

Abstract

Diabetes Mellitus is associated with significant morbidity and mortality worldwide. The need for enhanced efficacy and safety, and cheaper and more readily available new drugs has increased the search for new antidiabetic drugs from plants. This study was conducted to investigate the antidiabetic activity of the hydroethanolic leaf extract of *B. coccineus* in rats. **METHODS:** The effect of *B. coccineus* extract (100–800 mg·kg⁻¹, p.o.) on blood glucose levels in normal and glucose loaded rats, and al-loxan-induced diabetic rats was determined. After 10 days of treatment, blood samples were collected from rats for lipid and insulin profiling. Animals were thereafter sacrificed and the kidneys, heart, and liver were harvested for antioxidant indices assay. **RESULTS:** In normal rats, *B. coccineus* did not cause significant reduction in blood glucose. At the dose of 800 mg·kg⁻¹, significant increase in blood glucose level was not observed 30 min. after glucose load. *B. coccineus* administered acutely did not generally produce significant reduction in blood glucose level in diabetic rats. Administered subacutely, the extract significantly reduced blood glucose level in diabetic rats from the 3rd day with peak effect observed at the dose of 800 mg·kg⁻¹ on the 10th day. The extract generally preserved in vivo antioxidant levels in the kidneys, heart, and liver, increased the level of high density lipoprotein and insulin, and reduced the level of triglycerides and low density lipoprotein compared to diabetic control. **CONCLUSION:** The findings in this study suggest that the hydroethanolic leaf extract *Byrsocarpus coccineus* possesses antidiabetic activity possibly mediated through inhibition of intestinal glucose absorption, in vivo antioxidant activity, and enhancement of regeneration of beta cells of the pancreas and insulin secretion.