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KEY-WORDS:
DNATRACEABILITY · SSR · WINE ·
PRODUCTION CHAIN

PROFILE

I am a second-year PhD student in Department of Sustainable Crop Production (DI.PRO.VE.S.) section of Agronomy and Plant Biotechnology.

AFFILIATION

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PUBLICATION

Zambianchi et al. 2021. Applicability of DNA traceability along the entire wine production chain in the real case of a large Italian cooperative winery. *Food Control* 124:107929

LANGUAGES



Mother language



Level B2

HOW TO REACH ME

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PROJECT TITLE

Applications of biomolecular methods along the DOC wines chain production quality

Steps of the research

The project consists of two main, closely integrated lines of research:

1) DNA analysis and traceability:

- Implementation of a well-proven and efficient extraction method to recover PCR-amplifiable DNA from all matrices to be tested.
- Analysis with SSR markers considered, by the scientific community, for the attribution of the SSR profile of vine varieties.
- Optimisation of the method to be able to carry out not only qualitative but also quantitative analyses (RT-PCR and digital PCR).

2) Metagenomic analysis of the microbiome and microbiota of grapes, musts and wines:

- Evaluation of the evolution of the microbiome and microbiota in relation to different cultural and environmental factors and how they respond to the oenological practices regularly adopted in wineries.
- Assessment, by MiSeq Illumina sequencing, of the V1-V3 hypervariable region of the 16S rRNA gene for prokaryotes and the D1/D2 region of the large subunit of the 28S rRNA gene for eukaryotes and subsequent bioinformatics analysis of the data.

Main Results

Provide a powerful and secure tool that can be used in struggle frauds and products counterfeiting to protect final consumer and producer.

Research Contribution

Wine quality and market value are multifactorial. Depending on the wine production region, especially a Denomination of Origin (DO) wine, only a limited number of varieties, in a legally defined percentages are allowed. The production of polyvarietal wine could represent a risk for fraudulent practices and the possibility to identify them could protect the value of the entire wine chain production.

Why should you care?

The grapevine (*Vitis vinifera* subsp. *vinifera*) is one of the most important and profitable agricultural crops worldwide. How can the production chain evolve using a valid method of varietal identification?