Abstract

Bambusa tulda (BT) ,the Indian timber is traditionally known for its medicinal properties. Aqueous methanolic extract of the shade dried BT leaf was prepared and evaluated for its yield(5.8%), total antioxidant activity, phenolic, flavonoid and flavonol contents, and correlations were made. The total phenolic, flavonoid, flavonol and proanthocyanidin content in the extract was found to be 17.494±0.01mg gallic acid equivalent (GAE) /g, 176.35±0.03 mg quercetin equivalent (QE)/g, 96.2±0.01 mg QE /g and 11±0.86µg catechin equivalent (CE)/g of dry extract, respectively. The highest free radical (DPPH) scavenging activity was found in 200mg/ml extract of leaves. It showed that the H_2O_2 scavenging activity and Antioxidant activity (FRP method) increased with increase in extract concentration. Strong correlation ($P < 0.05$) was observed between DPPH scavenging activity and total phenolic and flavonoid content of the BT extract. *In vitro* anti-hyperglycemic and anti-oxidative potential of BT was tested in kidney and pancreas of alloxan induced diabetic rats. The oxidative damage caused by free radicals is balanced by antioxidants. BT extract was administered orally (100 mg/kg body weight (LBT) and 200 mg/kg body weight (HBT)] for 45 days. The effect of BT on blood glucose were studied. The levels of lipid peroxidation (MDA (Malondialdehyde)), antioxidant enzymes SOD (Superoxide dismutase) and GPx (Reduced Glutathione peroxidase) were estimated and compared with standard drugs glibenclamide and insulin. Treatment with BT, insulin and glibenclamide resulted in significantly reduced blood glucose in HBT in comparison with normal controls. There was a significant decrease in lipid peroxidation in Kidney in both low and high doses and increase in antioxidant enzymes SOD (HBT (24.81%)] and GPx (HBT (31.60%)) when compared

to diabetic controls. Potency of BT in restoring several parameters to normal values is comparable to glibenclamide, though not as efficient as insulin. Even Histopathological results also indicated the β-cells restoration, an indication of its anti-hyperglycemic and its antioxidant effect.