

EVALUATION OF THE ANTIOXIDANT PROPERTIES OF TWO KOMBUCHA TEAS

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Kombucha tea is a functional food traditionally prepared using sugared Chinese black tea fermented by a mixed culture of bacteria and yeasts. Despite its origins in China, the popularity of the beverage has rapidly spread throughout Asia. Fermented functional foods are scarce in the Sri Lankan diet, a void which may be filled by the consumption of kombucha tea. The health benefits of the kombucha tea such as the alleviation of arthritis, inflammations and cancer have been closely associated with its antioxidant potency. Most of the studies on antioxidant activity have been carried out on kombucha tea prepared from Chinese black tea (CBT). However, there have been no investigations to date on the antioxidant properties of kombucha tea prepared using Sri Lankan black tea (SLBT), an aspect which could be promoted in the form of a functional food product.

The starter culture was locally obtained and their bacterial and yeast strains were verified as *Acetobactor*, *Brettanomyces bruxellensis*, *Candida stellata*, *Saccharomyces cerevisiae*, *Torulasporel brueckii* and *Zygosaccharomyces bailii*. Approximately 2.5% (w/w) of the two black teas were added to boiling water and allowed to infuse for 5 min. Sucrose (5%, w/w) was dissolved in the hot teas and left to cool to room temperature. Tea (200 ml) was poured into sterile glass jars and inoculated with 3% (w/v) of the freshly grown starter culture. Daily sampling was carried out for 7 days to quantify the Oxygen Radical Absorbance Capacity (ORAC), total phenolic content and pH values.

The pH of both teas decreased during the period of monitoring owing to the production of ethanol during the fermentation process. The total phenolic contents and ORAC values of the two teas were significantly different ($P > 0.05$) from day 0 itself and onwards. Both these parameters had statistically significant increases from day 1 onwards of the fermentation period. However, the total phenolic content of SLBT was observed to be significantly higher than CBT ($P \leq 0.05$) throughout the period of monitoring. This was in correlation to the ORAC values where SLBT displayed a significantly higher antioxidant potential than CBT ($P \leq 0.05$). Despite the slight fluctuations of the total phenolic contents observed on daily basis, the total phenolic contents and ORAC values of day 1 of the fermentation of both teas was maintained throughout the 7-day monitoring period.

In conclusion, kombucha tea prepared from SLBT had a higher antioxidant potential than CBT indicating it to possess better health benefits as a functional food. Its sensory properties and consumer acceptability require further study, although, given the two tea types have same plant origin *Camellia sinensis*, the differences in taste and acceptance levels are not expected to be significant.

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