

TITLE: STUDY OF NATIVE NON-CONVENTIONAL YEASTS FOR WINEMAKING.
ADAPTABILITY FOR INDUSTRIAL APPLICATION.

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ABSTRACT:

During Alcoholic fermentation yeasts transform the sugars present in grape must mainly into ethanol and CO₂. However, at the same time another set of compounds are formed, products from the secondary metabolism of yeasts such as flavor and color compounds, and others associated with the tactile sensations of wine in the mouth, such as glycerol and polyphenols. The different composition of wines associated with these secondary metabolites is key to obtain products with different character and personality. In wineries is common to use commercial yeasts, of which there are little diversity and so producing standard wines. Consequently, it is important to understand the behavior of non-conventional yeasts searching for flavor diversity and new wine styles. For this reason, in our laboratory we work in the isolation of native yeasts, coming from the grapes in every harvest to increase our culture collection. In this work, we characterized two species, *H. vineae* and *M. fructicola*, previously selected for producing unique superior flavors compared to conventional wine fermented using *Saccharomyces cerevisiae*. The enzymatic characterization (protease and β-glucosidase), glycerol production and the of aromatic compounds profile analyzed by solid phase micro-extraction and GC-MS was carried out for both strains. The SO₂ and ethanol resistance was evaluated by microplate reader assays. Fermentation rate was measured by weight loss on a laboratory scale using a simil-grape must medium. In all strains treatments a known commercial *S. cerevisiae* yeast was used as reference. Selected strains of each species were applied to carry out fermentations on an industrial scale with natural musts. The results obtained allowed to demonstrate that the non-conventional yeasts stand out, in general, from the commercial ones by the production of aromatic compounds such as phenylpropanoids and benzenoids.

Although they are not characterized as the best ethanol fermenters, the yeast strains here characterized provided an increase of flavor complexity compared to those wines fermented only with commercial yeasts.

Keywords: non-conventional yeast, native yeast, wine fermentation.

Development Agency: ANII, CSIC, PEDECIBA - Química