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Extracts of Ficusgibboseblame and its potentiating effect for type II diabetes in rats

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ABSTRACT

Hydroalcoholic extract of Greeneries and stalkbark of Ficusgibbosa Blume is evaluated for their potentiating action in Streptozotocin – Nicotinamide encouraged type 2 diabetes in Sprague Dawley rats. The excerpts are managed at the amount of 100, 250 and 500 mg/kg body weight along with sub operative dose (2.5 mg/kg body weight) of the standard antidiabetic drug (Glibenclamide) for a period of 5 weeks. The test extracts potentiated the antidiabetic activity of standard drug by significantly dropping the raised blood glucose levels and the effect was almost comparable with solitary efficacy of therapeutic dose (5 mg/kg body weight) of typical drug Glibenclamide during 5^{th} week of the study. Its abandons have deviated, on the other hand, orchestrated and more gibbose in those end. The juice of the bark furthermore abandons from claiming color fig alternately bumped fig plant is utilized to grinding those pills furthermore settling on A decoction in toxicology. Plant appeases diminished Kapha, pitta, skin diseases, ulcers, hepatopathy, diabetes, ulcerative stomatitis, leucorrhoea and gynaecological issues. Male Sprague Dawley Rats abstainedinstantare vaccinated intraperitoneally with result about Nicotinamide at a dosage of 195 mg /kg body weight. 15 minutes after same animals are vaccinated for the newly readied result from claiming Streptozotocin (STZ) In measurement about (65 mg/kg physique weight) intraperitoneally. The animals are permitted to drink 1% glucose result instant will succeed the pill prompted hypoglycaemia.

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INTRODUCTION

Ficus gibbosa Blume (Figure 1) usually recognized as color fig fits family Moraceae. It's an epiphytic bush by prop roots. Bark decoction of ficusgibbosa Blume and originate bark emission from claiming ficus glomerata Roxb. Bring in universal utilization in the oversaw economy from claiming diabetes (Jayakumar). The present study is an attempt to evaluate hydroalcoholic extract of stem bark and leaves of *Ficus gibbosa* Blume for its potentiating effect of standard anti-diabetic drug (Bisht and Bhattacharya, 2013).

METHODS

Animals

Adult person male Sprague Dawley rats were procured from little creature reproducing station, a school for Veterinary Furthermore creature Sciences, Mannuthy, Kerala and were quarantined for 10 days. Animals were caged separately for entry will standard pelleted encourage. Furthermore, water not indispensable (Jayakumar *et al.*, 2010).

Ethical clearance

The proposal for directing the current experiment is approved throughout the Institutional Animal Ethics Committee (IAEC) assembly held by the National Ayurveda Research Institute for Panchakarma, Cheruthuruthy, Thrissur, Kerala (Gini *et al.*, 2017).

Test drug

Leaves and stem bark of *Ficus gibbosa* (FG) are Obtained starting with those nearby ranges around Cheruthuruthy, Thrissur and were verified In herbal science division, Kerala woods Scrutinize Institute, Peechi, Thrissur, Kerala. Powdered abandons and stem bark of the test medication are concentrated clinched alongside 50 % watery liquor and the procedure might have been repeater to extricate deposit by (API, 2011) (Chandran *et al.*, 2015). The filtrates for ficusgibbosa hydro alcoholic extracts might have been concentrated, put away In. -20^{0}C.

Toxicity studies

Those abandons Also come bark extracts were discovered with be protected up to 2000 mg/ kg body weight over female rats Throughout intense poisonous quality examine. Repeater organization of the test extracts up to-dos for 1000 mg/kg body weight for a successive time about 28 times didn't handle whatever mortal sin alternately clinical indications of poisonous quality.

Figure 1: Ficus gibbosa Blume

Potentiating study

Based on the results of 28 days recurring dose verbalno mousness study, the dose of 1000mg/kg body weight was found to be safe and 3 doses below it were selected for potentiating study. Efficacy of different doses of test extracts in potentiating the antidiabetic activity of sub effective dose of the standard drug was analysed (Gamble, 1935).

Those animals for blood glucose qualities over 250 mg/dl on the third day following STZ infusion were sleeted to those antidiabetics examine diabetic rats were separated under 9 gatherings each including of 6 animals.

