



ABSTRACT

The study determined the microbial population and chemical changes of *Arenga pinnata* sweet sap from the time it is tapped until it is fermented to vinegar. It also correlated the effects of sugar content, pH and titratable acidity on microbial population. *A. pinnata* sap was collected from Indang, Cavite. Set-ups were done in the laboratory and in the farm as the producer's set up. Results showed that during the initial stage of fermentation the *A. pinnata* sap is dominated by yeasts and bacteria, but as fermentation continues the population decreases, and is replaced by the acetic acid bacteria. The growth of yeasts decreased on the depletion of sugar and an increase in the level of titratable acidity. On the other hand, acetic acid bacteria started to grow when sugar has been depleted and titratable acidity has increased, which was observed at day 14. The population of bacteria showed fluctuations, but were observed mostly during the initial stage of fermentation and began to decrease on the same day that titratable acidity and acetic acid bacteria population is at its peak. The mean final titratable acidity is 5.72%. The acidity of the medium inhibited the growth of the bacteria. However, changes on pH levels during the fermentation period of *A. pinnata*, had negligible relation on the growth of yeast, bacteria and acetic acid. Chemical parameters, such as sugar, pH, and titratable acidity do not differ on the three fermentation set-ups, thus producing vinegar. However, these chemical parameters are significantly affected by the days of fermentation. Sugar and pH decreases during vinegar production of *A. pinnata* sap, while the titratable acidity increases as fermentation continues.