Chemical profile, antioxidants, and enzymatic activity of the kombucha tea beverages as a potential anti-obesity beverage

ABSTRACT

This study aimed to investigate the chemical profile, antioxidant activity, and enzyme inhibition of black tea kombucha and kombucha without tea, as well as the relationship between these three parameters. Both kombuchas of different fermentation time (1, 7, 14, 21 days) had been analysed. The pH and total soluble solids (TSS) of both samples decreased gradually with fermentation time. The scavenging activity (DPPH), total phenolic content (TPC), and total flavonoid content (TFC) of black tea kombucha were significantly higher than kombucha without tea. The porcine pancreatic lipase (PPL) inhibition of both samples in the study increased gradually with fermentation time. Significant differences ($p < 0.05$) were observed in pH, TSS, and PPL inhibition from the beginning to the end of fermentation in black tea kombucha, while for kombucha without tea, significant differences ($p < 0.05$) were observed in pH, TFC and PPL inhibition. Moreover, significant differences ($p < 0.05$) were observed in all parameters except pH between the two samples at the end of fermentation. The Pearson correlation revealed kombucha's lipase inhibition was correlated with its chemical profile, not with antioxidant activity. These findings indicated the anti-obesity potential of kombucha, and it was highly associated with kombucha’s chemical profile.