

Teran grape quality influenced by different irrigation treatments

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Abstract (250 words)

Teran is an important native variety grown in Istria known for its high level of polyphenols and intensive fruity character of wines. Teran's yield and wine typicity have recently decreased due to climate changes (increased temperature and severe drought). Four drip irrigation treatments (25%, 50%, 75%, 100% of total evapotranspiration) and control were investigated for the influence on Teran yield and quality, where focus was given to the content and composition of main polyphenolic and volatile compounds in grapes. Irrigation positively influenced yield since the berry weight also increased with increased irrigation. This resulted in the highest yield for 100% ET_c. The highest concentration of polyphenols had control, while the irrigation treatments did not differ significantly. However, there was a tendency to decrease concentration with increased irrigation probably due to the increased berry size, which led to a dilution effect. Regarding the volatile compounds, the most abundant group was alcohols, followed by acids. It seems that volatiles were not affected by irrigation as there is no significant difference between control and treatments, as well as among treatments. Even though the total content of volatiles was similar between treatments, there were significant differences among them in the content of esters, terpenes, and norisoprenoids, all very potent volatiles that can have an important impact on the sensory profile. Precise irrigation is necessary for yield management of Teran in changing environments due to the limited water availability, but grape quality and composition response must be precisely monitored to preserve wine quality and typicity.

Keywords: Teran, Croatia, irrigation, polyphenols, volatiles.