

## Abstract

Black sapote is a fruit originating from Mexico that contains high antioxidant activity because of its varying phenolic compounds and micronutrients. Kombucha is one of the beverages that is fermented by a SCOBY to produce a unique and fizzy flavor. A SCOBY consists of acetic acid bacteria, lactic acid bacteria, and yeasts produce some acid for tart and fizzy flavour in kombucha. The effect of different fermentation time on the pH, brix, antioxidant and microbial population of black sapote kombucha was evaluated as the aims of this study. Based on the result, the different fermentation time towards pH and brix was significant while the antioxidant activity was insignificant. The pH and brix of black sapote decreases along with longer fermentation time. However, for antioxidants, there is no significant difference along with longer fermentation time. In addition, this study also compares the physicochemical properties of black sapote kombucha to know whether it is comparable with the commercial tea kombucha. pH of black sapote kombucha end-product is 2.94 which similar to the value of commercial tea kombucha. The brix of black sapote kombucha is too high compared to tea kombucha thus the sugar should be reduced according to the sensory test to know the consumer's preference. Other than that, the black sapote kombucha has advantages where it contains three times higher antioxidant properties than commercial tea kombucha. Moreover, further research is needed to know in depth about the specific bacteria and yeast that optimize the fermentation process. In addition, other antioxidant analysis methods are needed to evaluate the relation between antioxidant activity towards microbial growth.

**Keywords:** *Black Sapote, Kombucha, Fermentation, Microbial Population, Antioxidant Activity*