

Comparison of physico-chemical properties of wine fermented with palmyrah fruit pulp and cashew apple juice

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Introduction and Objectives: Palmyrah fruit and cashew apple are underutilised seasonal fruits in Sri Lanka, which are reported to possess important nutritional and medicinal properties. This study was conducted to develop wine from three different formulations of palmyrah fruit pulp (PFP) and cashew apple juice (CAJ) with an aim of giving a better commercial value to these two fruits.

Methods: Initially, tannin in cashew apple was removed using 0.77% gelatin. PFP was extracted manually (50ml water per seed). Different ratios of CAJ and PFP (100:0, 80:20, 50:50 %) were mixed and fermented by Baker's yeast (*Saccharomyces cerevisiae*). The optimum fermentation time was determined for formulated wine based on the production of ethanol which was monitored by gas chromatography. The changes in ethanol content, total soluble solids (TSS) and pH were analysed for 21 days. Physicochemical and sensory tests were done in order to compare the variations. Sensory tests were done using 9-points hedonic scaling using twenty trained panelists and data was analysed using the Friedman test.

Results: Ethanol content using CAJ and PFP ratios of 100:0, 80:20, 50:50 % were 9.47 ± 0.02 , 7.72 ± 0.06 and 7.30 ± 0.03 % respectively, obtained at the optimum fermentation time of 18th, 15th and 11th day respectively. Wine with CAJ and PFP (50:50) was selected as the best formulation based on the sensory evaluation. Methanol was absent in all three types of wine. TSS, titratable acidity, pH, total ash, fructose and glucose content of wine with CA juice and PFP (50:50) were $6.24 \pm 0.060^\circ$, 2.180 ± 0.016 g/L, 3.47 ± 0.01 , $0.29 \pm 0.01\%$, 2.70 ± 0.00 g/L, 0.86 ± 0.00 g/L respectively. It was observed that titratable acidity of wine with CAJ and PFP (50:50) is lower than others and it has a higher level of glucose and fructose contents than others.

Conclusion: The wine fermented with 50:50 CAJ: PFP had better sensory and physico-chemical properties compared to the other two formulations of wines processed in this study and it has potential to further develop into a commercially viable product.

Keywords: Baker's yeast, ethanol content, titratable acidity, total soluble solids

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