DEVELOPMENT AND EVALUATION OF WINE FROM MALAY APPLE, GOVERNOR'S PLUM, AND MALABAR PLUM FRUITS

P.H.K.U. Dias[1], P.N.R.J. Amunugoda[2] and C.A.K. Dissanayake[1]

[1]Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka.
[2]Food Technology Section, Industrial Technology Institute, Malabe, Sri Lanka.

Malay apple (*Syzygium malaccense*), governor's plum (*Flacourtia indica*) and malabar plum (*Sysygium cumini*) are underutilized fruits growing in Sri Lanka. These fruits are rich in flavour compounds and nutritional properties. Therefore, wine was prepared as a value addition to these fruits. Based on preliminary trials, must of malay apple was diluted with water at 4:1 ratio, and was treated with and without 0.1% di-ammonium orthophosphate (DAHOP). Must of governors' plum and malabar plum were prepared by diluting pulp with water 1:1, 1:2 and 1:3 ratios each. *Saccharomyces cerevisiae* was used for fermentation for six days. Total soluble solids (TSS), pH, alcohol, and antioxidant contents were tested. The must of malay apple prepared with DAHOP showed the highest ($p<0.05$) alcohol content 12.78±0.98% v/v, lowest ($p<0.05$) TSS 6.9±1.08 °Brix, pH 3.35±0.08, titratable acidity 5.01±0.20 tartaric acid g mL^{-1} and antioxidant content 8.52±0.30 mg Trolox eq mL^{-1} compared with wine without DAHOP. Wine with DAHOP had significantly highest ($p<0.05$) preference in sensory analysis. Governor's plum must with 1:1 dilution showed highest ($p<0.05$) alcohol content 11.32±0.81% v/v, lowest ($p<0.05$) TSS 8.2±0.94 and the lowest ($p<0.05$) yield of productivity 79% mL g^{-1} than 1:2 and 1:3 dilutions. The best wine from sensory analysis consisted of 1:3 dilution, where 10.08±0.75% v/v alcohol was present with TSS of 9.8±0.81 and antioxidant 13.01±0.04 mg Trolox eq mL^{-1}. Malabar plum must with 1:1 dilution had the highest ($p<0.05$) alcohol content 11.25±0.86% v/v, lowest ($p<0.05$) TSS 6.0±0.85 °Brix, and lowest ($p<0.05$) yield of productivity 84.44% compared with 1:2 and 1:3 dilutions. The best wine from sensory analysis was with 1:2 dilution, where alcohol content was 11.1±0.85% v/v, with TSS 7.0±0.98 °Brix and antioxidant 355.30±13.12 mg Trolox eq mL^{-1}. Of the three fruits, malabar plum wine had the highest ($p<0.05$) antioxidant contents. In conclusion, wine can be successfully prepared with malay apple, malabar plum and governors' plum.

Keywords: Antioxidant, Ethyl alcohol, Fermentation, Yeast