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INVESTIGATION OF INFLUENCE ON THE FLOTATION SEPARATION TYPICAL CHARACTERISTICS PEARL WINE MATERIALS

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Abstract

The article considers a method for improving the typicality of pearl wine by storing them in a natural surfactant. According to our research task, we tried to use technology in the production of wine pearl surface flotation separation method, which is used in other industries. In the industrial laboratory of LP "Nur" assemblages of raw pearl wine Rkatsiteli and Kuldja exposed surface flotation separation with the separation of the foam fraction.

Keywords**:** *pearl wine Rkatsiteli and Kuldja, flotation separation*

INTRODUCTION

Sparkling wine pearl belong to this type of wine, which, when over-pressure lifting have the ability to excrete carbon dioxide and form a stable foam. Available in sparkling pearly wine surfactants characterizes these interrelated processes.

According to the literature, studies have been conducted, which were aimed at the study of the mechanism of interaction of surfactants wine with a molecule of carbon dioxide enrichment and development of methods of wine substances possessing surface activity [1, 4].

The concentration of natural surfactant decreases when the wine material is subjected to a number of technological treatments: exposure, fining, cold processing, filtering, [9]. In this connection, the attempt to make up for the loss of natural blowing agent by entering the wine in a blend of artificial foam stabilizers which correspond to the control requirements, the validity of this point of the question [5, 7].

But there is also the other side, the presence of blended synthetic substances raises some technical difficulties: from the formation of the bouquet and taste of wine before its state of aggregation.

In our studies, there was a task - to develop a method of improving the typicality of pearl wine by storing them in a natural surfactant. According to our research task, we tried to use technology in the production of wine pearl surface flotation separation method, which is used in other industries [9].

Removing the dissolved ASS (active substance superficial) is theory flotation processes based on their adsorption on the surface of the gas bubble and thereafter separating the resulting froth fraction [3,9].

MATERIALS AND METHODS

The wine or must is diluted so that the solution contained approximately 0.2 ± 0.35 g of sugar per 100 ml. Prepared for the analysis solution is poured into a burette. In a conical flask, measure 100-150 ml of 5 ml of Fehling's solutions I and II. Then, from the burette pour 18.0 - 18.5 ml of test solution is boiled for exactly 2 minutes and add 1 to 2 drops of methylene blue. If the blue color disappears once, the test solution was diluted with enough and should be diluted further 2 times. If the blue color persists, then the liquid is boiling, continued boiling, the solution was added drop wise from a burette until the disappearance of the blue color. This titration is considered tentative. Burette made up to zero defining features and repeated but this time the flask was poured into almost the entire required amount of the test solution (0.5 ml less than gone on tentative titration). After two minutes

of boiling, add methylene blue and titrate to the disappearance of the blue color.

By volume consumed for the titration of the test solution (with regard to the correction factor titre) is found by table number of invert sugar (mg) contained in a 100 ml solution. Mass X1 invert sugar concentration was calculated (in g / l) according to the formula:

$$X_1 = m * A * 10/1,000 ,$$

where, m - mass of invert sugar in a 100 cm^3 of the test solution, which is on the table;

A - Fold dilution of the wine or must;

10 - Conversion factor test solution per 1 liter;

1,000 - Coefficient to convert mg of invert sugar in g [2].

Mass concentration of titratable acids was determined in accordance with GOST 14252-73. Determination of titratable acidity based on the direct titration of a metered volume of the wort titrated alkaline solution until neutral (pH 7.0), established with the help of the indicator. When removing carbon dioxide by heating to boil fault added 1 ml of bromothymol blue and titrate with sodium or potassium hydroxide at a concentration of 0.1 mol/l until the blue-green color and immediately add 5 ml of buffer solution. The resulting solution is the reference solution. Then, in another conical flask of 10 ml metered wort, 30 ml of distilled water, heated to boiling, 1 ml of bromothymol blue solution and titrated with 0.1N. solution of sodium or potassium hydroxide at a concentration of 0.1 mol/l of staining appearance, coloring identical reference solution.

RESULTS AND DISCUSSIONS

Given that the pearl wine materials during technological treatments lose their largest margin of surfactants, we investigated the admissibility of enrichment assemblages and pearl wine blends of natural surfactants by adding to them a foam fraction raw pearl wine, which have high concentrations of ASS.

In the industrial laboratory of LP "Nur" assemblages of raw pearl wine Rkatsiteli and Kuldja exposed surface flotation separation with the separation of the foam fraction.

Table 1. Dynamics of foaming properties of pearl wine in the process technological processing's.

