Hypoglycemic and hypolipidemic effects of Oldenlandia corymbosa against alloxan induced diabetes mellitus in rats

ABSTRACT

Objective: The present study was designed to demonstrate the antioxidant, hypolipidemic and hypoglycaemic potentials of aqueous extract of O. corymbosa against alloxan-induced diabetes in rats. Methods: O. corymbosa extract was tested for phytochemical screening, total phenolic, flavonoids content and DPPH free radical scavenging activity. Diabetes was induced in Sprague Dawley rats by administration of alloxan monohydrate (65 mg/kg b. w i. v). The aqueous extract of O. corymbosa at a dose of 100 mg/kg and 200 mg/kg were administered through gavage feeding daily to diabetic induced rats for 14 d. The effect of aqueous extract of O. corymbosa was assessed on blood glucose, body weight, lipid peroxidation, catalase activity, glutathione and lipid profile. Pancreatic tissues were also examined by haematoxylin and eosin staining methods. Results: Phytochemical screening shows the presence of tannins, saponins, phlobatannins and flavonoids. Total phenolic content was found to be 22.85±0.21 mg/g, IC50 is 450±1.39 µg/ml and total flavonoids content was found to be 4.25±0.09 mg/g of extract. The results of the present study showed that O. corymbosa can lower blood glucose and lipid parameters except for HDL. The levels of antioxidant enzymes CAT and GSH were increased along with the decreased in LPO level by the pre-treatment of animals with O. corymbosa. Microscopic examination of pancreatic sections revealed that diabetic rats treated with O. corymbosa extracts at either dose have normal architecture structure of islets. Conclusion: These results indicate that O. corymbosa may be effective as a hypoglycaemic and antihyperlipidemic agent.