ABSTRACT

Diabetes mellitus (DM), known as a major chronic endocrine disorder with high morbidity and mortality. The available treatment for diabetes is mainly of allopathic origin and associated with many adverse drug reactions. Herbal drugs i.e. one of the very old healthcare ways for mankind reported in Homeopathic, Ayurvedic and naturopathic medicine systems. Being obtained from natural sources the toxicity profile is low for herbal drugs and possesses characteristics like low/minimum cost, complete accessibility and enhanced tolerance. Hence it is essential to explore the treasure of plant medicines to be utilized for treatment of diabetes with amputating risk of adverse drug reactions and the cost factor of treatment. Current study focused on the phytochemical and pharmacological evaluations of ethanolic extracts of *Citrus maxima* fruit peel and *Anvillea garcinii*. Phytochemical study revealed the presence of quercetin and tannic acid as major active constituents in *Citrus maxima* fruit peel and *Anvillea garcinii* respectively. To study antidiabetic activity of plant extract after oral administration in diabetic animal model (streptozotocin (STZ)) rats, the rats were divided into Normal control group, Diabetic control (Streptozotocin 65mg/Kg) group, Diabetic + *Citrus maxima* (200mg/Kg) [D + CM 200mg/Kg] group, Group 4 of Diabetic + *Anvillea garcinii* (300mg/Kg) [D + AG 300mg/Kg], Group 5 of Diabetic + Glibenclamide (500mcg/Kg) [D + GB 500mcg/Kg]. Every 24 hours the Body weight was measured & biochemical parameters were measured. On 40th day the collected blood was subjected for serum isolation followed by estimation of serum total cholesterol (TC), TG and HDL. Friedewald’s equation was used for obtaining values of VLDL and LDL. The overnight fasted rats were exposed to the oral glucose tolerance test. Four groups of rats given 2% gum acacia, ethanolic extract of *Citrus maxima* (200 mg per kg), ethanolic extract of *Anvillea garcinii* (300mg per Kg) & glibenclamide (0.25 mg per kg), orally, respectively. Though the ethanolic extracts demonstrated hypoglycemic and lipid lowering activity, still there is study warranted for correlating the mechanisms of glycemic control (involving receptor level) and phytochemical constituents (focusing on active antidiabetic contents). The current study can be useful for future designing of any clinical trials for development of any suitable oral dosage form of ethanolic extracts of *Citrus maxima* fruit peel and *Anvillea garcinii*. 