



COLLECTION MICROORGANISMS OF WINEMAKING “MAGARACH”

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The collection microorganisms of winemaking “Magarach” (CMW “Magarach”) functions on the grounds of microbiology department of the Federal State Budget Scientific Institution All-Russian National Research Institute of Viticulture and Winemaking “Magarach” of the Russian Academy of Sciences and is the oldest collection in the post-Soviet space that preserves a unique gene pool of industrially valuable strains of the wine yeast used in production of all types of wines, including sparkle and sherry wines.

Currently, the collection fund is represented by 895 strains of the yeast microflora (1022 storage units). The collection has 720 yeast strains of the genus *Saccharomyces*, 40 yeast strains of the genus *Schizosaccharomyces* and 135 yeast strains of *non-Saccharomyces* - pests of winemaking (Fig. 1). Most strains of the collection fund were isolated from natural sources, such as: wine must at the stage of fermentation, winemaking materials, grape and fruit wines and grapes.

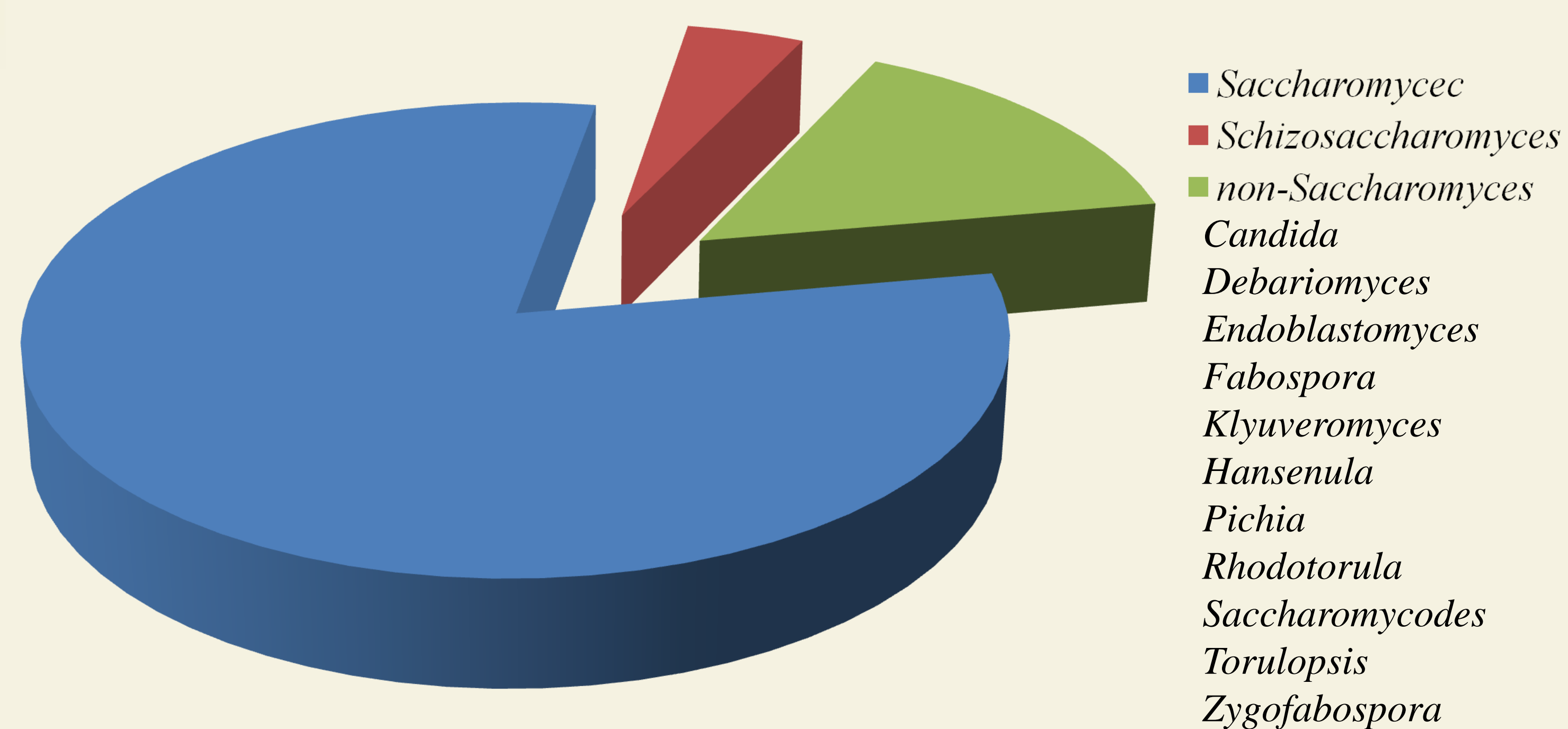


Fig. 1 Composition of genera in the collection

Establishment of the collection began in the late 19th century. It started as the collection of pure cultures at the premises of eno-chemical laboratory at Magarach of the Nikitsky Botanical Garden (Crimea, Yalta), and since 1910 almost all the wines of the experimental wine cellar “Magarach” were made using yeast strains from the collection. Since 1933, the work to maintain and replenish the collection fund has been conducted by the staff of the Microbiology Department of the Research Institute of Viticulture and Winemaking “Magarach”. Many cultures are the result of the selection work conducted by famous domestic microbiologists-viniculturalists (Odintsova E.N., Burian N.I., Tyurina L.V., Sayenko N.F., Gerasimov M.N., Kvasnikov E.I., Kishkovskaya S.A., Skorikova T.K., etc.) and are actually still used in winemaking. The collection is composed of the yeast strains isolated from all the wine-growing regions of the former USSR, as well as of strains obtained from collections abroad.

