

Organic Nitrogen: A new solution for performing fermentations?

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Abstract

Many musts from the south of France need a complementary supply of nitrogen to avoid sluggish fermentation. Mineral nitrogen or nitrogen under a complex form (ammonia and free amino nitrogen) is available in the oenology market. This preliminary work aims to evaluate a new form of nitrogen: organic nitrogen provided only from inactivated yeasts. First results show that use of organic nitrogen has the same effectiveness on the fermentation rate as a mineral or mixed nitrogen source and results in interesting organoleptic profiles: wines with more fruity flavors and more foremouth volume.

*Alcoholic fermentation performed by *Saccharomyces cerevisiae* yeast is a complex process in which nitrogen availability in must is largely implicated in the fermentation rate and aromatic compounds production. Indeed, the wine organoleptic profile clearly depends on nitrogen availability and, above all, on the present nitrogen form and balance.*

Because of recurrent nitrogen deficiency in grapes, especially in areas of southern France impacted by dryness, nitrogen additions during alcoholic fermentation became a common practice in winemaking. Commercial nitrogen is under either a mineral form (diammonium sulphate DAS or diammonium phosphate DAP) or a complex form (mineral nitrogen mixed with nitrogen from organic source: inactivated yeasts).

In order to evaluate the impact of the "quality" of nitrogen on wines, the Cooperative Wine Institute (ICV°) tested an experimental form of nitrogen produced only from an organic source. The aim of this preliminary work is to compare this new form of nitrogen with mineral and with complex nitrogen. We investigated whether organic nitrogen could be a new tool to develop fruity wines, free of sulfur off flavors and with controlled SO₂ productions.

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