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Inhibition of Pancreatic Lipase by Some Medicinal Plants in vitro

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One third of adult Koreans are reported to be obese and the prevalence of obesity has significantly increased mainly due to westernization of food habit and life style.

Pancreatic lipase is the key enzyme for dietary fat digestion and compounds which inhibit activity of this enzyme could be used as a preventive agent of hyperlipidemia and obesity. Methanol extracts of some medicinal plants were screened for the inhibitory activities against pancretic lipase at some concentrations in vitro. Inhibitory activities of some medicinal plants against lipase were screened by using porcine pancreatic lipase and 4-methylumbelliferyl oleate as a substrate. Methanol extract of Aralia continentalis Kitagawa, acanthopanax, Eucalyptus globulus, Amomum xanthioides Wallich, Inula Helenium L showed strong inhibitory activities (64.8%, 69.3%, 76.8%, 67.6%, and 70.1%, respectively) at the concentration of 0.25 mg/mL. Xenical, a lipase inhibitor, which is used for the treatment of obesity inhibited the enzyme activity by 90.2%. Inhibitory activities of Eucalyptus globulus extract against pancreatic lipase were 70.6%, 61.6%, 49.6, and 46.9% at the concentration of 0.125, 0.05, 0.025, and 0.0125 mg/mL, respectively. Inula Helenium L extract inhibited lipase activity by 70.1, 63.6, 66.9, 54.8, and 47.0% at the concentration of 0.125, 0.05, 0.025, and 0.0125 mg/mL, respectively. IC50 of Eucalyptus globulus and Inula Helenium L. extracts were 0.03 and 0.02 mg/mL, respectively. IC50 of Aralia continentalis Kitagawa, acanthopanax, and Amomum xanthioides Wallich extracts were 0.1, 0.06 and 0.015 mg/mL, respectively. Thus, it could be concluded that further study is required to study anti-obesity effect of these plants.