

Preservation of ancient Chinese Shanlan Rice Wine Treated with carbonic acid gas Top Pressure

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Editorial

The most popular traditional alcoholic beverage in China's Hainan island is Chinese shanlan rice wine. In the creation of Chinese rice wine, sticky rice is recommended. Shanlan rice is a glutinous rice that grows in the Wuzhi mountain region. This rice is used as the primary ingredient in the production of wine without further distillation. Shanlan rice wine, when freshly created, produces a rich gas of CO₂ and alcohol, with a mellow taste and sweet, pleasant sensory experience.

Shanlan rice wine contains a high quantity of residual sugar, which is not always entirely transformed into ethanol. A proper sugar-to-alcohol ratio will improve the wine's flavour. To end fermentation, rice wine is first pasteurised and then put into sterile glass bottles to destroy all organisms in rice wine such as Chinese yellow rice. The majority of traditional rice wine processing operations try to reduce or inactivate microbial populations, which can be accomplished by thermal processing employing water, steam, electrical, or microwave radiation as a heat transfer medium. Heat treatment, on the other hand, has an effect on polyphenoloxidase activity and protein stability in the samples as compared to untreated samples.

Non-thermal approaches offer a great deal of potential for removing the detrimental effects of heat on scent and flavour. Low temperature preservation can limit yeast fermentation and prevent the spread of spoiling organisms. Fresh shanlan rice wine should be stored in a sealed container at temperatures below 7°C, otherwise, it will taste harsh, alcoholic, and acidic. Bitter flavour emerges in newly produced rice wine without hot treatment after just 1 day at 25°C, especially in summer. Failures in pasteurisation, storage, or over-fermentation in the industry process would result in a harsh flavour in rice wine. As a result, low temperature treatment is regarded as a standard way for extending the shelf life of rice wine. However, Shanlan rice wine created under atmospheric pressure sustained fermenting at a low temperature until the remaining sugar in the wine was depleted. Indeed, novel preservation methods such as High Hydrostatic Pressure (HHP) have been used in a variety of liquid food processing industries. Rice wine (nigori-sake) was one of the first commercially available HHP-treated goods on the Japanese market. The buildup of CO₂ produced spontaneously by yeast during alcohol fermentation causes the top pressure of a sealed container to rise. This top pressure, which is created from the inside of the fermentor, has the same role as exterior pressure, such as hydrostatic pressure, in causing the yeast metabolism to become trapped. During the brewing process, yeast in medium is sensitive to changes in fermentor top pressure.