DETERMINATION OF MAJOR ORGANIC ACIDS IN DIFFERENT TYPES OF WINES AFTER CARRYING OUT TECHNOLOGICAL METHODS

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Wine materials and wines contains six major organic acids – tartaric, malic, lactic, citric, acetic and succinic. Tartaric and malic acids are the main representatives of aliphatic acids of wines, their combined share is 90% of all acids in wine. In the Russian Federation according to the rules of wine production to increase the acidity and correcting low acid wine you can add citric or tartaric acid not more than 2 g/dm^3.

For the determination of organic acids in wines may using a number of physico-chemical methods: potentiometric, chromatography, spectrophotometry, capillary electrophoresis, etc. The most effective method in the determination of weak acids in wine is high performance liquid chromatography (HPLC).

The aim of this work was the determination of the mass concentration of main organic acids in still and sparkling wines by HPLC using a chromatographic system of Agilent Technologies (model 1100), after the technical admission control acidity with food citric acid.

The objects used were different types of wines: still and sparkling, produced by enterprises of the Republic of Crimea. To determine the mass concentrations of the major organic acids were used 18 samples of wine and 5 samples of sparkling.

Chromatograms were recorded at a wavelength of 210 nm for organic acids. The identification of components was carried out according to their retention time. Chromatography was performed in gradient mode. All definitions were carried out in three replicates. The research results were processed by standard methods of mathematical statistics. The relative error of the method was 2.8–3% at a confidence probability P=0,95.

Based on the data in the quiet white table wines value of the mass concentration of citric acid ranged from 86 to 982 mg/dm^3, in a quiet red table – from 0 to 402 mg/dm^3, special strong wines (port, sherry) – from 380 to 614 mg/dm3, liquor – 900 mg/dm^3, and sparkling from 265 to 533 mg/dm^3.

In the quiet wines the ratio of tartaric acid to malic is changed from 0.8 to 7.7, in the sparkling wines from 2.2 to 3.7, and "Novyi Svet, semi-dry" of 1.8. Studies have shown that the content of citric acid and titratable acidity in different types of wines produced by enterprises of the Republic of Crimea corresponds to the current normative documents GOST 32030-2013, GOST 52404-2005, GOST 32715-2014, GOST 33336-2015.

Keywords: mass concentration, organic acids, titratable acidity, citric acid, high-performance liquid chromatography.

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