Development of Sweet and Distilled Longan Flower Honey Wine

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ABSTRACT

ABSTRACT This thesis can be divided into five parts. In the first part of this thesis, twenty six cultures purchased were inoculated into diluted longan honey and fermented at 25 or 35℃ with or without the addition of $K_2S_2O_5$ for one month to selecte the best culture and the best condition with high alcohol yield and high flavor preference for the production of honey wine. Research results showed that the honey wine that inoculated with Saccharomyces cerevisiae code L and fermented at 25℃ and with 50 ppm $K_2S_2O_5$ added had the highest alcohol yield and flavor preference. The second part of this research analyzed the volatile compounds existed in the longan honey wine that fermented at 25℃ with 50 ppm $K_2S_2O_5$ added and inoculated with Saccharomyces cerevisiae code L. It was found that this longan honey wine carried honey-like (contributed mainly by phenylethyl alcohol), floral-woody (contributed mainly by linalool oxide), sweet (contributed mainly by 3,7-dimethyl-1,5-octadiene-3,7-diol), and fruity (contributed mainly by ethyl acetate, isoamyl acetate, and ethyl hexanoate etc.) flavor sensation. The third part of this research investigated the changes of flavor and quality of longan and mixed flower honey during fermentation at 25℃ with 50 ppm $K_2S_2O_5$ added and inoculated with Saccharomyces cerevisiae code L. Research results showed that alcohol content in 30 days ’ fermented longan and mixed flower honey was 11.7% and 10.3%, individually. The major volatile compounds in the 20 and 40 days ’ fermented longan honey wine were isoamyl alcohol, linalool oxides (that contributed floral-woody note) and 2-methyl-1-butanol, whereas the major volatile compounds existed in the 20 and 40 days ’ fermented mixed flower honey wine was phenethyl alcohol (that contributed honey-like note), isoamyl alcohol, and 2,3- butandiol. The fourth part of this thesis studied the best conditions to prepare distilled longan honey liquor and changes in the flavor and quality of the longan honey liquor. The best condition to prepare distilled longan honey liquor was found to distill the fermented longan honey wine at vacuum and collect the distillate up to 50 % alcohol content and than diluted the collected liquor with water to 40 % alcohol content. After 9 months ’ storage of the vacuum distilled longan honey liquor, some volatile compounds in the liquor were found appeared or disappeared but those volatile compounds that carried typical longan honey flavor, such as beta — damascenone (floral, sweet, honey-like), 3,7-dimethyl-1,5-octadiene-3,7-diol (sweet), and phenethyl alcohol (honey-like), were still existed. The fifth part of this thesis studied the best conditions to prepare sweeten longan honey wine and changes in the flavor and quality of the sweeten longan honey wine. The best condition to prepare sweeten longan honey wine was found to re-distilled longan honey liquor at vacuum and collect the distillate up to 26 % alcohol content and than diluted it with longan honey to alcohol content 18 % and sugar content 13 ° Brix. After 9 months ’ storage of the sweeten longan honey wine, the amount of some volatile acids and alcohos were found to decrease.

Key words: honey, fermented, honey liquor, sweeten honey wine, volatile compounds

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