

## **A Novel Marketable Dried Mixture for High-Quality Sweet Wine Production in Domestic Refrigerator Using Tubular Cellulose**

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**Abstract :** In this study, a new fermentation technology is proposed with potential application in home wine-making. Delignified cellulosic material was used to preserve Tubular Cellulose (TC), an effective fermentation support material in high osmotic pressure, low temperature, and alcohol concentration. The psychrotolerant yeast strain *Saccharomyces cerevisiae* AXAZ-1 was immobilized on TC to preserve a novel home wine making biocatalyst (HWB) and the entrapment was examined by SEM. Various concentrations of HWB was added in high-density grape must and the mixture was dried immediately. The dried mixture was stored for various time intervals and its fermentation examined after addition of potable water. The percentage of added water was also examined to succeed high alcohol and residual sugar concentration. The effect of low temperature (1-10 oC) on fermentation kinetics was studied revealing the ability of HBW on low-temperature sweet wine making. Sweet wines SPME GC-MS analysis revealed the promotion effect of TC on volatile by-products formation in comparison with free cells. Kinetics results and aromatic profile of final product encouraged the efforts of high-quality sweet wine making in domestic refrigerator and potential marketable opportunities are also assessed and discussed.

**Keywords :** tubular cellulose, sweet wine, *Saccharomyces cerevisiae* AXAZ-1, residual sugar concentration

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