PPAR alpha agonists - Antidiabetic activity of *Embelia robusta* [2,5-dihydroxy-3-undecyl,2-cyclohexadiene-1,4-benzo-quinone] potential role in Alloxan induced Diabetic wistar rats.

Sharada seekonda[1], A.Roja rani

Dept. of Genetics and Biotechnology, Osmnia University, Hyderabad, Telangana.

Objective: The present study is carried out to investigate the anti-diabetic activity of methanolic seed extract of *Embelia robusta*.The plant is a climber with slender branches and long internodes. The leaves are elliptic broad and covered with minute glands. The fruits are berries and contain the benzoquinone compound, embelin [2,5-dihydroxy-3-undecyl,2-cyclohexadiene-1,4-benzo-quinone] as a major bioactive constituent. Seed extract shows various biological activities such as anticancer, antifungal, antibacterial, free radical scavenging .Traditionally seeds are employed as a remedy for toothache, headache, snakebite. The plant extract is used to maintain healthy skin and to support the digestive function, treatment for the fever and to cure skin diseases.

Method: Alloxan (mesoxalylurea), a ß-cytotoxin, which causes selective necrosis of the pancreatic islet ß-cells of the langerhans. The function of the insulin system is suppressed, which leads to high level of hyperglycaemia and glycosuria in most of the experimental animals. Alloxan (130mg/kg body wt) induced diabetic rats.The 30 adult wistar rats were randomly divided into 5-groups of 6 rats. Each Group-I: normal healthy control, Group-II: diabetic control, Group-III: standard (treated with Gliclazide 50mg/kg body wt orally),Group-IV test groups treated with methanolic seed extract of *E.robusta* at the doses of 50 mg/ kg, Group-V test groups treated with methanolic seed extract of *E.robusta* at the doses 100mg/ kg of body wt orally for 28days.

Result: The effects of Embelin are explained by their peroxisome proliferator activator receptor PPAR alpha activating characteristic. Activation of PPAR alpha leads to lowering blood glucose in diabetic patients but this mechanism may also result in reducing cardiovascular risk and even for decreasing certain cardiovascular events.

The results were analysed by ANOVA. Fasting blood glucose levels were significantly ($P<0.05$) lowered in the test groups IV & groups V with 50 and 100 mg/ kg body wt of seed extract of *E.robusta*. The percentage of blood glucose levels decreased , which are comparable to the standard drug gliclazide. The histopathological study has shown regeneration of β-cells of pancreas in all treated groups.

Conclusion: In the present study has shown that the methanolic seed extract of *E.robusta* has anti-diabetic activity which is comparable to the standard drug.

Keywords: *Embelia robusta*, Alloxan, Fasting blood glucose (FBS), Histopathology, Gliclazide