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Viticulture and Enology

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Enology

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Reduction Of Astringency And Bitterness In Wines By Fining: An exploratory approach for a better understanding at molecular level

Graduate

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Objectives

This thesis investigates the effects of various fining agents on the phenolic composition and sensory attributes of two Pinot Noir wines as part of a collaborative project between Canton Vaud and Changins/Agroscope in Switzerland focusing on mitigating astringency and bitterness in the wines, with particular attention to the impact of climatic changes observed in 2022.

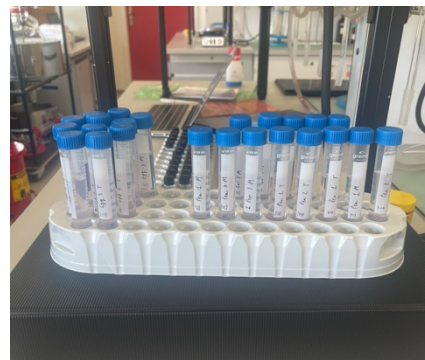
Methods | Experiences | Results

The wines from vintage 2023 were analysed, concerning the effect of gelatin, egg albumin, pea protein and patatin (potato-based protein), evaluated through chemical and sensory analysis. The results revealed significant differences in the ability of these agents to impact colour on Pinot Noir wines and to reduce phenolic content, particularly total proanthocyanidin content (TPC), and their influence on sensory properties such as astringency and bitterness.

Gelatin proved the most effective at reducing total proanthocyanidin content, astringency, and bitterness, while patatin consistently increased off-flavours and undesirable sensory attributes. Egg albumin and pea protein showed moderate effectiveness, with varying impacts across the wine samples. The study highlights the importance of selecting fining agents based on the specific characteristics of the wine and the need for further research to optimize their application. The project will continue with the Pinot Noir 2024 vintage in 2025.



Measurement of total free anthocyanin content by Puissant Leon method.



Measurement of total proanthocyanidin content by methyl-cellulose precipitation method with triplicates.