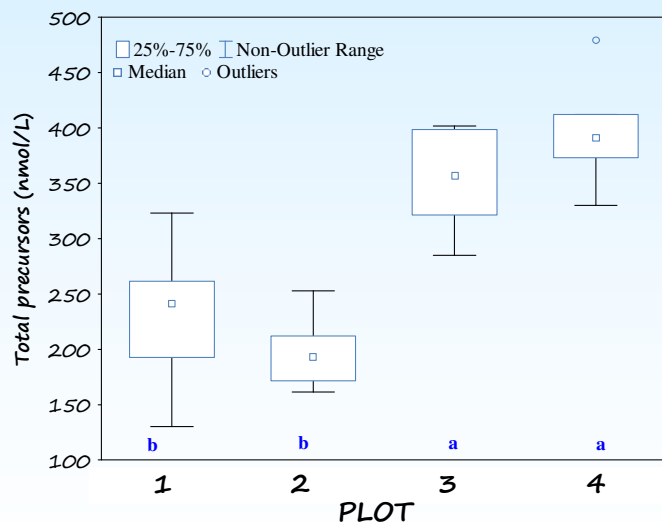
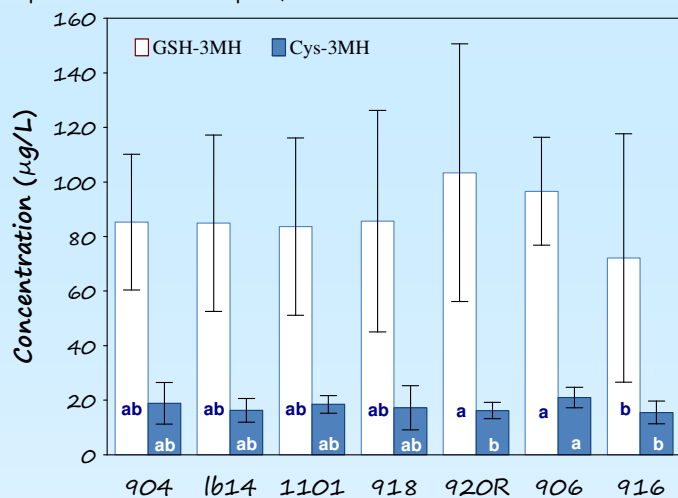
Much research has been carried out since the discovery of glutathionyl- (GSH-) and cysteinyl (Cys-) precursors of 3-mercaptohexan-1-ol (3MH) in grapes and juices (Tominaga et al., 1998; Peyrot des Gachons et al., 2002) in order to understand the origin of these precursors and optimize the technological options useful to liberate and maintain the free forms and the related fermentative compounds characterised by interesting tropical, passion fruit and grapefruit-like aroma.

Few data are available about the role of these precursors in the case of Gewürztraminer (GWT; Dubordieu & Tominaga 2009; Roland et al. 2010a & b; Concejero et al., 2014), an international variety native to Tramin (South-Tyrol, Italy). For this reason we have investigated the effect of clone and ripening in grape samples of GWT grown in Trentino (Italy). Thiol precursors were measured using an UHPLC approach with triple quadrupole mass detection according Larcher et al. (2013).

(1) CLONE EFFECT

The juices of 7 GWT clones - ISMA-AVIT 904, 906, 916, 918 and 920R, as well as LB14 and 1101 - grown in 4 plots and harvested at the technological ripeness allowed by the very hot 2015 vintage were analysed.

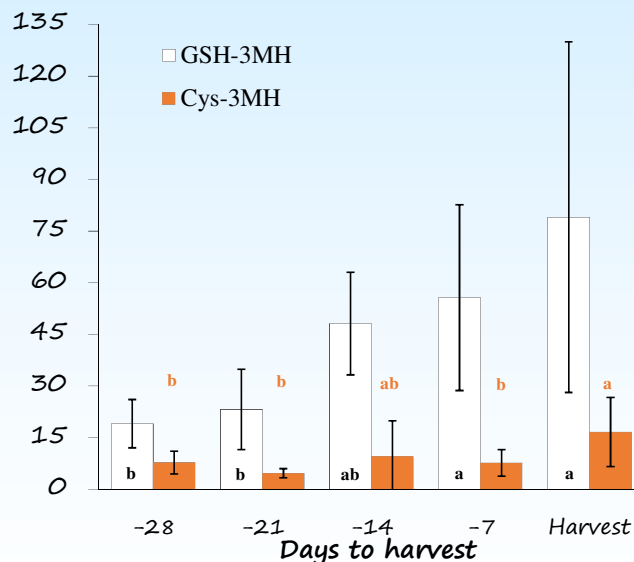
Significant differences were found between clones as regards thiol precursors concentration, where 906 and 920R clones showed a higher molar concentration of the sum of GSH-3MH and Cys-3MH compared to 916. Between plots, mean differences reached values > 100%.



(2) RIPENING ACCUMULATION

GWT grapes from 6 different non-clonal vineyards sited at an altitude between 120 and 525 m a.s.l. in Trentino were analysed during the last month before harvest.

A clear and statistically significant increase trend during ripening was observed for the cited precursors, confirming for GWT previous results observed by Kobayashi et al (2010) for Koshu.



Literature

Concejero et al. (2014). *Analytica chimica acta*, 812, 250-257.
 Dubordieu, & Tominaga (2009). In: *Wine chemistry and biochemistry* (pp. 275-293). Springer New York.
 Kobayashi et al. (2010). *American Journal of Enology and Viticulture*, 61(2), 176-185.
 Larcher et al. (2013). *Australian journal of grape and wine research*, 19(3), 342-348.

Peyrot des Gachons et al. (2002). *J. Agric. Food Chem.* 50, 4076-4079.
 Roland et al. (2010a). *Journal of Chromatography A*, 1217, 1626-1635
 Roland et al. (2010b). *Food Chemistry*, 121(3), 847-855.
 Tominaga et al. (1998). *J. Agric. Food Chem.*, 46(12), 5215-5219.