In Vitro Hypoglycemic Activity of the Phenolic Compounds in Longan Fruit (Dimocarpus longan var. Fen Ke) Shell Against α-Glucosidase and β-Galactosidase

Po-Hsien Li, Da-Wei Huang, Wen-Chien Lu, Jyh-Ming Hu, Da-Wei Huang

E-mail: pohsien@mail.dyu.edu.tw

ABSTRACT

The in vitro hypoglycemic effect of longan fruit (Dimocarpus longan var. Fen Ke) shell extracts was evaluated by inhibiting α-glucosidase and β-galactosidase activities. The IC50 values of hot water and 50% ethanol ultrasonic extracts against the α-glucosidase were 9.2 and 13.4 mg/mL, and those against the β-galactosidase were 12.9 and 19.7 mg/mL, respectively. The hot water extracts (20 mg/mL) with aid of ultrasound-assisted extraction may enhance the inhibitory rates of α-glucosidase and β-galactosidase by 10.6 and 12.0% as compared with conventional extraction, respectively. Two phenolic compounds, gallic acid and ellagic acid, were identified as the major phenolic in hot water extracts from longan fruit shell against α-glucosidase and β-galactosidase. Inhibition of α-glucosidase and β-galactosidase were proven to be as a therapeutic approach for decreasing postprandial hyperglycemia. As a result, the longan fruit shell extracts may develop to be as a potential strategy for early treatment of postprandial hyperglycemia.

Keywords: Longan fruit shell, α-Glucosidase, β-Galactosidase, Gallic acid, Ellagic acid

REFERENCES


