

# AROMA COMPOSITION OF MONO-VARIETAL WHITE WINES FOR THE PRODUCTION OF CUSTOZA

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## INTRODUCTION AND METHODS

The appellation “Bianco di Custoza” or “Custoza”, born in 1971, is one of the oldest white wines Protected Designation of Origin in Italy. The production area lies on the morainic hills located south-east of Lake Garda, in the province of Verona. The wines belonging to this appellation are obtained from grapes of main varieties, namely Cortese Bianco, Garganega, Trebbiano Toscano and Tocai Friulano alone or jointly for a minimum of 70% (each one not exceeding a maximum of 45%). In addition, Malvasia, Riesling Italico and Renano, Pinot Bianco, Chardonnay and Incrocio Manzoni (cross between Riesling Renano and Pinot Bianco) varieties, alone or jointly, can contribute to the production for a maximum of 30%. The aim of this study was to evaluate the volatile profile of monovarietal wines used in the production of Custoza.

Cortese Bianco, Incrocio Manzoni, Trebbiano Toscano, Garganega and Tocai Friulano monovarietal wines were produced by a local winery during the 2020 vintage. Wines were sampled at the end of alcoholic fermentation. Free volatile compounds were analyzed using SPME-GC-MS techniques. All data were treated by Principal Component Analysis (PCA) and analysis of variance (ANOVA) for statistical purposes.



