

використовувалися світлодіодне червоно-синє світло та природне яскраве освітлення. Різні спектри світла стимулюють різні фотобіохімічні процеси у мікробіодоростей, що впливає на їхні ростові характеристики та метаболіти.

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PECULIARITIES OF KIRSCHWASSER USING IN BIOTECHNOLOGY OF FRUIT AND BERRY WINE PRODUCTION

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Winemaking in Ukraine has a long history. The largest area of vineyards was in the 60s of the last century and amounted to about 400 thousand hectares. However, today the area of vineyards has decreased by almost 5 times and continues to decline. Today, their area is about 40 thousand hectares. Most of the vineyards are concentrated in Odesa, Kherson, Mykolaiv, Zaporizhzhia and Zakarpattia regions. Geographically, there are 6 main wine-growing regions of Ukraine, 15 macrozones (wine districts) and 58 microzones, although these zones are not legally defined. Due to recent climate change, the geography of Ukrainian winemaking has expanded significantly to the north and covers almost all of Ukraine.

Thus, favorable soil and climatic conditions, excellent raw materials, knowledge and many years of experience in wine production allow Ukrainian wine to be produced with unique taste and quality characteristics. The potential capacity of the domestic and foreign wine market, the availability of intellectual and production capital for the introduction of innovative technologies, and the reorientation of consumer preferences from spirits to wines necessitate the improvement and development of winemaking in Ukraine [1]. Our country has a significant potential for fruit and berry wines production, as fruits and berries cultivation is much higher than grapes cultivation [2].

Kirschwasser is a strong clear distillate from cherries or a fragrant cherry tincture containing about 37–43 degrees of alcohol. Real kirsch is made from black Morello cherries, but today producers use red cherries as a base more likely.

It is proposed to use kirschwasser to increase the alcohol content of fruit and berry wine.

Making wine with kirschwasser involves several key steps. It all starts with fermentation, when sugar from grapes is converted into alcohol with the help of yeast. Then kirsch are added to wine – this is the alcoholization stage. Alcoholization is done to increase the alcohol content. The time of kirsch adding affects the wine taste: if you add it early, wine will be sweet, and if you add it later, wine will be dry. Kirschwasser used for alcoholization must be of high quality, as it affects the overall taste and aroma of wine. After alcoholization, wine is aged so that flavors and aromas can develop. Finally, wine is bottled and ready for consumption.

Alcoholization of wine with kirschwasser has several advantages compared to regular alcohol. Firstly, kirschwasser is a cherry brandy, which can add a unique cherry flavor to wine to enhance its taste. Secondly, kirschwasser can give wine an additional depth of flavor, especially if it already has cherry notes. Finally, using kirschwasser instead of regular alcohol can be an interesting experiment and help create a unique product. The use of different types of fruits and berries, in combination with kirschwasser, allows producers to expand their range of products.

However, the technology involving distillation of wine with kirsch has a number of difficulties and technological aspects. First and foremost, it is the cost, as kirschwasser usually costs more than ordinary alcohol. This can increase the cost of wine production and accordingly the final product cost. Secondly, it is worth paying attention to the taste. Although kirschwasser can add a unique cherry flavor to wine, it can also change the overall taste of wine. If cherry flavor does not harmonize with other flavors of wine, it can lead to undesirable results.

There are also a number of technical challenges. Fruit wines usually do not conform to the usual parameters of Brix, pH and total acidity. They typically have a sugar content of 13 to 16 °Brix, so they need to be chaptalized. The pH of juice is often moderately high, so addition SO₂ can quickly accumulate. Meanwhile, total acidity is usually high, so some residual sugar is recommended [3].

All of this should be taken into account in the technology to achieve the most positive result. Nevertheless, this technology introduction is promising, as unique taste of wine, high quality ingredients and innovative technology can attract consumers' attention, significantly increasing the products demand.

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МОДЕЛЮВАННЯ БІОЛОГІЧНИХ ПРОЦЕСІВ НА ОСНОВІ ДАНИХ МОЛЕКУЛЯРНОЇ БІОТЕХНОЛОГІЇ ТА БІОІНФОРМАТИКИ

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Сучасні досягнення в галузі молекулярної біотехнології та біоінформатики революціонізували наше розуміння живих систем і відкрили нові можливості для їх моделювання та аналізу. Використання великих обсягів даних, отриманих за допомогою сучасних технологій, дозволяє нам досліджувати біологічні процеси на молекулярному рівні з небаченою раніше точністю та деталізацією. У цьому контексті моделювання біологічних процесів на основі даних молекулярної біотехнології та біоінформатики стає ключовим інструментом для подальшого розвитку біологічних наук та медицини [1, 2].

Навколо нас функціонує комплексна мережа біологічних систем, включаючи взаємодію макромолекул, клітин, органів та організмів. Однак завдяки використанню даних молекулярної біотехнології та біоінформатики ми маємо можливість зрозуміти фундаментальні принципи функціонування живих систем на молекулярному рівні.