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CHARACTERISTICS OF RED WINE FERMENTED BY *SACCHAROMYCES CEREVISIAE* MUTANT WITH ABILITY OF OVER-EXPRESSION MANNOPROTEINS

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Mannoproteins in the cell wall of *Saccharomyces cerevisiae* are composed of 5–20% protein and 80–90% mannose, and are responsible for most cell surface properties of the yeast. The objective of this study was to improve the quality of red wine using the yeast with over-expression of mannoproteins. *S. cerevisiae* mutants were generated by treating either UV radiation or ethyl methane sulfonate (EMS). Mannoproteins over expressed strains, which are resistant to killer-9 toxin produced by *Hansenula mrakii* IFO 0897, were selected. Among the mutants, an EMS mutant, *S. cerevisiae* CM8, was used to produce red wine because it showed the highest mannose/glucose ratio (3.6:1.0) in the carbohydrate composition of the cell wall. The mannoprotein content in the cell wall of *S. cerevisiae* CM8 was 386.8±0.25 mg/g, while the content in the wild type strain was 340.1±0.58 mg/g. The ethanol content of *S. cerevisiae* CM8 fermented red wine (CM-wine) was comparable to that of wild strain fermented red wine (SC-wine). CM-wine made from the Kyoho grapes (*Vitis vinifera* L. × *Vitis labracana* Bailey) harvested in summer or winter obtained higher tannins and total anthocyanins contents, but lower tartaric acid content than SC-wine. The results of sensory evaluation showed that CM-wine had higher consumer preference than SC-wine. Moreover, the astringency level of CM-wine was lower than that of SC-wine. The above mentioned results demonstrated that *S. cerevisiae* CM8 with the ability of mannoproteins over expression was a capable starter for wine brewing.

Biography

Yun-Chin Chung completed her PhD in Food Science and Technology from Oregon State University, USA and Postdoctoral studies from the University of Taiwan National Ocean University, Taiwan. She works as a distinguished Professor of Food and Nutrition Department at Providence University, Taiwan, China. She published more than 66 papers in reputed journals and has been serving as a Department Head.

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