

# PRODUCTION OF PINEAPPLE PEEL VINEGAR

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The fruit juice of pineapple (*Ananas comosus*) results in massive waste, estimated at 40-50% from fresh fruit as peels and core. Even though pineapple residues are rich in sugars, especially in sucrose, glucose, fructose and other components like minerals and vitamins, they are not used to develop any value added product. Therefore, this research was aimed at producing vinegar from pineapple peel. The process was carried out in two-stage fermentation with wine yeast (*Saccharomyces cerevisiae*) and acetic acid bacteria (*Acetobacter aceti*). Three pineapple peel juice samples were adjusted with table sugar ( $T_1=12$  brix<sup>o</sup>,  $T_2=15$  brix<sup>o</sup>,  $T_3=18$  brix<sup>o</sup>) and allowed for alcoholic fermentation with wine yeast ( $0.2 \text{ g l}^{-1}$ ) at room temperature ( $25 - 30 \text{ }^\circ\text{C}$ ). Samples were diluted up to 10% alcohol (v/v) with distilled water and allowed for natural acetic acid fermentation with acetic acid bacteria. Sensory evaluations of the final products were done with thirty untrained panelists. Samples  $T_1$ ,  $T_2$  and  $T_3$  completed alcoholic fermentation in 16, 18 and 19 days, respectively and resulted 12.8%, 13.1% and 13.6% of alcohol concentration (v/v), correspondingly. Maximum acetic acid concentration was obtained at day 15 (4.2% [v/v]), 17 (4.5% [v/v]) and 20 (4.8% [v/v]) by  $T_1$ ,  $T_2$  and  $T_3$ , respectively. The results of sensory evaluations of three samples exhibited significant differences ( $p < 0.05$ ) in colour, odour, texture, taste and overall acceptability among three treatments. The highest rating for overall sensory acceptability was observed in  $T_3$ . Results showed that pineapple peel could be used to produce vinegar with desirable characteristics.

**Keywords:** *Acetobacter aceti*, Pineapple peels, *Saccharomyces cerevisiae*, Vinegar