

Antidiabetic and Anti-hyperlipidemic Effects of the Crude Hydromethanol Extract of *Hagenia abyssinica* (Rosaceae) Leaves in Streptozotocin-Induced Diabetic Mice

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Abstract

Background: The leaves of *Hagenia abyssinica* (Rosaceae) have been used traditionally for the management of diabetes mellitus. Thus, this study aimed to evaluate the antidiabetic and antihyperlipidemic activity of *Hagenia abyssinica* leaves crude extract in streptozotocin-induced diabetic mice.

Methods: Antidiabetic and anti-hyperlipidemic activity of the crude extract of *Hagenia abyssinica* was studied in streptozotocin-induced diabetic mice. The effects of the extract on fasting blood glucose level, body weight, and serum lipid profiles were analyzed. One-way ANOVA followed by Tukey's post hoc test was used for data analysis and $p < 0.05$ was considered as statistically significant.

Results: *Hagenia abyssinica* leaves crude extract showed significant ($p < 0.05$ - $p < 0.001$) bloodglucose-lowering activity. Moreover, the crude extract of *H. abyssinica* reduced the fasting blood glucose level by 23.21%, 38.20%, 43.53%, and 58.99%, respectively, for CE100, CE 200, CE 400, and GLC 5 mg/kg on the 14th day of treatment. After diabetic mice were treated with *H. abyssinica* (100, 200 and 400 mg/kg) for 14 days, there was a significant decrease in serum total cholesterol, very-low-density lipoprotein cholesterol, low-density lipoprotein cholesterol, and serum triglyceride and a significant increase in body weight, and HDL-cholesterol level as compared to diabetic control.

Conclusion: The present findings revealed that *H. abyssinica* leaves could be useful for the management of diabetes mellitus and other abnormalities related to this metabolic disorder. Thus, the present study may support the traditional use of *H. abyssinica* for diabetes mellitus treatment.

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