Abstract

Diabetic mellitus is rapidly increasing in India. Foot ulcer is the common and often infection in diabetic patients. Samples were collected from 120 patients with diabetic foot infection, K. R. Hospital, Mysore, Karnataka, India from June to November 2010. The isolates were identified as Staphylococcus, Pseudomonas, E. coli, Enterobacter, Proteus, Klebsiella, Bacillus and Candida.

These isolates were subjected for antimicrobial assay against aqueous, ethanol, ethyl acetate and pet ether, chloroform of root and fruits of Solanum xantocarpum and rhizome of Picrorhiza kurroa. Of these extracts, ethanol, ethyl acetate of Picrorhiza kurroa was found promising in both well and disc diffusion assay. The ethanol and ethyl acetate extracts were further subjected for Minimum Inhibitory Concentration. Picrorhiza kurroa showed highest inhibitory activity against all the test organisms except E. bacter, the concentration ranged between 0.125mg/ml to 0.75mg/ml. All the test fungal organisms were found susceptible at 10% concentration of alcoholic plant extracts.

The alcoholic extracts of S. xantocarpum root proved to be efficient agent in scavenging the reducing power, ABTS and the activity of Solanum xantocarpum fruit exhibited the higher superoxide anion radical scavenging activity where P. kurroa rhizome showed its activity only in DPPH of the antioxidant assays.

The extract in single and in combination was also tested for antidiabetic property. The physical parameters like food and water intake, body weight, blood glucose; biochemical estimation (urea, glycosylated hemoglobin, alkaline phosphates) and lipid profile (total cholesterol, triglyceride, HDL cholesterol) were tested against the plant extract; the combinations (S. xantocarpum fruit + P. kurroa, S. xantocarpum root + P. kurroa) exhibited the promising activity.

The effectiveness of this combination was checked by performing Histopathological study involving animal models (Wister rats). Where pancreas, kidney and liver are the three organ system that was studied after the treatment with combination, β- cells of pancreas, tubules and glomerulei of Kidney, hepatocytes of liver exhibited the rejuvenation with the cell architecture directly converting the distortion into normal controlling the effect of the disorder.

Hence this combination would serve as one of the promising formulation in the management of Diabetic mellitus.