1. Ordinary control.
2. Diabetic control.
3. FG abandons extricate – low measurement (100 mg/kg particular figure weight) + Glibenclamide (2. 5 mg/kg form weight).
4. FG abandons extricate –Average measurements (250 mg/kg form weight) + Glibenclamide (2. 5 mg/kg particular figure weight).
5. FG abandons extricate – secondary measurements (500 mg/kg body weight) + Glibenclamide (2. 5 mg/kg form weight).
6. FG stem bark extricate – low measurement (100 mg/kg physique weight) + Glibenclamide (2. 5 mg/kg form weight).
7. FG stem bark extricate –Average dosage (250 mg/kg muscle to weight) + Glibenclamide (2. 5 mg/kg constitution weight).
8. FG stem bark extricate – secondary measurements (500 mg/kg physique weight) + Glibenclamide (2. 5 mg/kg body weight).
9. Standard drug assembly - 5 mg/kg body weight. Test extracts and refined water were administered with particular aggregations for a period of 35 days.

Measurable examination. That information produced Throughout the examiner might have been analysed through anova for posttests.

RESULTS AND DISCUSSION

Potentiation of antidiabetic activity of sub effective dose of the standard drug was observed with both leaves and stem bark extract. Important (P<0.05) reduction in blood glucose levels have experimented in rats which received leaves extract at low dose along with standard drug during 5^{th} week, whereas in average and high dose groups significant (P<0.05)

Table 1: Blood Glucose heights (*mg %*) (*Mean* ± *SEM*) during potentiating study

	Ctrl	Diab. Ctrl	FG leaves excerpt group			FG Stem bark excerpt			Standard drug (Glibenclamide)
			Low dose	Average dose	High dose	Low dose	Average dose	High dose	
Initial	99.5 ± 3.8	314.7 ± 9.1	310 ± 10.3	314 ± 9.5	308.2 ± 7.4	311.2 ± 4.5	309.3 ± 4.5	310.5 ± 2.7	311.3 ± 5.4
1^{st} week	101.2 ± 3.2	318.5 ± 12.1	303.5 ± 10.5	315 ± 9.7	300.3 ± 8.2	304.8 ± 3.9	307.2 ± 3.9	304.5 ± 3.4	301.8 ± 1.2
2^{nd} week	96.2 ± 1.7	316.3 ± 13.3	297.7 ± 10.9	304.5 ± 10.6	300.5 ± 6.8	303 ± 3.4	304.7 ± 5.4	299.7 ± 2.9	293.2 ± 2.1*
3^{rd} week	95.8 ± 2.2	312.8 ± 12.7	291.3 ± 10.3	289.7 ± 10.7	291 ± 6.4	298.8 ± 3.9	292.7 ± 3.7	286.7 ± 3.1**	283 ± 2.4**
4^{th} week	95.3 ± 1.7	313.7 ± 15.1	287 ± 8.7	275 ± 10.7*	274.7 ± 6.3*	297.2 ± 3.7	281.5 ± 5.9**	281.2 ± 4.7**	269.5 ± 5.7**
5^{th} week	97.3 ± 1.6	307.5 ± 14.6	271.7 ± 8.8*	262 ± 9.7**	260.3 ± 7.5**	279.7 ± 3.6**	271.8 ± 5.9**	271.5 ± 4.1**	259 ± 4.3**

reduction was observed by 4^{th} week of the study as compared to diabetic control.

Stem bark extracts at high dose along with standard drug significantly (P<0.01) compact the blood glucose level by 3^{rd}week of the study. Stembark excerpts at average and low dose group meaningfully (P<0.01) condensed the glucose levels at 4^{th} week and 5^{th} week, respectively.

Amongst the animals which received the standard drug group at therapeutic levels. Important (P<0.05) decrease in blood glucose level was seen from 2^{nd} week and the reduction was much important (P<0.01) by 3^{rd} week onwards.

The potentiating action of the test excerpts may be accredited to the attendances of flavonoids that aids in antioxidant action in Table 1.

The important dropping of the blood glucose equal may similarly be owing to the aptitude of the excerpt to inferior allowed fundamental creation persuaded by streptozotocin.

CONCLUSION

The hydroalcoholic excerpt of leaves and stem bay of *Ficus gibbosa* Blume meaningfully potentiated the anti-diabetic activity of sub effective dose of standard drug Glibenclamide. Important decreasing in the blood glucose stages are experiential in the animal's that conventional. The extracts and standard drug as associated with a diabetic regulator. Reduction in the blood glucose levels are observed 3^{rd} week in the stem bark extract group and from 4^{th} week in the leaves excerpt group. Stem bark extracts were found to be more effective than leaves extract. The effectiveness of the extracts in dropping blood glucose levels when given along with the sub effective dose (2.5 mg/kg Bodyweight) of a typical drug (Glibenclamide) was almost on par with that of the standard drug at the therapeutic dose (5 mg/kg body weight).

Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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