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

Conference Paper · December 2024

CITATIONS
0

READS
9

4 authors:

Rameswaran Tenuja
University of Sri Jayewardenepura
1 PUBLICATION **0** CITATIONS
SEE PROFILE

Sobini Nithiyananthan
Palmyrah Research Institute
18 PUBLICATIONS **12** CITATIONS
SEE PROFILE

Rohan Dassanayake
University of Sri Jayewardenepura
86 PUBLICATIONS **1,430** CITATIONS
SEE PROFILE

Kirushanthi Thangavel
Palmyrah Research Institute
25 PUBLICATIONS **16** CITATIONS
SEE PROFILE

PP11: Comparison of physico-chemical properties of wine fermented with palmyrah fruit pulp and cashew apple juice

R Tenuja[1], N Sobini[2]*, RS Dassanayake[1], A Kirushanthi[2]

[1] *Department of Biosystems Technology, University of Sri Jayewardenepura, Sri Lanka*
[2] *Palmyrah Research Institute, Kandy Road, Kaithady, Jaffna, Sri Lanka*

* sobinithi30@gmail.com

Introduction and Objectives: Palmyrah fruit and cashew apple are underutilized seasonal fruits in Sri Lanka, 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 for the above fruits.

Methods: Initially, tannin in cashew apple was removed using 0.77% of 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 analyzed for 21 days. Physicochemical, and sensory tests were done in order to compare the variations. Sensory test was done using 9-points hedonic scaling using twenty trained panelists and data was analyzed using friedman test.

Results: Ethanol content resulted 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 18^{th}, 15^{th} and 11^{th} 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 ± 0.060^{o}, 2.180 ± 0.016 g/L, 3.47 ± 0.01, 0.29 ± 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 a potential to further develop in to a commercially viable product.

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

Acknowledgement: Palmyrah Research Institute