



Thesis

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The role of insects as vectors in grape microflora – impact on natural wine quality

With the rise of so-called natural wines, identifying the processes governing spontaneous fermentation has become increasingly important. Understanding the processes that determine microbial transfers in the vineyard and cellar goes beyond simply describing the effects of microbiota composition on winemaking to provide key insights into managing these transfers.

The role of insects (and specifically *Drosophila* flies) as vectors of yeast and bacteria in the microbiota is frequently suggested, yet their practical involvement has yet to be proven. In the field, we will quantify alternative colonization processes in grape berries using bagging, capture and metagenomic inference of microbial transfer.

The hypotheses drawn from this work will then be tested using experiments involving target microorganisms vectored by *Drosophila* in a mesocosm and in the vineyard. This research will also analyse the relationship between microbiota and wine quality to focus the investigations on the determining species.

This dual ecological and oenological approach will provide the unique knowledge needed for agroecological management and the controlled production of natural wines.