

Phytochemical analysis of *Elateriospermum tapos* and its inhibitory effects on alpha-amylase, alpha-glucosidase and pancreatic lipase

ABSTRACT

Elateriospermum tapos contains high unsaturated fat and phytochemicals with many health benefits. This paper focuses on activities and inhibitory effects of *E. tapos* on digestive enzymes. Cold water, hot water and 70% ethanol extracts of the seed and shell of the fruit of *E. tapos* were used in this study. The extracts were screened for antioxidant activity, total phenolic content, total flavonoid content, and inhibitory effects on α -amylase, α -glucosidase and pancreatic lipase. Hot water extraction of shell of the *E. tapos* fruit had the highest total phenolic content ($1298.60 \pm 4.24 \mu\text{g GAE } 100 \text{ g}^{-1}$), total flavonoid content ($16685.58 \pm 487.77 \mu\text{g CE } 100 \text{ g}^{-1}$) and antioxidant activity by 2, 2-diphenyl-2-picrylhydrazyl and β -carotene methods (84.16 and 122.17% respectively). The seed cold extract showed maximum α -amylase inhibition with IC_{50} (half maximal inhibitory concentration) of 0.03 mg mL^{-1} . The lowest IC_{50} (0.02 mg mL^{-1}) for α -glucosidase inhibition was from seed ethanol extracts while shell cold extract had the lowest IC_{50} for pancreatic lipase inhibition (37.80 mg mL^{-1}). Results confirmed *E. tapos* as potential antioxidant and inhibitor of digestive enzymes for lipid (pancreatic lipase) and carbohydrate (α -amylase and α -glucosidase) which are beneficial to combat obesity and diabetes.

Keyword: Antioxidant; Total phenolic content; Flavonoid; Digestive enzymes; Obesity; Diabetes