Background: There is an increasing demand for organic products and products for which it is established that they do not include or are made from genetically altered organisms. It is also known that wine flavor and aroma is attributed to a great degree to the yeast used in the fermentation.

Objectives: Isolation and identification of native yeasts from grapes and grape must solids. Investigation of their alcohol tolerance, in order to determine which ones could be useful for fermentation of wine must, so that wines produced would keep local characteristics.

Methods:
1. Sample collection from all grape producing areas and all endemic grape varieties of the islands of Kephalonia and Ithaca.
2. Identification of the yeast was performed using the API 20C AUX system.
3. To determine the alcohol tolerance, cells were grown with ethanol incorporated at different concentrations.

Results: A total of 430 yeast strains were isolated, 239 from the grapes and 191 from wine must, and indentified. All of them had the characteristic yeast morphology. Some of the yeasts obtained from grapes formed pseudomycelia, whereas all of the ones that originated from the solids appeared as single cells or as mother cells with a bud. Results from the API showed that only 4.7% of the yeast isolated from the grapes belonged to the Saccharomyces cerevisiae species whereas all of the yeast from the must were S. cerevisiae.

From the 239 different yeasts derived from the grapes 2% were tolerant to 14% ethanol, whereas all of the ones isolated from the must grew at 12% alcohol and 39% at 17%.

Conclusion:
1. Only S. cerevisiae is found at the end of the fermentation.
2. A high percentage of S. cerevisiae is resistant to 17% ethanol.