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EVALUATION OF *IN-VITRO* ANTIDIABETIC ACTIVITIES ON WHOLE PLANTS OF *TALINUM FRUTICOSUM L.*

Sebastin V*, Ajith Kumar P

Department of Pharmaceutical Chemistry, Malik Deenar College of Pharmacy,
Seethangoli, Kasaragod, Kerala, India

ABSTRACT

Talinum fruticosum.L (Talinaceae) is a erect, stout, fleshy, perennial herb . it is used as a leaf vegetable. It contains rich in vitamins including vitamin A and C and minerals such as iron and calcium. The present work highlights evaluation of in-vitro anti diabetic of *Talinum fruticosum*. The whole plant was collected from Kasaragod district and total methanolic extract was prepared. From the review of literature shows the presence of flavonoids glycosides carbohydrates and protein were more concentrated to the methanolic extract. The in-vitro antidiabetic activity was done by alpha amylase inhibitory method. The metholic extract shows significant results.

Key Words: *Talinum fruticosum.L*, Total methanolic extract, alpha amylase.

Author for correspondence

Sebastin V,

Department of Pharmaceutical Chemistry,
Malik Deenar College of Pharmacy,
Seethangoli, Kasaragod, Kerala,India.
E Mail: seba.pharm@gmail.com

INTRODUCTION

Medicinal plant constitutes of a very important resources of indigenous medicinal system for the last 300 years. Moreover the increasing the use of the plant extracts in the food, cosmetics, and pharmaceutical industries suggests that in order to find out the active ingredient various methods are employed and utilized the plants for medicinal purpose. Diabetes is an important human ailment afflicting many from various walks of life in different countries. In India it is proving to be a major health problem, especially in the urban areas. Though there are various approaches to reduce the ill effects of

diabetes and its secondary complications, herbal formulations are preferred due to lesser side effects and low cost. The anti-hyperglycemic effects that results from treatment with plants are often due to their ability to improve the performance of pancreatic tissue, which is done by increasing insulin secretions or reducing the intestinal absorption of glucose. The number of people with diabetes today has been growing and causing increasing concerns in medical community and the public. The main purpose of this article is to introduce a number of effective medicinal plants used for treating diabetes and other mechanisms of plant compounds used to reduce glucose levels and increase insulin secretion. *Talinum fruticosum.L* (Talinaceae) (Fig-1) such a plant used traditionally by the tribes. The plant is a erect, stout, fleshy, perennial herb used as a leaf vegetable. It contains rich in vitamins including vitamin A and C and minerals such as iron and calcium (1-5).



Fig-1 *Talinum fruticosum.L*

MATERIALS AND METHODS

Collection-The whole plant of *Talinum fruticosum.L* was collected from Kasaragod and dried and powdered

Extraction-Total methanolic extract of the leaves of *Talinum fruticosum* was carried out by solvent extraction. The extract was then filtered, the solvent distilled off and finally the dried extract was obtained (6-8)

In-vitro anti diabetic screening (9-14)

Assay of α - amylase inhibition

RESULTS AND DISCUSSION

The methanolic extract was extracted out and in-vitro anti diabetic activity was carried out. The results are shown in fig-2 and table-1 and 2.

Table-1 In-vitro antidiabetic activity of methanolic extract of leaves of *Talinum fruticosum*

S No	Concentration ($\mu\text{g/ml}$)	Percentage inhibition	
		Standard	Total Methanolic extract
1.	50	23.61	34.72
2.	100	37.50	48.61
3.	150	43.05	50.00
4.	200	45.83	56.94

Table-2 IC₅₀ values of methanolic extract of leaves of *Talinum fruticosum*

S No	Sample	IC ₅₀
1	Standard	325 $\mu\text{g/ml}$
2	Methanolic Extract	170 $\mu\text{g/ml}$

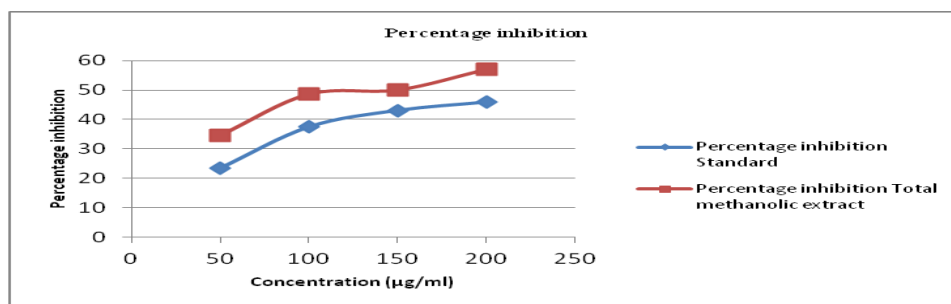


Fig-2 Percentage inhibition methanolic extract of leaves of *Talinum fruticosum*

Incubate 250 μl of plant extract with varying concentration (12.5-100 $\mu\text{g/ml}$) and 250 μl of 0.02M sodium phosphate buffer (pH 6.9 with 0.006M NaCl) containing α -amylase solution (0.5 $\mu\text{g/ml}$) at 25 $^{\circ}\text{C}$ for 10 minutes. Add 250 μl of 1% starch solution in 0.02M sodium phosphate buffer pH 6.9 to each tube at timed interval. Incubate the reaction mixture at 25 $^{\circ}\text{C}$ for 10 minutes. Reaction will stop with 500 μl of di-nitrosalicylic acid colour reagent. The test tubes are then incubated in a boiling water bath for 5 minutes, then cooled to room temperature. Dilute the reaction mixture by adding 5 ml distilled water and measure the absorbance at 540nm. Acarbose at various concentrations (12.5-100 $\mu\text{g/ml}$) was included as standard. Without test substance was setup in parallel as a control and each experiment was performed in triplicates. The results were expressed as percentage inhibition, which was calculated using the formula,

$$\text{Inhibitory activity (\%)} = \left(\frac{\text{Ac} - \text{As}}{\text{Ac}} \right) \times 100$$

Where As - The absorbance of test substance
Ac - The absorbance of control.

CONCLUSION

Talinum fruticosum.L(Talinaceae) is a erect, stout, fleshy, perennial herb . It is used as a leaf vegetable and it contains rich in vitamins including vitamin A and C and minerals such as iron and calcium. The present work highlights evaluation of in-vitro anti diabetic of *Talinum fruticosum*. The whole plants were collected from Kasaragod district and total methanolic extract was prepared. From the review of literature shows the presence of flavonoids glycosides carbohydrates and protein were more concentrated to the methanolic extract. The in-vitro antidiabetic activity was done by alpha amylase inhibitory method. The metholic extract shows significant results. The compounds responsible for the anti diabetic activity can be confirmed only after isolating the active constituent in the extract.

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