MITIGATION OF INHIBITORY EFFECT FOR A-AMYLASE AND A-GLUCOSIDASE BY GREEN TEA WITH FOOD ADDITIVES, OOLONG TEA, AND BLACK TEA

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ABSTRACT

The purpose of present study was to investigate the effects of extracts of green tea and additives, oolong tea, and black tea on α-amylase and α-glucosidase activities *in vitro.* As part of the characterisation of such foods, inhibition of alpha (*α*)-amylase and *α*-glucosidase are used to assess components for their potential ability to modify the post-prandial glycaemic response. The results of the both enzyme inhibition activity were found in a concentration and extraction time-dependent. The values for oolong (wūlóngchá) with 2.5 min/50 ml and 5.0 min/50 ml were 39.5% and 64.3% on 1.5 g/100 ml, respectively, as compared with acarbose as positive control compound. The values for black tea with 2.5 min/50 ml and 5.0 min/50 ml were 63.2% and 84.9% on 1.5 g/100 ml, respectively. The IC_{50} for α-amylase of green tea ranged from 44.9 to 79.1 ug/ml. Among analyzed extracts, green tea + honey was the lowest α-amylase inhibition activity (IC_{50} was 404.5 ug/ml on 2.5 min. and IC_{50} was 204.0 ug/ml on 5.0 min.). The IC_{50} for α-glucosidase of green tea ranged from 117.9 to 125.9 ug/ml. Among analyzed extracts, green tea + honey was the lowest α-glucosidase inhibition activity (IC_{50} was 667.6 ug/ml on 2.5 min. and IC_{50} was 334.2 ug/ml on 5.0 min.). All extract from green tea with additives, oolong tea, and black tea possess moderate α-amylase inhibition with potent α-glucosidase inhibitory activity.

KEYWORDS: α-amylase, α-glucosidase, black tea, green tea, oolong tea.