Technological operations	Pearl wine materials	
	Rkatsiteli	Kuldja
Untreated assemblage (control)	8.1	7.0
Pasting of assemblage with gelatin 25 mg/l, by betonies 5 g/L	6.7	7.4
Cold treatment (minus 2°C, 3 days)	6.7	6.3
The flotation separation		
Foamy fraction of untreated assemblage	5.6	5.3
The residue of the untreated assemblage	6.4	6.1
Pasting of assemblage with gelatin 25 mg/l, by betonies 5 g/L	7.0	6.5
Cold treatment (minus 2°C, 3 days)	6.1	5.6
The blend: the residue of the assemblage treated bottling of resistant + 5% of foam fractions	7.3	7.6

Assemblages treated according to accepted technological scheme to obtain persistent wine bottling, which also includes a comprehensive pasting and cold treatment. Further fractions assemblages combined. Control data were assemblages of pearl wine without fractional division and processed in the same flow sheet. At every stage technological processing's performed surveillance of change in the foaming capacity.

According to the study (Table 1) during the incremental reduction processing's traced foaming index values, but, nevertheless, the nature of the proposed transformation processing circuitry expressed differently.

As used in industrial processing circuit assemblages pearl wine fining and cold treatment reduces the foaming capacity. In froth flotation separation of a fraction of the value of untreated assemblage foaming

capacity sharply decreases due to the saturation limit of the adsorption layer and the foaming capacity of the untreated assemblage residue increases, but does not reach its original value. This is due to decrease in the concentration of surfactants in the balance due to mass transfer assemblage into the surface layer. Pasting residue assemblage gelatin and betonies causes a slight increase in the foam.

Gelatin fining agents is a natural colloid, and it replaces the natural surfactant pearl wine material, resulting in increased foaming capacity.

When processing of cold foaming capacity assemblages is reduced due to the precipitation of cold unstable protein macromolecules.

A significant increase in foaming capacity assemblage observed when added to process bottling proof assemblage 5% of the volume of its foam assemblage fraction whose value is approximately equal to the initial properties of the foam in the raw sparkling wine.

Next Pearl Rkatsiteli wine stock with an initial foaming capacity was 14.6 with surface flotation separation, a separation of the foam fraction. Indicator foaming capacity was measured in the foam fraction and a remainder of wine stock, which amounted to 8.1 and 6.7 respectively.

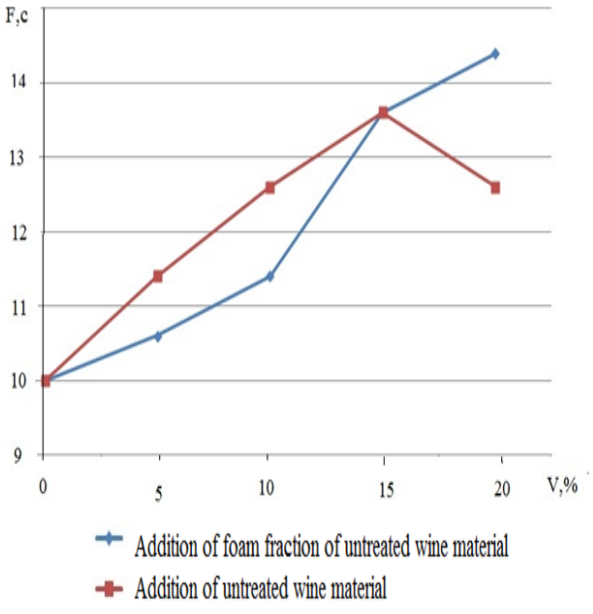

Fig. 1. Dependence foaming properties bottling of resistant blend of pearl wine on the concentration of additives and of foam fraction untreated wine material

Then blend made from wine Rkatsiteli and Kuldja. Next to the bottling of rack, processed blend of the original measure foaming properties was equal to 10.0, was added to the first embodiment of the raw wine materials Rkatsiteli, while the second option - it foamy fraction doses: 5, 10, 15, 20% of the blend.

The prototypes have identified foaming properties indicator F, page and compare it with the initial value of blending foaming (Fig.1).

CONCLUSIONS

The value of the foaming properties increased in all four cases, the addition of a foam fraction of wine materials in the blend. In the case of the introduction of the raw wine material blend traced the high value of the index foaming capacity. For example, adding 15% of the value of the index blending high foaming capacity, and subsequent increase in the volume of the additive observed decrease foaming capacity. This is due to the difference between concentrations of substances which possess surface activity blends in pearly wine material with the addition of natural surfactants.

Thus, the preservation and the concentration of surfactants in the pearly wine materials can be guaranteed by selection of foam fraction wine base surface floatation separation method, and when entering a natural blend of surfactants significantly increases its typical properties [8]. Also according to the data obtained, we can conclude that the improvement in the typical qualities of pearly wine blends can achieve joining them froth fraction wine included in the blend.

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