## RESULTS

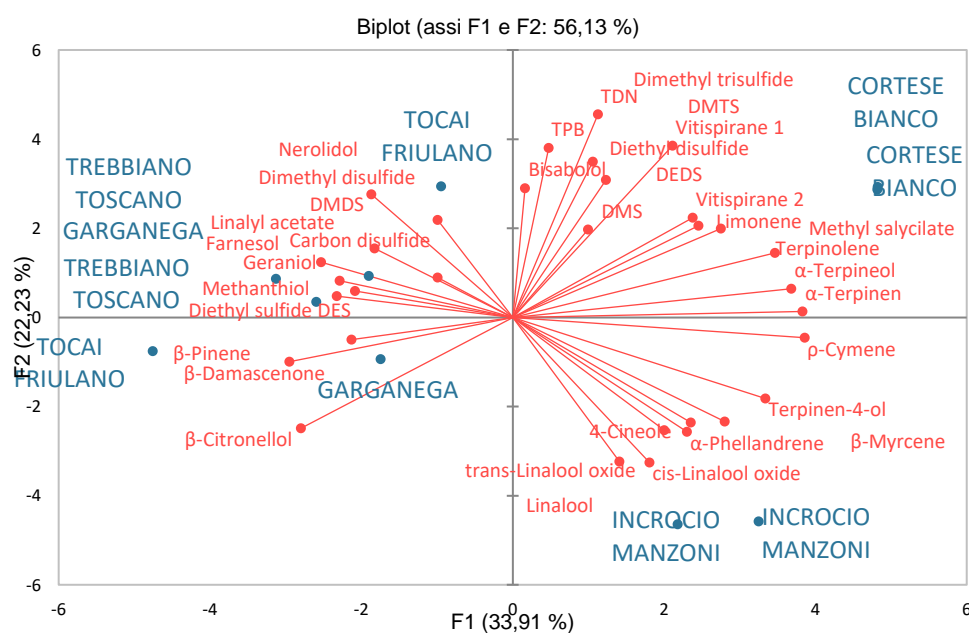


Fig.1 PCA (biplot) of SPME-GC-MS data of monovarietal wines

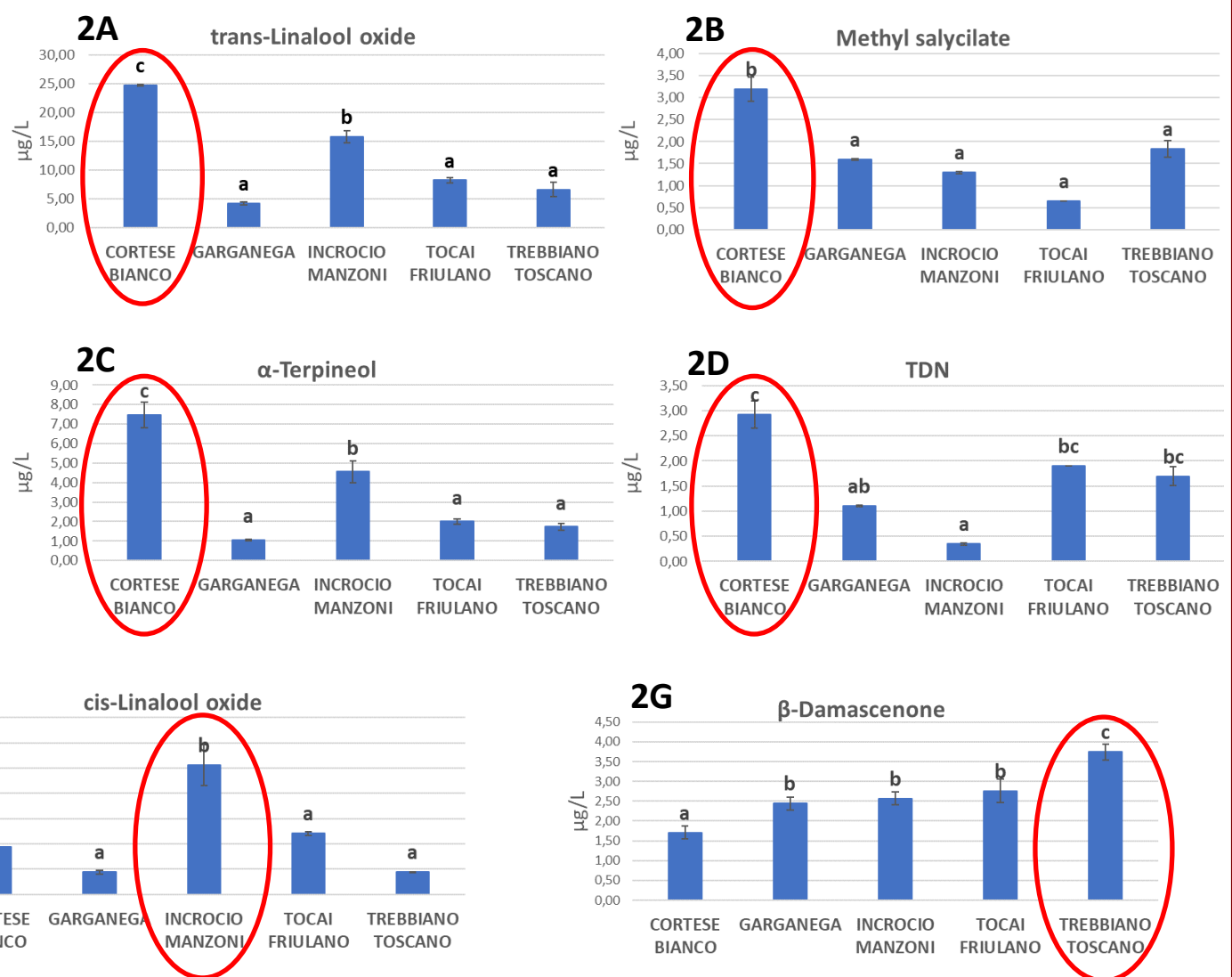


Fig.2 Contents of A) trans-Linalool oxide, B) Methyl salicylate, C) alpha-Terpineol, D) TDN, E) Methanthiol, F) cis Linalool-oxide, G) beta-Damascenone in each monovarietal wines. Letters shows significant difference between wines (ANOVA,  $\alpha=0.05$ ).

## DISCUSSION AND CONCLUSION

- Multivariate analysis (Figure 1) showed good differentiation of all varieties. Cortese Bianco and Incrocio Manzoni formed individual clusters with positive values on PC1, the first showing positive values on PC2 and the latter negative. Tocai Friulano, Trebbiano Toscano and Garganega showed some elements of similarity being characterized by negative values on PC2. Cortese Bianco was associated with higher content of almost all norisoprenoids (except damascenone) including TDN (Figure 2D), many sulfur compounds (DMS, DMTS, DEDS), some terpenoids like trans-linalool oxide (Figure 2A), alpha-terpineol (Figure 2C) and methyl salicylate (Figure 2B). Incrocio Manzoni was associated with many terpenoids such as cis-linalool oxide (Figure 2F). Trebbiano Toscano was correlated to some terpenoids (geraniol, farnesol, linalyl acetate), several sulfur compounds (DES, Carbon Disulfide) and it was characterized by a high content of beta-damascenone (Figure 2G). Tocai Friulano was characterized by a greater presence of methanthiol (Figure 2E). This varieties was associated with the same compounds as Trebbiano Toscano and Garganega, forming a cluster with many similarities.
- This study provided a first insight in the potential contribution of the different varietal wines belonging to the Custoza appellation to the aroma composition of the final wines. Further studies should investigate whether these differences should be attributed to specific varietal patterns and/or to viticultural and winemaking variables.