Therapeutic Efficacy of *Ficus Glomerata* leaves in Alloxan Monohydrate Induced Type-1 Diabetes in Albino Rats

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**ABSTRACT**

Present study was aimed to evaluate the anti-diabetic efficacy of *Ficus glomerata* in Alloxan monohydrate induced in the albino rats. Oral administration of fresh *Ficus glomerata* leaves (2-4 g/day) for 60 days shows significant blood which is glucose lowering effect in experimental alloxan induced diabetic rats. These diabetic rats blood glucose level became normal when fed with *Ficus glomerata* leaves. It is amply revealed that fresh *Ficus glomerata* indica leaves possessed anti-diabetic properties. The results suggest that statistically significant anti-diabetic potential in alloxan monohydrate induced diabetic rats. The *Ficus glomerata* leaves to be almost similar effect like insulin treatment in alloxan monohydrate administered animal model. From the present investigation it appeared that *Ficus glomerata* leaves might have some ingredients to increase the output of insulin by binding to the receptors of the Beta cells of the Langerhans located in the pancreas. Once they bind to the Sulphonyl urea receptors, the channels are probably closed and therefore the membrane is depolarized and insulin production is stimulated.

**Keywords:** Blood glucose; Insulin; *Ficus glomerata* leaves; Diabetes

**INTRODUCTION**

Diabetes mellitus, increased blood sugar level, not only common disease, but creates several problems in humans body like retinopathy, angiopathy, nephropathy, neuropathy, cardiomyopathy [1]. Gradually increasing order of this disease affects the present society, for that medical sciences is busy to search some positive technology by which this abnormality can be easily removed. The current allopathic therapies till face difficulty on way to cure diabetes or minimize blood glucose levels due to severe side effects associated with the use of allopathic medicine.

Herbal therapies, an alternative system, with its champion power to reduced blood glucose levels. It has been matter of concern from time immemorial several plant extracts are know for their anti-diabetic properties and are being used for the traditional treatment of diabetes due to low cost, easily availability and lesser side effects [2]. *Ficus glomerata* extracts have also been reported to possess significant medicinal and pharmacological properties like hepatoprotective, gastroprotective, hypoglycemic, anti-microbial and anti-ulcer activities. [3]

**AIM OF THE STUDY**

The aim of present study was to investigate the effect of *Ficus glomerata* leaves on blood glucose in normal and alloxan diabetic rats given after successful establishment of type-1 diabetes to examine its role as therapeutic efficacy and to see its influence, if any prevention of the type-1 diabetes.

**MATERIALS AND METHODS**

Plant materials *Ficus glomerata* leaves were collected from ruler area of Darbhanga, India.

Albino rats (175-210 g) were used as experimental animals. All the animals are procured from local supplier of animals. The albino rats are acclimatized for 10 days. All animals were fed with rodent pellet diet. Water was allowed to ad-libitum under strict conditions.

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**Received:** April 20, 2021; **Accepted:** May 04, 2021; **Published:** May 11, 2021

**Citation:** Kumar S, Prasad NK, Kumari S (2021) Therapeutic Efficacy of *Ficus Glomerata* leaves in Alloxan Monohydrate Induced Type-1 Diabetes in Albino Rats. J Diabetes Metab. 12.875

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hygienic condition. Induction of diabetes: Fasting blood glucose was determined after depriving food for 12 hours. Diabetes was induced by single intra-peritoneal injection of (150 mg/kg body weight) alloxan monohydrate sterile saline. Alloxan is a toxic glucose analogue which selectively destroys insulin producing cells in pancreas. This causes insulin dependent diabetes mellitus called “alloxan diabetes” [4].

**EXPERIMENTAL DESIGN**

Group A-Normal rats.

Group B-Diabetic control.

Group C-Alloxan+Insulin treatment group.

Group D-Alloxan+Ficus glomerata leaves treatment group.

72 hours of alloxan monohydrate injection the diabetic rats (blood glucose levels greater than 270 mg/dl) were separated. Treatment was started except normal rats and diabetic control rats. During experimental period, animals in all groups were given to standard water and pellet diet. Blood glucose were monitored by digital glucometer [5].

**RESULTS AND DISCUSSION**

The results of the present study appeared that *Ficus glomerata* leaves have therapeutic effect on blood glucose level. Alloxan monohydrate induce free radical production and causes tissue injury [7]. The pancreas are susceptible to such damage. It appears that *Ficus glomerata* leaves have tissue protective function. However, stimulation of beta cells and subsequent release of insulin cannot ruled out in this regard. Estimation of insulin level, here might give insight into the mechanism. Nevertheless, there is no doubt in the uses *Ficus glomerata* leaves have therapeutic effect on blood glucose level.

To elucidate the mechanism of action and to project this Indian champion plant as an therapeutic target, further investigation are needed [8]. Has reported that *Ficus glomerata* leaf extract, subsequent increase in uptake of blood glucose and its utilization may be another mechanism of action of the extract also demonstrated that ethanolic extract of *F. Glomerata* root in diabetic rats. Present investigation suggested hypoglycemic effects of *Ficus glomerata* leaves in diabetic condition rats [9]. *Ficus glomerata* leaves has been widely used for curing various ailments due to its tremendous potential. The present study will be helpful in establishing a scientific basis for therapeutic uses of the plant leaves of *Ficus glomerata*. However much more studies are still required to explore other potential of this plant leaves [10].

**CONCLUSION**

This research appears that *Ficus glomerata* leaves works as anti-diabetic agent. So, this plant leaves will be helpful in treating the diabetes in ruler India due to low cost, easily availability and lesser side effects associated with the use of this plant leaves.

**REFERENCES**


