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Lipase inhibitory activity of *Trigonella foenum-graecum* seed extracts

W I T Fernando[1*], H K I Perera[1], A M K C Attanayake[1], N S Kumar[2], U L B Jayasinghe[2] and R Sivakanesan[1]

[1]Department of Biochemistry, Faculty of Medicine, University of Peradeniya, Peradeniya
[2]Institute of Fundamental studies, Hantana Road, Kandy

Obesity has become a worldwide health problem. Orlistat, an inhibitor of pancreatic lipase is currently approved as an anti-obesity drug. However, gastrointestinal side effects caused by Orlistat may limit its use. Therefore, identification of natural anti-obesity agents derived from plant material and their compounds has become a need. In our previous studies, the *in vitro* inhibitory activities of methanol extracts of *Trigonella foenum-graecum* (TF) against pancreatic lipase and pancreatic amylase were identified. The objective of the present study was to partial-purify lipase inhibitors from TF and to screen the extracts for potent phytochemicals. The methanol extract was prepared from the seeds of TF. The extract was partitioned by stepwise solvent-solvent extraction process using hexane, ethyl acetate and water. Lipase inhibitory activities of each extract were measured in triplicate on three occasions, using tributarate as the substrate and porcine pancreatic lipase.

Crudemethanol extracts of TF showed lipase inhibition with IC_{50}1.2 mg ml^{-1}**.** Hexane, ethyl acetate and aqueous extracts of TF showed IC_{50} values of 3.9, 1.09 and 0.6 mg ml^{-1}lipase inhibition, respectively. The highest lipase inhibitory potencies were observed in the water extract of TF. All the extracts showed the presence of flavanoids, phenols, diterpenes and terpenoids during the phytochemical screening. Water and the methanol extracts showed the presence of saponins and higher levelsof flavanoids compared to other extracts. The waterextract had the highest level of phenols. It can be concluded that the water extract of TFhad more anti-obesity potential and this could be used for isolation of lipase inhibitors.
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Keywords: *Trigonella foenum-graecum,* lipase inhibitory activity, phytochemicals, obesity

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