

Dieckol isolated from *Ecklonia cava* inhibits alpha-glucosidase and alpha-amylase in vitro and alleviates postprandial hyperglycemia in streptozotocin-induced diabetic mice.

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Abstract

This study was designed to investigate whether dieckol may inhibit α -glucosidase and alpha-amylase activities, and alleviate postprandial hyperglycemia in streptozotocin-induced diabetic mice. Dieckol isolated from *Ecklonia cava*, brown algae, evidenced prominent inhibitory effect against alpha-glucosidase and alpha-amylase. The IC(50) values of dieckol against alpha-glucosidase and alpha-amylase were 0.24 and 0.66 mM, respectively, which evidenced the higher activities than that of acarbose. Dieckol did not exert any cytotoxic effect in human umbilical vein endothelial cells (HUVECs) at various concentrations (from 0.33 to 2.69 mM). The increase of postprandial blood glucose levels were significantly suppressed in the dieckol administered group than those in the streptozotocin-induced diabetic or normal mice. Moreover, the area under curve (AUC) was significantly reduced via dieckol administration (259 versus 483 mmol min/l) in the diabetic mice as well as it delays absorption of dietary carbohydrates. Therefore, these result indicated that dieckol might be a potent inhibitor for α -glucosidase and α -amylase.