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**CREA –Collection of microorganisms of viticultural and oenological environment (CREA-CMVE)**

The CREA- Viticulture and Oenology Research Center (CREA-VE) of Asti (Italy) maintains one of the most important collections of microorganisms of viticultural and oenological interest at national level. The conservation of these microorganisms began at the Asti Enological Station in the 1970s and was managed by the enological microbiology research laboratory. The collection was formally established in 1989 and was originally called the National Collection of Wine Yeasts and Bacteria - Experimental Institute for Enology CNLBSV-ISE.

In about 40 years of research, experimentation and maintenance, the Collection has been enriched with various strains and species of microorganisms of oenological and viticultural interest, both in terms of organisms useful for wine production processes, spoiling strains of contaminated wine and of the winery environment. The microorganisms stored in the Collection were, therefore, isolated from the grapes, from the musts at the beginning and end of fermentation and from the wine. The most recent isolations are the result of scientific research activities, from experimentation relating to the selection of ecotypic yeasts and bacteria, to the assessment of biodiversity in the vineyard and analyzes aimed at identifying wine contaminants found in bottles or in cellar equipment.

To date, the collection includes about 1400 isolates of yeasts and 280 isolates of lactic bacteria. A little collection of bacteriophages is recently been added. The strains are cataloged using the prefix ISE (for example ISE1145), acronym of Experimental Institute for Enology, the previous name of the Center. The strains are stored in triplicate at -80 ° C. Recently the collection was enriched with the purified DNA extracted from all the strains and completely re-analyzed with molecular methods as ARDRA (Amplified Ribosomal DNA Restriction Analysis) RAPD (Random Amplification of Polymorphic DNA) ribosomal DNA sequencing. *Saccharomyces cerevisiae* were characterized at strain level with Multiplex Microsatellite technique.

In this large number of isolates all the main species of oenological interest are represented. As far as yeasts are concerned, most of the strains are represented by the genus *Saccharomyces* in its two main species protagonists of alcoholic fermentation *S. cerevisiae* and *S. bayanus*. Alongside these, the yeasts present in the early fermentation phases, in the alterations and refermentations for a total of about 35 different species were collected.

The lactic bacteria present in the collection are mostly belonging to the species *Oenococcus oeni* and to the *Lactobacillus* genus, responsible for the malolactic fermentations. In addition to these there are some species regarded as dangerous for the wine quality such as, for example, *Pediococcus damnosus* and *Pediococcus pentosaceus* responsible for the wine defect called "ropiness", or harmful strains of the genus *Lactobacillus* capable of generating biogenic amines.

Since 2017 the collection has been registered by the Culture Collection Information Worldwide (CCINFO) of the World Data Center for Microorganisms (WDCM) with the code WDCM 1142.

**Some services offered**

- Yeast and bacteria identification (<https://www.crea.gov.it/en/web/viticultura-e-enologia/-/servizio-di-identificazione-microrganismi-di-ambiente-viticolo-enologico>)
- Safe deposit of cultures
- Autochthonous strain selection
- Physiological and technological test

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