ABSTRACT

Effect of Fermentation Process on Quality of Pineapple Vinegar

Sirirung Wongsakul and Ekachai Chukeatirote

This research aims at optimizing the condition for production of Phulae pineapple vinegar. Several factors affecting productivity of vinegar were studied, starting from alcoholic fermentation of Phulae pineapple, for wine production, and followed by acetic acid fermentation to obtain vinegar. In the first step, Phulae pineapple was mixed with water at different ratios (2:10 – 5:10), adjusted sugar content to 20^{o}Brix and pH to 4.5, followed by alcoholic fermentation using *Saccharomyces cerevisiae* (10% v/v) at 30^{o}C. The results showed that suitable ratio of pineapple to water was 5:10 which the maximum 12.1% alcohol was obtained after 5 days of fermentation. Increasing amount of pineapple increased the production rate of alcohol. The obtained wine was subsequently fermented by *Acetobactor aceti* at various conditions (%alcohol and %inoculum) to obtain pineapple vinegar. The condition must be well-controlled in order to get high acetic acid concentration while avoiding destruction of acetic acid or over oxidation. It was found that the maximum 7.0% acetic acid was obtained from fermentation using 7% alcohol and 10% inoculum, aerated at 0.5 VVM, incubated at 30^{o}C for 7 days. Increasing alcohol content from 7% to 10% caused the reduction in acetic acid production. These results will be useful for the Phulae pineapple producers in Chiangrai for local or industrial scale production of Phulae pineapple vinegar.

Keywords: Vinegar, Phulae pineapple, fermentation, optimization condition