

## Abstract

The aim of this experiment was to study the effects of three saccharification techniques for riceberry wine production; (I) traditional enzymatic using glucoamylase and alpha-amylase (GA-AA), (2) no-cooked enzymatic using Stargen<sup>TM</sup> enzyme (ST) and (3) native starter culture, Lookpang (LP). The seven parameters being investigated were total soluble solids (Brix<sup>°</sup>), percentage of alcohol, pH, scavenging activity, phenolic content, reducing sugar, and total titratable acid. It was observed, saccharification using GA-AA showed the highest initial values in the total soluble solids and reducing sugars. The alcohol content for three techniques can be seen to have ranges between 10-44%. Scavenging activity, measured by DPPH antioxidant assay on GA-AA and LP were lower (40-50 ug/ml) when compared to ST (70-75 ug/ml). Phenolic content using Folin-Ciocalteu reagent produced results with values ranging from 0.4-0.5 mgGAE/g. Saccharification of ST was observed to have higher values in total titratable acid when compared GA-AA and LP techniques. It can be assumed that due to no heat treatment involved when using Stargen<sup>TM</sup>, organic acids other than the pre-dominant lactic acid was present in the rice wine. The effects of the total titratable acid could be differentiated with the smell of the wine. At the end of the fermentation period, a sweet aroma could be detected through the nose for GA-AA and LP techniques, however, a sour and pungent smell could be detected with ST technique. In this experiment, by the end of the fermentation period the ranges between values for each parameter did not vary greatly. However, due to the inconsistencies on the ST and LP techniques, the GA-AA enzymatic saccharification technique would be a preferable choice when producing riceberry wine with the 9-day fermentation.