



Preparation of Development of the Assessment System of Quality of Wine and Wine Products

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Abstract: Viticulture and winemaking are socially important and highly profitable sectors of the agro-industrial complex of the Republic of Azerbaijan. Both of these areas have significant potential for future dynamic development. At the same time, there are a number of risks and dangers in these areas. The most important of these risks and hazards is the impact of adverse natural phenomena on grape production. Such phenomena can be explained by climate change, as well as the production and commercialization of counterfeit wine products. Currently, in conditions of intense competition, the market share of wine products that do not fully comply with current legislation, norms and requirements leads to a constant increase, which confuses consumers. At the same time, the level of threats to the health, property and life of the population increases. As a result, public confidence in the industry's products is declining. In addition to administrative measures used to effectively prevent or minimize unfair competition at the stage of circulation and production. It is necessary to expand the practical capabilities of objective analytical and expert identification of wine products, to increase the criteria for the reliability of wine products and the assessment of their quality systems. An effective way to achieve this goal is to evaluate specific properties (components) of wine products that remain unchanged throughout the entire production chain of turning grapes into wine or the processing of which is technologically complex, based on modern scientific knowledge, which is accordingly economically feasible. To solve the problem of a comprehensive study of the specific properties of wine products, it is necessary to develop and use new techniques, including both analytical and expert methods for studying the component composition, capable of ensuring the reliability and objectivity of the results obtained. This will ultimately provide the necessary level of control over compliance with laws and regulations, and will also make it possible to carry out identification by identifying inaccurate

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information about the product, for example, its type, name and place of origin (region). The objectivity and reliability of the results obtained on the basis of new methods must be ensured by the maximum possible volume of scientifically based and confirmed information on qualitative and quantitative changes in the prices of the analyzed indicators. Thus, the development and implementation of a quality assessment system, including the authenticity of wine products, based on fundamental scientific knowledge and modern research tools, are urgent tasks for scientific and expert support of production, circulation and import substitution in accordance with the law.

Keywords: wine; quality; production; assessment; system; risk; danger

1. Introduction

One of the important indicators of the quality of grape wines is the durability of wines and the preservation of their composition. But, as practice shows, in most cases the wines do not meet the standard indicators, as a result of which the wines become cloudy and lose transparency.

It should be noted that the main indicator of the quality of finished wine products is considered to be ensuring transparency and durability of wines. Sometimes even a small change in transparency causes the consumer to have a negative opinion and reduces the quality of the product.

Wine, which is a product of alcoholic fermentation, is a complex biological and physico-chemical system. The main cause of turbidity is the deterioration of the initial technological cycle of wine production, and most importantly, the quality of grape raw materials. Under the influence of chemical and biological factors, turbidity is formed. As a result of which the product loses transparency. An important role in the formation of turbidity in finished products is played by colloidal substances consisting of high-molecular components of hops and yeast, which, as a result of complex chemical and biochemical transformations, pass into wine.

Numerous studies have been devoted to solving the problems of stabilizing the turbidity of wines, in particular the role of individual biopolymers in the formation of colloidal turbidity in wines. Wine is a colloidal system, as well as a molecular solution. Under the influence of physical, physico-chemical and biological factors, the composition of the wine changes, as a result of which turbidity appears in it. These changes occur under the influence of various compounds of proteins, polysaccharides, phenolic substances, pectins, colloids, as well as copper, phosphorus, iron, calcium and other substances (Valuiko, 1978, p. 256).

Maintaining the transparency of wines depends on many factors, in particular on the degree of excretion of biopolymers, insoluble tartaric acid salts, as well as on the completeness of demetalization of wines (Kishkovsky & Merzhanian, 1984, p. 504).

Turbidity in grape wines can be divided into biological, physico-chemical and biochemical turbidity (Valuiko & Zinchenko, 1987, p. 159; Valuiko, 1978, p. 254).

Biological turbidity is often observed in grape wines. The appearance of this type of turbidity is caused by the proliferation of microorganisms and is classified as a wine disease. The development of yeast microflora in biologically unstable wines is determined by atmospheric oxygen supplied during processing, filtration and packaging of wines (Scholz & Ponomarev, 1990, p. 447).

