

Biodiversity among Non-*Saccharomyces* Wild Strains as a Tool for the Selection of New Starter Cultures for Winemaking

POSTER PRESENTATION ID: 133

*Grazia Alberico*¹, *Angela Capece*¹, *Rocchina Pietrafesa*¹, *Gianluigi Mauriello*², *Diamante Maresca*²,
*Patrizia Romano*¹

¹ Università degli Studi della Basilicata, Scuola di Scienze Agrarie, Forestali, Alimentari ed Ambientali,
Potenza, Italy

² Università degli Studi di Napoli Federico II, Dipartimento di Agraria, Portici, Napoli, Italy

The widespread use of inoculated fermentation with commercial *Saccharomyces cerevisiae* strains has determined an uniformity in wine organoleptic characteristics. Biotechnological approaches, principally based on selection of new starter cultures possessing specific properties, can satisfy the winemakers request for product differentiation. In this context, non-*Saccharomyces* yeasts deserve special attention. Although in the past these yeasts were considered as undesirable agents, actually they have been re-evaluated as their ability to produce hydrolytic enzymes and other metabolites of oenological relevance allows to improve wine quality. This study aims at screening of wild non-*Saccharomyces* strains suitable to be used as mixed starter to improve wine characteristics.

Non-*Saccharomyces* wild yeasts, belonging to different species, such as *Hanseniaspora guilliermondii*, *H. osmophila*, *Metschnikowia pulcherrima*, *Torulasporea delbrueckii*, *Saccharomycodes ludwigii*, were chosen and tested for parameters of enological interest, such as the growth in varying concentrations of ethanol and total SO₂, production of extracellular hydrolytic enzymes, such as β -glucosidase. The strains showing the best combination of parameters were chosen and tested in microvinification as mixed starter cultures in combination with a *S. cerevisiae* commercial starter, testing different inoculum modalities. In particular, the selected non-*Saccharomyces* strains were tested in mixed cultures as free and microencapsulated cells. The fermentative process was monitored by evaluating the sugar consumption during the time and by microbiological monitoring of fermentative process in order to evaluate the persistence of non-*Saccharomyces* strains during the process. The experimental wines were analyzed for the content of ethanol, volatile acidity and secondary compounds affecting wine aroma, such as esters and higher alcohols.

The obtained results confirmed the high variability among different non-*Saccharomyces* yeasts and the influence of inoculum modality on strains fermentative performance as a consequence of interaction mechanisms between strains included in mixed starter culture.

The screening of strain biodiversity and pointing-out of fermentation protocol represent useful tools to satisfy the current market trend for new style wines.

Keywords: non-*Saccharomyces* wild strains, Mixed starter cultures

Acknowledgements: This work was supported by the project PSR Regione Basilicata 2014-2020 Sottomisura 16.1 GO Vite&Vino PROduttività e Sostenibilità in vITIVinicoltura - (PROSIT)-N. 54250365779