

CO-002

## ANTIDIABETIC ACTIVITY OF ETHANOLIC EXTRACT OF *IMPERATA CYLINDRICAL* (LALANG) LEAVES IN ALLOXAN INDUCED DIABETIC RATS

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### ABSTRACT

Diabetes mellitus is a chronic metabolic disorder of multiple aetiology characterized by chronic hyperglycaemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both. Currently available oral hypoglycemic agent and insulin usage has been associated with a number of serious adverse side effects in treating diabetes mellitus. Therefore, alternative therapies such as natural products with antidiabetic activity have drawn attention to many researches. The present study was carried out to determine the effect of ethanolic extract of commonly available *Imperata cylindrica* (*I.cylindrica*) leaves on alloxan induced diabetic rats. The male Wistar rats (100-110gm) were fasted overnight before the intraperitoneal injection of alloxan monohydrate (100 mg/kg, i.p) prepared in the citrate buffer (0.1M, pH 4.5) for three consecutive days to produce diabetes. Acute toxicity study of plant extract was carried out on normal fasted animals (1000 mg/kg o.p). The animals were observed for 48 hours for any physiological or behavioral changes. Before screening for antidiabetic activity the fasted animals were tested for Glucose Tolerance Test (GTT) (glucose 2 gm/kg, o.p). The serum glucose levels were analyzed at 0, 30, 60 and 120 min after drug extracts administration. For screening of the antidiabetic activity the animals were divided into four groups (n= 6). Group I: negative control (treated with vehicle, op), Group II: positive control (Glibenclamide 10 mg/kg o.p). Group III: (*I.cylindrica* extract 250 mg/kg o.p) and Group IV: (*I.cylindrica*) extract 500 mg/kg o.p). All animals received the treatment for 7 consecutive days. The blood samples were collected by aseptically puncturing tip of the tail on 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> day. The blood glucose was measured by using glucometer. The results were statistically analyzed by using ANOVA followed by Dunnet's Multiple Comparison Test (Confidence level = 95%). It has been observed that plant extract showed no toxic effect to the animals. In diabetic animals, the extract shows increase glucose tolerance significantly ( $P < 0.01$ ). The ethanolic extract of *Imperata cylindrica* at the dosage of 500 mg/kg has exhibit significant attenuation in glucose level in diabetic animals. The results showed the ethanolic extract of *Imperata cylindrica* leaves has significant antidiabetic activity in alloxan induced diabetes model and needs further plant characterization.

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