Selection of employees of the Magarach Institute from the winemaking regions:

- Crimea;
- East and South Ukraine;
- Krasnodar region;
- Moldova;
- Georgia;
- Tajikistan;
- Uzbekistan;
- Kazakhstan.

Received from microbial collections:

- Culture collection of Yeasts (CCY);
- The American Type Culture Collection (ATCC);
- Collection of Institute Microbiology Science Academy of USSR;
- Science institute of industrial vegetable and potato growing, Minsk, Belarus

Received from individuals:

- Gerasimov M.N.
- Kvasnikov E.I.
- Kishkovskiy Z.N.
- Kockova-Kratochvilova A.
- Nadson G.A.
- Frolov-Bagreev A.M.
- Kudriavzev V.I.
- Odintsova E.N.
- Saenko N.F.
- Naumov G.I.

Received from institutions:

- Nikitskiy botanical garden (Yalta, Crimea);
- Science research institute of Vine and Wine “Tairova” (Odessa, Ukraine);
- All-Union Research Institute for Agricultural Microbiology (Leningrad);
- Botanical institute (Leningrad);
- IBGH (Geisenheim, Germany);
- RiVE (Bratislava, Slovakia);
- RiA (Budapest, Hungary);
- Institut Pasteur (Paris, France);
- Physiological laboratory prof. Iogargen (Copenhagen, Denmark);
- LVHCH (Prague, Czech Republic).

Fig. 2 Formation of a collection fund of industrial-valuable strains for winemaking

The activities of the CWM “Magarach” are aimed at gene pool preservation, replenishment and rational use of the biological diversity of microorganisms that are of scientific and practical interest for winemaking. The study of the physiological, biochemical and technological properties of cultures is aimed at selection work, while the use of efficient strains helps develop technologies and new wine brands.

The main objective of the collection is to preserve cultures with characteristic properties in the viable state and provide enterprises of the industry with pure cultures. Another significant focus area of the Collection activity is to organize scientific and practical seminars for microbiologists of the wineries and implement author's supervision over selection cultures being introduced.

Since 2016, the Collection has been receiving support within the framework of the Federal Agency for Scientific Organizations of the Russian Federation interventions to develop bioresource collections.