

FERMENTATION OF BILIMBI (*AVERRHOA BILIMBI L.*) WINES: PHYSICOCHEMICAL AND SENSORY CHARACTERISTICS.

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Abstract

Background The fruit of *Averrhoa bilimbi* L., or bilimbi, is considered an underutilized fruit of the Oxalidaceae family. The bilimbi is not usually consumed raw due to its high acidity and processing of bilimbi could increase utilization of this fruit, reduce wastage, improve on the economic returns of farmers and increase the value of the crop.

Objective: This study focuses on bilimbi wine quality in relation to osmotic dehydration treatments applied before the fermentation of the must.

Design: Mature bilimbi were pre treated in four different osmotic dehydration sucrose solutions (control-no sucrose solution, 30°, 50° and 65° Brix). Prior to fermentation, musts adjusted to 25 °Brix and pH 3.0–3.5. Wines were racked, bottled and assessed using physicochemical analysis and sensory evaluations. A focus group session chose the better two wine treatments out of the four produced. A sensory quality evaluation panel attributed scores to the selected wine treatments.

Results : Osmotic dehydration significantly affected the pH levels which played a role in terms of color and flavor the wine treatments. The sample with the lowest pH produced the sweetest wine while the sample with the highest pH had the most favorable color by consensus. There were no significant ($P > 0.05$) physicochemical differences between samples during fermentation but there were significant ($P < 0.00$) sensory differences between the features of the selected wines. All the

wine treatments were microbiologically stable. The alcohol content ranged between 12%-15% and 7°-9° Brix.

Conclusion: Osmotically dehydrating the fruits prior to fermentation produced well accepted wines. Both wines were judged as standard and the sweeter wine preferred.