

ABSTRACT

Malinda Houtama (00000005785)

STUDY OF PHYSICOCHEMICAL AND ANTIOXIDANT CHARACTERISTICS OF KOMBUCHA PREPARED FROM TEA OF AFRICAN BITTER LEAVES (*VERNONIA AMYGDALINA DEL.*)

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African Bitter leaf (*Vernonia amygdalina* Del.) is known to have several health benefits such as for treating Gastro Intestinal Tract (GIT) disorders, bacterial infection, and diabetes. However, its strong bitter taste leads to the limited utilization of the leaf. On the other hand, kombucha is a fermented tea beverage known for its antioxidant properties. This research was conducted to study the physicochemical and antioxidant activity (IC_{50}) of kombucha prepared with African bitter leaves. African bitter leaves were processed into different types of tea leaves such as dried leaf, green, and black tea. Different steeping time (5, 60, 115 min) and temperature (90 °C and Room Temperature) were applied. Tea with the highest antioxidant activity were steeped at 90 °C for 5 min (dried leaf and black tea) and room temperature for 115 min (green tea). For kombucha preparation, starter concentration of 10, 15, 20% and sugar (or sugar and stevia) concentration of 10, 15, 20% were added to the tea; then it was fermented for 8 days. The result showed that there was significant interaction of starter and sugar concentration in affecting antioxidant activity of kombucha. Kombucha with highest antioxidant activity for dried leaf, green tea, and black tea were made with concentration of 20% starter and 20% sugar partially substituted with stevia; although it was not significantly different with 20% starter 15% sugar and 20% starter 10% sugar. IC_{50} value for dried leaf kombucha were 3122.413±19.563, 3159.727±23.72, 3159.56±29.459 mg/L. IC_{50} value for green tea kombucha were 2903.5±25.265, 2995.746±3.075, 2983.997±12.625 mg/L. IC_{50} value for black tea bitter leaf kombucha were 1959.157±5.564, 1986.219±10.631, 1987.276±30.502 mg/L. Therefore, African bitter leaf might be utilized in kombucha, using appropriate sugar concentration.

Keywords: Total phenolic, total flavonoid, antioxidant activity, African bitter leaf, kombucha.

References: 47 (1981-2017)