UDC 663.31.001.76 (043.3)

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THE USE OF WINE YEAST IN THE PRODUCTION OF RED WINES IN BIOTECHNOLOGY

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Abstract. The experiments conducted indicate that yeast *Saccharomyces vini* the studied race *siha aktivhefe 4* refer to glucosophilic yeasts of the genus *Saccharomce*s, fermenting the most significant fraction of sugar in grape juice. These yeasts end up fermentation, and many of them are involved in the formation of the aroma of young red wines. Yeast assimilate and ferment glucose, galactose, sucrose, maltose and raffinose (by 1/3), do not absorb and do not ferment dextrins, lactose, inulin, xylose, arabinose. Assimilate ethyl alcohol and glycerin, do not assimilate mannitol, dulcite, sorbitol. From organic acids, they absorb acetic and lactic acid, they do not absorb amber, apple, wine and lemon. In winemaking, yeast can play a negative role, causing turbidity of the finished wines.

Introduction

Winemaking is a complex biotechnological process of turning grape matter into wine, due to the vital activity of microorganisms. Therefore, in order to control the technological process in order to obtain high quality wines, knowledge of the biology and properties of the microorganisms of grape must and wine is required [1].

In the winemaking industry, yeast is distinguished between wild and pure yeast cultures. Yeast in winemaking refers to three families: *Saccharomycetaceae (Saccharomyces, Pichia, Hansenul, Sanidae, Zigosaccharomyces, Brettanomyces, Torulopsis, Rhodotorula), Schizosaccharomycetaceae (Schizosaccharomyces genus) and Saccharomycodaceae (genera accharomycodes and Hanseniaspora*).

The yeasts of the genus Saccharomyces are of the highest importance and spread in the wine-growing sector. Yeast races have an individual feature of alcohol-forming ability, sulfite-length, biosynthesis of volatile components and other products that determine the composition and organoleptic qualities of wine [2, 3]. Thus, the biological properties of yeast are important for obtaining high quality wine.

The purpose of our work was to study the biological characteristics of the race of wine yeasts *Saccharomyces vinisiiaaktivhefe 4*, which are used in the wine-making process of the full wines of Cabernet wines of the mark "French Boulevard" at the plant of the Private Joint-Stock Company "OdessawinProm".

Materials and methods

The experimental part of the work was carried out in the bacteriological laboratory of the "OdessawinProm" plant. Cultivated yeast on wort-agar and glucose-peptone agar with yeast extract. Characterized by the nature of growth on a dense medium - the size, color of the colonies.

When conducting a microscopic analysis of yeast race, the method of a dropped drop was used - a drop of a suspension of yeast cells was applied to the slide glass, which was covered with overhead glass from above. Under a microscope, morphology, cell size, dead and dead cells were detected.

When measuring the size of microorganisms, an ocular-micrometer was used. In order to assess the ability to use carbohydrates, the main background environment of the following composition (GLP) was prepared: peptone - 5,0; K2NRO4 1.0. 10% aqueous solutions of hydrocarbons and alcohols were prepared separately, sterilized by autoclaving at 0.5 atm. Sterile solutions were added to the base background in an amount such that the concentration in the medium was 1-2 g per 100 ml.

Formation of acids was recorded by changing the pH of the medium. To do this, an indicator of bromtimolblou was added to the medium (changing the color from yellow to blue in the range of pH 6.0-7.6).

The main background medium was poured into test tubes of 8-10 ml, lowered to the bottom of each test tube, the "float" was sterilized at 1.0 atm. The accumulation of acidic or alkaline metabolism products was evidenced by a change in the color of the indicator. The formation of gas was evidenced by the accumulation of it in the float.

Research results

As a result of microscopic studies by the method of the expanded drop, it has been found that yeast cells of the *Saccharomyces vinisihaaktivhefe 4* grape juice after 3 days of fermentation have an elliptic form. The size of cells (5-9) x (4-8) microns. They are located separately or in pairs, the kidneys for some time remain connected with the mother cell.

Spore formation occurs easily with the formation of asks, preferably with 2 or 4 oval spores. The nature of the sediment varies from loose to dense, depending on the stage of development of yeast. In an adult culture, there is never a noticeable film, but the glass of the test tube may remain a ring formed by yeast raised by foam during rapid fermentation.

On a hard wort-agar colony, the Siha aktivhefe 4 races were matte, grainy, chopped, white, or gray, moist, grainy, convex, folded, slightly cut.

Yeast races *sihaaktivhefe 4* digested 80% glucose, fructose, maltose, sucrose. The starch was not digested due to the lack of an enzyme. Such sugars as lactose, arabinose and raffinose were also virtually not fermented in the environment.

Conclusion

Experiments conducted indicate that yeast *Saccharomyces vini* the studied race *sihaaktivhefe 4* refer to glucosophilic yeasts of the genus *Saccharomce*s, fermenting the most significant fraction of sugar in grape juice.

These yeasts end up fermentation, and many of them are involved in the formation of the aroma of young red wines.

Succulents such as lactose, arabinose and raffinose, practically not fermented, remain in the vine at almost the initial concentration, which gives a well-shined lighted wine a harmonious taste.

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