



# AMERICAN JOURNAL OF PHARMTECH RESEARCH

Journal home page: <http://www.ajptr.com/>

## ***Tinospora cordifolia* leaf powder supplementation on Blood Sugar level and Weight Management of Diabetic Peoples.**

N. Tripathi<sup>1\*</sup> A. Choudhary<sup>1</sup>

*1. Department of Biotechnology and Biochemistry, Career College, Bhopal*

### ABSTRACT

Indian herbs are known for their antidiabetic and weight management properties. *Tinospora cordifolia* is one of them; it is known for boosting immune system and the body defense mechanism against pathogenic microorganisms. In the present study, the effect of *Tinospora cordifolia* powder on blood sugar level in 20 diabetic male and female in the age group of 40-50 years were studied having high blood sugar level from the normal range. 2gm of *Tinospora cordifolia* leaf powder was given orally twice a day for two months. Fasting blood samples were investigated in respect of sugar in subjects before the start and at the end of the study. Initially the blood sugar level was high which was decreased significantly in all the subjects of experimental group *only in 60 days of oral consumption of Tinospora cordifolia leaf powder.*

**Keywords:** Blood sugar, *weight*, Oral administration, leaf powder, *Tinospora cordifolia*.

\*Corresponding Author Email: [nidhibiochemistry@rediffmail.com](mailto:nidhibiochemistry@rediffmail.com)

Received 16 January 2014, Accepted 24 January 2014

Please cite this article in press as: Tripathi N *et al.*, *Tinospora cordifolia* leaf powder supplementation on Blood Sugar level and Weight Management of Diabetic Peoples. American Journal of PharmTech Research 2014.

## INTRODUCTION

Many plants are claimed to possess antidiabetic and antioxidant activity<sup>1</sup>. *Tinospora cordifolia* is an important herb of tropical India in Ayurvedic system of medicines. It has been traditionally long been used for treatment of jaundice, chronic diarrhea, cancer, dermatological diseases, general debility, and asthma<sup>2</sup>. It was previously reported that *T. cordifolia* leaf had Insulin like action<sup>3,4</sup>. Previously hypoglycemic potential of leaves both in normal and diabetic rabbits was reported<sup>5</sup>. Previous studies suggest that oral administration of some herbal extracts reduce blood sugar concentrations in rats, possibly by interfering with food consumption and/or gastrointestinal absorption of food<sup>6</sup>.

Diabetes mellitus is a worldwide chronic disease of humans related with the elevated blood sugar level due to insulin deficiency<sup>7</sup>. Diabetes can be genetic or acquired or the combined effect of the two which hinders the production of insulin<sup>8</sup>. India is one of the major countries in terms of Diabetic patient<sup>9</sup>. The prevalence of diabetes is rapidly rising all over the globe at an alarming rate. Obesity is one of the disorders related with high blood sugar level and it must be an alarming situation for humans. However the effect of *Tinospora cordifolia* leaf powder on the blood sugar level and weight management of diabetic people have not been studied so far, which forms the basis of the present study.

## MATERIALS AND METHOD

For the present study, *Tinospora cordifolia* was grown in botanical garden of Career College, Bhopal. The leaves of fully grown plants were dried in sunlight, cleaned and sterilized with 70% alcohol and grinded in powdered form. All the subjects i.e. 10 male and 10 female are diabetic patients selected on the basis of the blood profiling done for evaluation of blood sugar level and were given leaf powder of *Tinospora cordifolia* with drinking water by oral administration. All the subjects were given 2 gm of leaf powder of *Tinospora cordifolia* with water orally twice a day for 60days.

The blood glucose levels and body weight were observed on starting day (1<sup>st</sup> day) before taking the 1<sup>st</sup> dose of leaf powder and 24 hours after the final day (60th day) of taking dose. Before the start and completion of study, blood samples were collected in clean and sterile tubes, then serum was separated by centrifugation and stored at -20°C till the biochemical analysis was performed. Fasting blood sugar level was determined in an auto analyzer using the glucose oxidase peroxidase method<sup>10</sup>.