An analysis of the literature shows that bacterial turbidity is more often observed in strong and dessert wines. In strong wines, this turbidity is due to unfavorable storage conditions at high temperatures and the development of bacterial microflora in wines. Lactic acid bacteria can also cause turbidity in fortified wines.

In such cases, the physiological state of cells is studied using cell microscopy to predict and timely detect bacterial and yeast opacities and their sowing on a selective nutrient medium (Shpritsman, Shcherbanovskaya, Tereshchenko & Pasternak, 1975, pp. 25-28).

The most common types of turbidity in wines are physical and chemical turbidity. They are considered the most complex and widespread types of blurring in composition. The main causes of this type of turbidity can be varied depending on a number of factors of production technology. Due to the causes of turbidity, they are divided into three main groups. Opacity groups are crystals, metallic money, and colloids. Crystalline turbidity is formed when the temperature of the wine decreases, the pH increases, as well as after alcohol treatment of wine materials protective colloids are removed (Mekhuzla, Friedman & Lipovich, 1973, pp. 7-9).

As a result of lowering the temperature of the wine, slightly soluble salts of tartaric acid precipitate and the crystallization process takes place.

At this time, the crystallization process takes place in two stages: first, crystal nuclei appear, forming crystallization centers, then crystal growth occurs. As a rule, newly developed wines are rich in colloids, tartrates and suspended turbidity particles, so the tendency to crystallization of tartaric acid salts in these wines is very slow (Shpritsman, Shcherbanovskaya, Tereshchenko & Pasternak, 1975, pp. 25-28).

High rates of development of winemaking lead to the need to intensify the processes of clarification and stabilization of wines.

In this case, it is necessary to alternate periodic methods of wine processing continuously or sequentially. It should be noted that the technological schemes of wine processing adopted in the wine industry do not guarantee long-term colloidal stability.

In this regard, we are faced with the task of developing more effective technological stabilization schemes that will ensure the nutritional value and high quality of wine products.

An analysis of the literature shows that the longevity of wines depends on many factors. As a rule, this applies to the enrichment of wine with metals, proteins, polyphenols, lipids and other complexes.

In this case, it can be established that the durability of wines depends, in particular, on the completeness of their demetallization, the degree of excretion of protein substances, polyphenols, polysaccharides and insoluble tartaric acid salts. It is also necessary to take into account the state of polymers and their complexes, the inactivation of oxidative enzymes, as well as the elimination of microorganisms (Valuiko, 1978, p. 254).

In addition to all the known ingredients used in wine-making practice, Yellow Blood Salt (YBS) is also used. In addition to the yellow blood salt, bentonites are widely used as substances that accelerate the clarification of wines. They remove unstable protein compounds from the wine, and also accelerate the precipitation of Berlin blueberries (Valuiko, 1978, p. 254).

It can be seen from numerous studies that to stabilize wines, it is possible to combine demetallization of LCS wines with bentonite dehydrogenation, heating and cold (Shpritsman, Shcherbanovskaya, Tereshchenko & Pasternak, 1975, pp. 25-28).

To stabilize wines from metal turbidity, the use of the trisodium salt of nitrilotrimethylphosphonic acid is effective. This medicine brings the dose of iron to the required limit. This processing technique is described in the works of a number of well-known scientists (Scholz & Ponomarev, 1990, p. 447; Shpritsman, Shcherbanovskaya, Tereshchenko & Pasternak, 1975, pp. 25-28).

In order to increase the stability of wines and improve their organoleptic properties, some researchers suggest using thermal expertise (Shpritsman, Shcherbanovskaya, Tereshchenko & Pasternak, 1975, pp. 25-28; Mekhuzla; Friedman & Lipovich, 1973, pp.7-9).

A number of substances are used to stabilize wines, which, due to their chemical nature, can form complexes with condensed molecules of polyphenolic compounds, such as proteins (Filippov & Valuiko, 1971, pp. 31-32).

As consumers' demands on the quality of wine are increasing every day, there is an urgent need to find new technological schemes for processing wines that can provide high nutritional and biological value of the product.

In this regard, we believe that the use of sterilization of cold wine is one of the most modern technologies of winemaking. The issue of using complex schemes for stabilizing wine raw materials, involving a combination of a number of technological methods, is also very relevant. Since the use of complex stabilization schemes has prospects for obtaining stable wines, we have proposed a rational technological scheme for stabilizing wines using FCS, bentonite, heat and cold.

