Yeast Biodiversity in the Vineyards of the Azores Archipelago (Portugal)

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This study aims to access and characterize the fermentative yeasts microflora of the vineyards from the Azores Archipelago, for biodiversity preservation. During the harvests of 2009 and 2010, 163 (88 and 75) grape samples were collected from eight islands of the archipelago, that belonged to traditional white grape varieties (Arinto, Verdelho and Terrantez) and hybrid red varieties. The sampling plan covered 36 locations, including vineyards in appellations of origin and abandoned vineyards. A total of 4890 yeast isolates was obtained (2640 and 2250 in 2009 and 2010, respectively). The species identification was performed by restriction fragment length polymorphism analysis (RFLP) and sequencing of ITS regions. The yeast biodiversity was evaluated by the Shannon and Simpson indexes. In both sampling years, 27 yeast species were identified, being *Hanseniaspora uvarum*, *Issatchenkia terricola*, *Candida zemplinina*, *Metschnikowia pulcherrima*, *Zygoascus meyera*, *Saccharomycopsis vini*, *Issatchenkia hanoiensis*, *Hanseniaspora opuntiae*, *Candida diversa*, and *Pichia cecembensis* the most representative ones. Differences in the microflora composition were apparent between sampling years, islands, regions, grape varieties and type of vineyard. In both sampling years *H. uvarum* was the predominant species in every island, grape variety and type of vineyard, corresponding to 46.3% and 86.4% of the total isolates in 2009 and 2010, respectively. One exception was found for Terceira Island in 2009, were the predominant species was *I. terricola* representing 48.1% of the isolates. Considerable variations were also observed between sampling years concerning the species richness, which decreased considerably from 2009 to 2010 (25 and 14 species in 2009 and 2010, respectively). This was observed in almost every island, for all grape varieties and type of vineyard. Between islands, the Shannon index ranged between 1.090 and 1.759 in 2009 and 0.146 and 0.994 in 2010 and Simpson index ranged between 0.263 and 0.446 in 2009 and between 0.562 and 0.935 in 2010.

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