## STUDY ON THE IMPACT OF CLONE ON THE VARIETAL AROMA OF XINOMAVRO

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### Abstract:

Context and purpose of the study: It is well documented that varietal aroma is an important parameter of wine quality. Chemical compounds responsible for wine varietal aroma are sourced from secondary grape metabolites. Until today little research is conducted on the influence of vine clone on the grape aromatic content of Greek grape varieties. Xinomavro (Vitis vinifera L.) is one of the most important Greek grape varieties, valuable for the wine industry of Northern Greece since it contributes to the production of PDO wine of Naoussa, Amindeo and Goumenissa.

Material and methods: In this study we determined by gas chromatography/mass spectrometry (GC-MS) the volatile compounds responsible for varietal aroma of nine clone candidates of Xinomavro. The research was conducted during two consecutive years (2017 and 2018). The vineyard was planted in 2011, with material selected according to the corresponding E.U. legislation for vine clone selection.

Results: We identified volatile compounds in both free-volatile and bound forms with glycosides. The second category is crucial for wine quality since it constitutes the pool for future wine aroma.

**Keywords**: Xinomavro, volatile compounds, varietal aroma, vine clone.

## 1. Introduction.

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Study on the impact of vine clone on the varietal aroma of Xinomavro. Metafa Maria, Petropoulos Sofoklis, Kotseridis Yiorgos, Panagiotopoulos Athanasios, Bakasietas Konstantinos, Kallithraka Stamatina.

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#### Introduction.

Aroma is usually associated with odorous, volatile compounds sourced mainly from the grape varietals while more complex flavou compounds evolve as a result of fermentation, and ageing. It is well documented that varietal aroma is an important parameter of wine quality. Chemical compounds responsible for wine varietal aroma are sourced from secondary grape metabolites. The influence of various parameters on wine aroma are well documented but till today little research is conducted on the influence of vine clone on the grape aromatic content of Greek grape varieties. Xinomavro (Vitis vinifera L.) is one of the most important Greek grape varieties, valuable for the wine industry of Northern Greece since it contributes to the production of PDO wine of Naoussa, Amindeo and Goumenissa.

### Experimental design.

- Research conducted for two consecutive vintages 2017 and 2018.
- Vineyard was planted in 2011, with material selected according to the corresponding E.U. legislation for vine clone selection.
- Nine (9) clone candidates of Xinomavro were investigated.
- Basic grape chemical analyses, yield and bunch/berry characteristics were recorded at harvest.

  Grape juice and skins were isolated and analysed by gas chromatography/mass spectrometry (GC-MS).
- Free volatile terpenes (FVT) and potential volatile terpenes (PVT) were identified.

### Results.

Grape juice chemical analyses\*, yield and bunch / berry characteristics.

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# Conclusions.

- Vintage 2018 was characterized by increased berry volume and weight, reduced maturity and elevated acidity due to extensive rainfall during harvest.
- 1-Hexanol was the most abundant terpene, followed by benzyl alcohol and cis-3-Hexenen-1-ol.

  Higher concentration of most terpenes
- was reported in 2017 against 2018.
- Most terpenes were elevated in vintage 2018.
- Vintage effect was weaker in cis rose oxide, trans-furan linalool oxide, cis furan linalool oxide, b-damascenone, a-ionone, geraniol, b-ionone and
- Differences were reported among individual clones, in terpenes concentration and composition.