Obtaining high-quality wines and ensuring their durability in the wine industry of Republic of Azerbaijan is an urgent issue. From the analysis of numerous literature, it can be concluded that the enriched wines of Republic of Azerbaijan in some cases do not meet the requirements of the consumer and are generally prone to turbidity. As a rule, in order to ensure consumer attractiveness, wine supplied to a retail chain must have stable transparency and high organoleptic qualities.

Wine stability is one of the important indicators of wine quality. Maintaining the transparency of wine with a guaranteed shelf life is an indicator of its stability and depends on transparency.

In modern winemaking practice, transparency and stability of the finished wine for 1 year or more is the main requirement for the producer. Therefore, the clarification and stabilization of wines is a very responsible and important process in winemaking.

During the research, numerous methods of wine stabilization were investigated in order to select the most optimal technological scheme for clarification and stabilization of fortified white wines.

In order to produce a wine product in accordance with the current technological instructions, rules and regulatory materials for the wine industry, in order to give the wine long-term transparency and stability, it is processed by physical, chemical, physico-chemical and biochemical methods.

In our article, we reviewed the above-mentioned wine processing methods to clarify the pros and cons of these types of expertise. At the same time, our goal was to choose the most optimal and economical wine processing scheme that could provide high-quality wine products with minimal costs of auxiliary materials and energy resources. It should be noted that suitable examination methods are selected for each type of turbidity, in many cases a comprehensive examination of wine materials is considered more effective.

According to the current technological instructions, the physical methods of wine processing are precipitation, filtration, thermal examination, cold examination, ultrasonic filtration and other methods.

Physico-chemical methods of wine processing include wine purification, but it is also worth knowing that the wine is checked for the presence of substances of organic and inorganic nature. And in the biochemical method of wine processing, enzyme preparations of various directions of action are studied.

The wine industry is an important and highly profitable component of the agro-industrial complex. Currently, viticulture and winemaking are among the leading branches of the food industry in European countries, as well as in Asia and America.

The intensive development of the food industry and the specialized wine industry forces us to radically change some of the established traditions of winemaking and

introduce modern technological modes and parameters of industrial processing of grapes, processing and aging of wine raw materials and wines. In this regard, the issues of further improvement of wine production technology and improvement of its quality are one of the most important problems of world wine practice.

Currently, the stabilization of ordinary grape wines is a serious problem, as cases of violation of their presentation due to turbidity during storage in the forwarding and distribution network are not uncommon. This also applies to wine products in Azerbaijan, where improving the quality of wines and ensuring the sustainability of wines is one of the main challenges facing industry professionals. Strong wines occupy an important place in the assortment of wines produced in the republic. In recent years, a number of technological modes and parameters aimed at improving the quality of finished products and the introduction of modern technologies have been proposed and tested to improve their technology. The range of fortified wines produced at various wineries is very limited, and the organoleptic quality indicators of these wines, in our opinion, do not always meet the requirements. Monitoring conducted to study the quality of fortified wines has shown that the main disadvantages of this group of wines are a decrease in aromaticity and extractivity, and most importantly-low stability.

Based on the above, the quality of fortified wines lies in improving their production technology and increasing their durability.

Improving the quality of wines made using intensive technologies is one of the main tasks facing the wine industry of our republic. Taking into account the above about the state and quality of production of fortified wines produced at the main wineries of the republic, we set ourselves the task of studying the influence of technological modes and parameters on the quality and durability of white fortified wines.

Our main goal was to study the processes of transparency and stabilization of white enriched wines produced in various wine-growing regions and enterprises of the Republic of Azerbaijan, to develop technological regimes and parameters of winemaking. And also, based on this, to study the composition of fortified wines produced in our republic, to justify and develop a technology for complex processing of white fortified wines to ensure their durability and quality.

To this end, we conducted monitoring to predict the tendency of the chemical composition of port strong wines produced in various wine-growing regions of Azerbaijan to various types of turbidity. As a result, the types of blurring were determined. Based on the results obtained, we have proposed technological modes of complex processing of white enriched wines that can significantly increase the durability of these types of wines. It has been found that wines are mainly susceptible to colloidal turbidity.

Based on the conducted research, a consistent comprehensive wine processing using grapes and grape raw materials is proposed, which allows to preserve the quality and durability of wines.

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