

Analysis of Aromatic Production of Zhenjiang Wine Using an Innovative Dry Freezing Process

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Introduction

Zhenjiang wine, also known as "Chinkiang vinegar," is traditional Chinese rice vinegar with a long history and unique flavor profile. The aromatic compounds in Zhenjiang wine play a crucial role in its flavor and are influenced by various factors, including the fermentation process and aging. In this article, we analyze the aromatic production of Zhenjiang wine using an innovative dry freezing process, which has the potential to enhance the aroma profile of the wine. Zhenjiang wine is produced through a traditional solid-state fermentation process using a mixture of rice, wheat bran, and other grains. During fermentation, various volatile aromatic compounds are produced, contributing to the unique flavor of the wine. The traditional production process involves natural fermentation and aging in earthenware jars, which can take several months to years. However, the use of modern techniques, such as the dry freezing process, can potentially accelerate the aging process and enhance the aroma profile of the wine [1-3].

Description

The dry freezing process involves freezing the wine at a low temperature (-18°C to -25°C) for a short period (24 to 48 hours) and then thawing it at room temperature. This process is believed to promote the formation of ice crystals, which can help break down cell walls and release more aromatic compounds. Additionally, the rapid freezing and thawing can disrupt the structure of the wine, leading to enhanced flavor development. To analyze the aromatic production of Zhenjiang wine using the dry freezing process, various analytical techniques can be employed. Gas chromatography-mass spectrometry (GC-MS) can be used to identify and quantify the volatile aromatic compounds present in the wine. Solid-phase microextraction (SPME) can be used to extract the volatile compounds from the wine before analysis [4,5]. Additionally, sensory analysis can be conducted to evaluate the aroma profile of the wine and compare it with traditionally aged Zhenjiang wine. The dry freezing process is expected to have several effects on the aromatic production of Zhenjiang wine. Firstly, it may lead to the release of additional aromatic compounds from the wine matrix, enhancing the overall aroma profile. Secondly, the rapid freezing and thawing may stimulate enzymatic and non-enzymatic reactions that can contribute to flavor development. Finally, the process may accelerate the aging of the wine, mimicking the effects of long-term traditional aging [6].

Conclusion

In conclusion, the analysis of aromatic production of Zhenjiang wine using an innovative dry freezing process has the potential to enhance the aroma profile

of the wine and accelerate the aging process. By understanding the effects of the dry freezing process on aromatic compounds, producers of Zhenjiang wine can potentially improve the quality and flavor of their products. Further research is needed to fully understand the mechanisms underlying the effects of dry freezing on aromatic production and to optimize the process for commercial production of Zhenjiang wine.

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Conflict of Interest

There is no conflict of interest by author.

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