Effect of Physico-chemical Properties of Local Bee Honey on the Sensory Properties of Developed Honey Wine

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Honey wine is an alcoholic beverage developed by the fermentation of natural bee honey. It is a better way of imparting nutraceutical value to an internationally recognized beverage type, where today's health concerned consumer patterns have a developing trend towards nutraceuticals. Additionally, it adds value to local bee honey production. In this study, the effects of Physico-chemical parameters; pH, Brix, titratable acidity, and colour of the bee honey on the sensory and Physico-chemical properties of developed honey wine were examined. Bee honey samples were collected from two different geographic areas of the country, Anuradhapura and Matale. Initially, the pH, Brix, titratable acidity, and colour of the bee honey were measured using standard AOAC methods. Honey wine was developed using both the samples and kept for maturation for 30 days under similar conditions at room temperature (around 30^0 C). A sensory evaluation was conducted to identify the organoleptic properties of honey wine, using a 30-membered panel using a 5-point hedonic scale. The bee honey sample collected from Anuradhapura showed, pH, Brix, titratable acidity, and colour values, 3.87±0.02, 73.73±0.49%, 0.52±0.03 g/100ml and (L*=55.73, a*=29.15, b*=59.35) respectively. While the same parameters, of bee honey sample collected from Matale, showed 3.5±0.01, 80.2±0.21%, 0.65±0.21 g/100ml and (L*=62.03, a*=20.66, b*=49.87) respectively. Those Physico-chemical properties were significantly different from each other for the two bee honey samples whereas, the honey wines prepared from two bee honey samples also showed a significant difference in sensory properties. The developed wine using bee honey from Anuradhapura showed better organoleptic preference; for colour, appearance, aroma, mouthfeel/body, taste, alcoholic flavour and overall acceptability than the Matale honey wine. The Physico-chemical properties of both wines have also differed from each other. A higher alcohol production (8.1%±0.21 V/V) was also evident in Anuradhapura wine samples as the only sugar source for the fermentation process was given by bee honey. This concludes that even though developed honey wine with local bee honey is a success, a prior standardization of bee honey is needed in commercialization. Therefore, the researchers suggest further research on standardizing the bee honey and optimizing the fermentation process for scaling up for commercial level bee honey wine production.

Keywords: Honey wine; Bee honey; Organoleptic properties; Physico-chemical properties