

# RESEARCH PROJECT



## Understanding and controlling haze formation in white and rosé wine to improve winemaking process (ClearWine)

**Partner(s)** Financial partner: HES-SO, Field “Engineering and architecture”  
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**Description** In winemaking, the appearance of turbidity in white wine is a serious visual defect, which lowers significantly its commercial value. A major cause of formation of turbidity in wine is attributed to the presence of temperature sensitive proteins. Although proteins play a central role in the formation of turbidity, other components present in wine such as polyphenols, sulfate anion, polysaccharides as well as ionic strength and pH value play an important role in the phenomenon.

The lack of reliable tests assessing risk of protein clouding during bottle storage is a recurring problem of winemakers. Currently used test assessing haze potential involves heating which often cause overdosing of fining agent. Despite the large progress in the white wine research and substantial development of the analytical methods applied the phenomenon of white wine haze formation remains unrevealed. The traditional treatment used to stabilize wine includes addition of bentonite, which is certainly effective but due to its non-specific binding results in a considerable decrease in aroma compounds and therefore quality of wine. Thus, a strong need to establish a more selective and economically justified method of wine stabilization, which will preserve the aroma compounds in white wine, is undeniable.

This study aims at the development of more reliable haze potential tests and more specific alternative treatments for wine. Two novel approaches based on a non-destructive technique of haze analysis will be applied: a spectroscopic analysis to evaluate the particle size in suspension and a circular dichroism method to detect structural changes in wine proteins. Additionally, we will search for an innovative white wine clarification treatment based on protein polyphenol binding phenomenon. The overall objective is to provide the required knowledge and tools to allow winemakers to manage protein stability during winemaking processes.

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