Monitoring the spreading of industrial yeast populations in the winery environment

D. Schuller [1*], B. Cambon[2], L. Quintas[1], B. Blondin[2], S. Dequin[2] and M. Casal [1]

[1]Departamento de Biologia, Centro de Ciências do Ambiente, Universidade do Minho, 4710-057 Braga, Portugal [2] Institut Nacional de la Recherche Agronomique, UMR Sciences pour l'Oenologie, Place Viala, 34060 Montpellier, France. [*] dschuller@bio.uminho.pt

Nowadays, about 50% of the European wine production is based on the use of active dried wine yeast. These strains were selected due to their good fermentation performance and to their capacity to produce a wine with desirable organoleptical characteristics. From an ecological point of view, they are non-indigenous, mostly *S. cerevisiae* strains that are annually introduced in the ecosystem surrounding the winery. The fate of those yeasts in the natural environment in different geographical localizations is totally unknown.

The present study aims to evaluate the industrial starter yeasts' ability to survive and spread in nature, and become part of the natural microflora of musts.

A large-scale sampling plan was elaborated, including 6 different vineyards (3 in Portugal 3 in France), that use the same industrial yeast strain continuously in the last 5 years, being the winery located in close proximity to the vine. In each vineyard, 6 sampling sites were chosen depending on the predominating wind direction and the relative position to the winery. From each site, before and after the harvest, a sufficient amount of grapes was collected to perform small-scale fermentations (0,5-1 l). Must samples were plated when 30 g/l and 70g/l of CO_2 were released, and in both cases, 30 randomly selected colonies were collected. The identification of the industrial yeast strains, Zymaflore VL1 from Laffort Oenologie and a labelled starter yeast, were performed by PCR-amplification of *∂*-sequences [1, 2], pulse field electrophoresis and by the use of appropriate antibiotics containing media, respectively.

The overall duration of those studies is 3 years, and preliminary results of the first year will be presented.

[1] Lavallée, F., Salvas, Y., Lamy, S., Thomas, D.Y., Degré and Dulau, L. 1994. Am. J. Enol. Vitic., **45** (1) 86-91.

[2] Ness, F., Lavallée, F., Dubourdieu, D., Aigle, M. 1993. J. Sci. Food Agric. **62**: 89-94.