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SCREENING AQUEOUS EXTRACT OF *ARTOCARPUS ALTILIS* (BREADFRUIT) LEAVES FOR ANTI-DIABETIC EFFECT IN ALLOXAN-INDUCED DIABETIC MICE

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ABSTRACT

Diabetes mellitus is the most common endocrine disorder that impairs glucose homeostasis resulting in severe diabetic complications including retinopathy, angiopathy, nephropathy and causing neurological disorders due to the involvement of free radicals. Due to the adverse effects of hypoglycemic agents, there has been an increased demand for the use of natural plant products. Present study was carried out to screen the aqueous extract of commonly available *Artocarpus altilis* (*A. altilis*) leaves for anti-diabetic activity in alloxan induced diabetic mice. The male *Mus musculus* strain mice (20-25 g) were used for the study. The animals were fasted overnight to determine the preprandial blood glucose level. Acute toxicity study of plant extract was conducted (1g/kg o.p) on normal fasted animals. All the animals were observed for 48 hours for any behavioral and physiological changes. The oral glucose tolerance test (glucose 2g/kg, o.p) was conducted on fasted animals before screening for anti-diabetic activity. The blood glucose levels were analyzed at the 0, 30 and 90 minutes after the treatment. Diabetes was produced by administering alloxan intraperitoneally (100mg/kg, i.p) for 2 consecutive days. For screening of anti-diabetic activity, the animals were divided into four groups (n=6). Group I: negative control (vehicle, o.p), Group II: positive control (Glibenclamide 0.6mg/kg, o.p), Group III: (Aqueous extract of *A. altilis* 50mg/kg, o.p) and Group IV: (Aqueous extract of *A. altilis* 100mg/kg, o.p). All the animals received the treatment for five days. The blood sample was collected by aseptically puncturing the tail tip. The blood glucose level was tested by using glucometer on the 1st, 3rd and 5th day of the treatment. The results were statistically analyzed by using ANOVA followed by Dunnet's Multiple Comparison Test (Confidence level=95%). No behavioral and physiological changes were observed in plant toxicity studies. The extract showed a statistically significant ($p > 0.01$) increase in glucose tolerance test. Aqueous extract at dose of (100mg/kg) exhibited significant ($p < 0.01$) reduction in glucose level in diabetic mice. Aqueous extract of *A. altilis* can serve as an alternative source in the management of diabetes.

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