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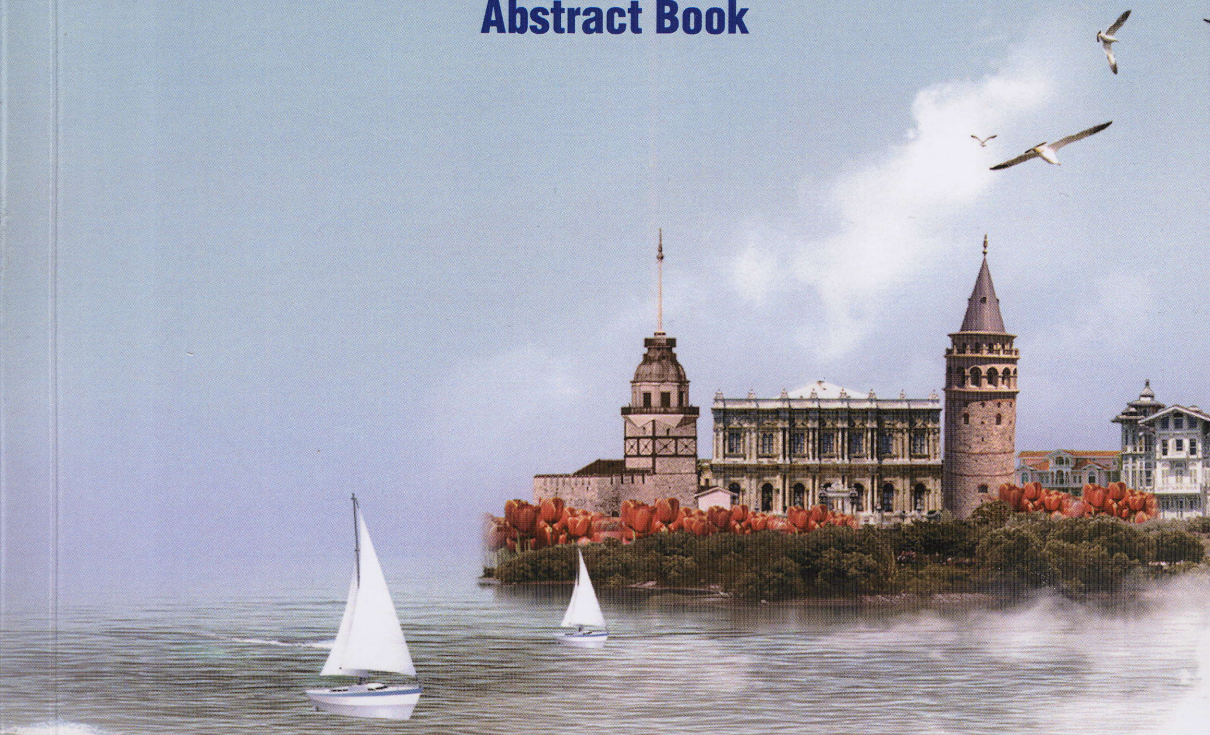

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Characterisation of the microflora of grapes involved in straw wine production and its use as a biocontrol agent against *Botrytis cinerea*

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Botrytis cinerea is one of the main vine diseases making grapes unsuitable for winemaking. *Botrytis cinerea* is controlled using agronomical practices and chemical agents, which however cannot be used close to harvesting, due to risks to human health and interference with oenological fermentation. In certain cases the action of *Botrytis cinerea* allows the production of high quality sweet wines, favouring grape drying and giving specific aromas to the wine. In this case it may be reasonable to surmise that some microorganisms are naturally selected by interaction with *Botrytis cinerea*, allowing them to be used as biocontrol agents. This work concerns the characterization of the microflora associated with the grapes used to produce a traditional Italian straw wine, Vino Santo Trentino. The composition of the microbiota was defined using plate counts and genotypic characterisation of the isolates, allowing the identification of some species of yeast belonging to the apiculate groups and bacteria (mainly *Bacillus* and *Gluconobacter* spp.). The prevalence of the different species within the microbiota varied in the 4 wineries considered, however most of microorganisms were ubiquitous, adapting well to the special environmental conditions of dried grapes. The biocontrol tests performed demonstrated that at least 2 species of yeast and 2 species of bacteria are able to halt the growth of *Botrytis cinerea*. Biocontrol activity was magnified if the microorganisms were employed in a mixed culture. Tests performed in semi-vitro conditions, using grape berries inoculated with *Botrytis cinerea* and treated with a mixture of biocontrol agents, confirmed the laboratory results. Moreover, specific tests demonstrated that the biocontrol agents did not interfere with alcoholic fermentation and are not resistant to the ethanol concentration in the interval typical of wines.. These aspects ensure their complete disappearance during winemaking, excluding any negative impact on the quality of wines. To conclude, the microflora associated with dried grapes is a precious source of biocontrol agents against *Botrytis cinerea*, both in preventing fungal infestation in the vineyard and in controlling the grape- drying process for the production of straw wines.