Conference programme

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INFLUENCE OF INACTIVE DRY YEAST TREATMENTS DURING GRAPE RIPENING ON POSTHARVEST BERRY SKIN TEXTURE PARAMETERS AND PHENOLIC COMPOUNDS EXTRACTABILITY

Inactive dry yeast treatments in the vineyard are a tool used with the aim to improve the concentration and quality of secondary metabolites in grapes, leading to a better differentiation of the wines made from grapes differently treated. In this work, a foliar spraying treatment with yeast derivatives specifically designed to be used with the patent pending application technology of Lallemand Inc. Canada (LalVigne® Mature, Lallemand Inc., Montreal, Canada) was tested on Vitis vinifera L. cv. Barbera and Nebbiolo black winegrapes. The aim was to evaluate the effect of this treatment on the phenolic compounds accumulation, the skin physical-mechanical properties and the related phenolic extractability. Prior to analysis, the berries were sorted by flotation in order to evaluate their distribution by density class, and to determine the skin texture parameters of berries with different sugar contents, thus understanding also the ripening effect. The berry skin thickness parameter was positively affected by the treatment, resulting in a significant increase of this parameter for Nebbiolo (about 13 µm in average). Regarding phenolic compounds extractability, a simulated skin maceration in a wine-like solution was carried out on grapes belonging to the most represented density class for each cultivar. The simulated maceration lasted 7 days, and liquid samples were taken in the first 48 hours and at the end of the maceration, when the residual skins were further extracted in a different hydroalcoholic solution to evaluate the non-extracted fraction. Barbera samples did not show an influence of the treatment on anthocyanins during the maceration period, while Nebbiolo samples showed a higher anthocyanin content during and at the end of the maceration (+17%, as expressed on berry weight). The proanthocyanidin and vanillin assays, aimed at the evaluation of high and low molecular mass flavanols, evidenced a similar behavior. An improved anthocyanin and tannin management of Nebbiolo grapes is crucial because of the peculiarities of this cultivar, and a higher extraction and total content of these compounds could possibly result in improved wine phenolic content or even higher yields without compromising the wine quality.

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