## RESULTS AND DISCUSSION:

During the study it was found that there was a significant decrease in blood glucose level and body weight of all the subjects. The result of experiments has been shown in Table-1 & 2, where all the subjects were treated with leaf powder of *Tinospora cordifolia* and their blood glucose levels were determined. In the present study effect of *Tinospora cordifolia* leaf powder on 10 male and 10 female diabetic subjects were observed for two month of oral consumption and it was found very effective to maintain blood sugar level and body weight of diabetic patient, which was in accordance with previous reports<sup>11</sup>. Although in the present study *Tinospora cordifolia* leaf powder were given to subjects only for two months, if dose duration extends for longer duration it would be much beneficial to control both the parameters.

**Table 1: Showing Blood sugar level and body weight of diabetic males**

S.No	Body weight in kg Day 1	Blood sugar level (mg/dl) Day 1	Body weight in kg 61 <sup>st</sup> Day	Blood sugar level (mg/dl) 61 <sup>st</sup> Day
1	102	133	100	126
2	96	128	95	118
3	87	122	85	120
4	107	139	100	126
5	93	128	90	115
6	79	120	76	108
7	98	117	96	110
8	86	125	85	121
9	105	149	104	137
10	98	134	98	108

**Table 2: Showing Blood sugar level and body weight of diabetic females**

S.No	Body weight in kg Day 1	Blood sugar level (mg/dl) Day 1	Body weight in kg 61 <sup>st</sup> Day	Blood sugar level (mg/dl) 61 <sup>st</sup> Day
1	78	131	77	101
2	84	128	82	120
3	68	132	68	109
4	72	124	70	118
5	92	127	89	112
6	76	130	73	123
7	88	107	85	102
8	81	133	79	127
9	70	139	69	130
10	73	141	70	103

## CONCLUSION:

Our observation favors the usefulness of *Tinospora cordifolia* leaf powder as a supportive drug and confirms its therapeutic values. It has an immense use in various health aspects; however, an extensive clinical case control study is required to support the aspect.

## ACKNOWLEDGEMENT:

The authors are grateful to their academic councils for support in the form of infrastructural facilities made available for undertaking the present study.

## REFERENCES:

1. Khan V, Najmi AK, Mohd. Akhtar, Mohd Aqil, Mohd. Mujeeb, Pillai KK. A pharmacological appraisal of medicinal plants with antidiabetic potential. J Pharm Bioallied Sci. 2012; 4(1): 27–42.
2. Grover P, Bansal G. *Tinospora Cordifolia* (Thunb): An Indispensable and Standardized Herb. RRJAYUSHP. 2012; 1(1): 1-13.
3. Sai KS, Srividya N. Blood glucose lowering effect of the leaves of *Tinospora cordifolia* and *Sauropus androgynus* in diabetic subjects J. Natural Remedies. 2002; 2(1): 28–32.
4. Sivakumar V and Dhana Rajan MS. Antioxidant Effect of *Tinospora cordifolia* Extract in Alloxan-induced Diabetic Rats. Indian J Pharm Sci. 2010; 72(6): 795–798.
5. Upadhyay AK, Kumar K, Kumar A, Mishra HS. *Tinospora cordifolia* (Willd.) Hook. f. and Thoms. (*Guduchi*) – validation of the Ayurvedic pharmacology through experimental and clinical studies Int J Ayurveda Res. 2010; 1(2): 112–121.
6. Musabayane CT, Munjeri O, Mdege ND. Effects of Helichrysum ceres extracts on renal function and blood pressure in the rat. Renal Failure (USA). 2003; 25 (1): 5-14.
7. Diamond J. *The double puzzle of diabetes. Nature. 2003; 423:599-602.*
8. Huizinga MM, Rothman RL. Addressing the diabetes pandemic: a comprehensive approach Indian J Med Res. 2006; 124(5):481-4.
9. Verma RK, Aslam I, Roy SP. Hypoglycemic effect of *Tinospora cordifolia* on swiss albino mice. Indian J Fundtl Applied Life Sci. 2013; 3 (1): 120-122.
10. Plummer DT. An introduction to practical biochemistry. McGraw-Hill. 1972; 197-198.
11. Puranik N, Kammar KF, Devi S. Anti-diabetic activity of *Tinospora cordifolia* (Willd.) in streptozotocin diabetic rats; does it act like sulfonylureas. Turk J Med Sci. 2010; 40 (2): 265-270

### *AJPTR is*

- Peer-reviewed
- bimonthly
- Rapid publication

Submit your manuscript at: [editor@ajptr.com](mailto:editor@ajptr.com)

