

Abstract

In recent years, the trend for consumption of kombucha beverages has increased due to its numerous claimed health benefits. Along with this, researchers have been experimenting with different substrates, other than tea, to create varieties of kombucha with increased health benefits. Previous studies have shown that the kombucha consortium also thrives in other mediums, like fruit juices, as long as the substrate contains the necessary nutrients for the bacteria and yeast to live. The versatility of the kombucha consortium provides new opportunities to introduce unpopular fruits, such as black sapote, to the public. *Diospyros digyna*, also known as black sapote, is a tropical fruit originating from Mexico that has been proven to possess many health benefits due to its high antioxidant capacity. Black sapote has a high flesh to seed ratio, sugar and water content, making it an appropriate candidate for kombucha substrate. This study aims to provide an overview of the suitability of black sapote as a kombucha substrate by investigating the effect of fermentation time towards its physicochemical properties over 14 days and comparing them to conventional tea kombucha (TK) made with black tea. Physicochemical attributes measured in this study include pH, Brix, titratable acidity, radical scavenging ability, total phenolic content and color. Findings showed that fermentation time had significant effects on the pH of TK, the Brix of black sapote kombucha (BSK) and lightness of both kombuchas. However, the difference in substrates were found to have more impact on the physicochemical properties of the kombuchas. There was more acetic acid being produced by BSK over 14 days of fermentation. The radical scavenging ability of BSK (82-86%) were almost two-folds higher than tea kombucha (45-56%) throughout fermentation, which was also validated by the higher amounts of phenolic compounds in BSK (0.13-0.18 mg GAE/mL) to TK (0.73-1.05 mg GAE/mL). With results obtained from this study, the development of black sapote kombucha can serve as a promising alternative to conventional tea kombucha with elevated health benefits while introducing black sapote to the market.

Keywords: kombucha, black sapote, fermentation, SCOBY, physicochemical properties