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LIMITATION OF THE CELL WALL/POLYSACCHARIDE- PROANTHOCYANIDIN INTERACTIONS USING DECONSTRUCTING ENZYMES

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Proanthocyanidins, also called condensed tannins are one of the main determinants of red wine quality since they are responsible of organoleptic characteristics such as astringency, bitterness, body and the color stabilization. These compounds are mainly present in grape skin and seeds and are transferred into must-wine during the maceration step of winemaking, but this transference is far from being complete. This could be due, among other causes, to proanthocyanidins being bound to grape cell wall polysaccharides, which are present in high concentrations in the must. Studies carried out by our research group have demonstrated, on the one hand, that the use of deconstructing enzymes can favor an increase in the proanthocyanidin content of must and wine, ~~not only by favoring~~ The deconstructing enzymes promotes the extraction of these compounds from skin cell vacuoles but also by ~~promoting~~ a lower adsorption on cell walls, ~~but however, on the other hand, that~~ These type of enzymes can also promote the solubilization release polysaccharides of the grape cell wall polysaccharides which can ~~also~~ interact with the proanthocyanidins present in solution. The main objective of this work was to test the best combination and form of addition (set or sequential) of hydrolytic enzymes with the objective of limiting both the cell wall-proanthocyanidin interactions and the interactions with the released polysaccharides. For a good follow up of this experience, the proanthocyanidins were analyzed by high performed liquid chromatography and size exclusion chromatography (SEC), while the polysaccharides were determined by SEC. The most efficient pure enzymatic activities and sequential combination implies the use of cellulase, one of the main deconstructing enzymes for the cell wall structures.