

## To Study the Effect of Holy Basil Leaves on Low Blood Pressure (Hypotension) Women Aged 18-30 years

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**Abstract.** Low blood pressure is one dangerous symptom of heart disease. Holy Basil leaves has got very well documental beneficial effect in many medical condition. Holy Basil leaves is a rich source of vitamin C, pantothenic acid, potassium and magnesium. Keeping this view in mind, holy basil leaves extract has administered to raise the blood pressure level of hypotensive women. For this study, fifty respondents were selected and questionnaire cum interview was used for collecting the information. In this study, holy basil leaves extract was provided to the respondents and diet chart had also provided to the low blood pressure patients. Result of this study showed that the blood pressure level systolic (t-value: 1.48) and diastolic (t-value: 2.06) of the experimental group showed the significant changes before and after the supplementation of holy basil extract.

**Keywords:** Hypotension, blood pressure, supplementation, Holy Basil leaves

### 1. Introduction

Holy Basil leaves are an erect annual cosmopolitan herb, commonly found throughout India and elsewhere. Modern scientific research offers impressive evidence of administration of fresh leaves of Holy basil as resulted in serum; total cholesterol, triglycerides level and significant increase in HDL cholesterol and total fecal sterol contents [1]. Among all women in US who die each year, one in four die of heart disease [2]. The heart is the center of the cardiovascular system. Hypotension is the medical term for low blood pressure (under 90/60 mm Hg). Hypotension can be a sign of an underlying problem especially in the elderly where it may cause inadequate blood flow to the heart, brain, and other vital organs. Mild deficiencies of calories, protein, Vitamins C and B complex (especially B<sub>5</sub>) are the cause of hypotension.

Holy Basil leaves is a rich source of vitamin C, pantothenic acid, potassium and magnesium. The review showed that very few researchers attempted to look into the various beneficial effects in human body after feeding holy basil leaves extract. This research suggests that potassium, magnesium, pantothenic acid rich Holy basil leaves might be a simple way to maintain normal blood pressure but also helpful to support the functioning of vital organs. The present study aimed to treat the low blood pressure women patients by administrating the dose of holy basil leaves extract.

### 2. Material and Methodology

The methodology of the present paper has been enumerated under the following heads. The study was conducted in two phases:

#### 2.1. Phase-I: Base Line Survey

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The study was performed in Shurkhachhavni, Bareilly, Uttar Pradesh, India. Purposive sampling technique was used in the selection of the sample located in the Bareilly. The total number of samples were found 100 (Hypotension subject) between age group of 18-30yrs. Through the random sampling 50 hypotension patients were selected as an experimental group who received holy basil extract supplementation two times in a day (15 leaves extract one time) for the period of 30 days. Appropriate tools and techniques were selected for the valid result. To elicit information regarding the hypotension, questionnaire cum interview schedule was prepared. The questionnaire was prepared to know the background profile of the respondents. Anthropometric measurement was measured i.e. weight (kg), height (cm), body mass index (BMI). Information regarding the dietary intake was obtained through the dietary questions and 24 hours recall method. The 24 hour recall method was used for determine food consumption pattern and nutrient intake of respondents.

## 2.2. Phase-II: Development of Extract

In the phase second holy basil juices were prepared and provided to the subjects, who were suffering with low blood pressure (Hypotension).

### 2.2.1. Procedure

Take holy basil leaves & crush them, filter the mixture with the help of a muslin cloth than add a teaspoon of honey in to the juice. This juice was given to the samples twice a day (in the morning before meal & after meal at night time).

Blood pressure level was recorded before supplementation and after supplementation (30 days) of the subjects and BMI was recorded after 30 days of study period of the subjects. Data were analyzed through frequency percentage, mean, standard deviation and t-test. Test of significance were used for prime valid conclusion. Other analysis was included nutrients analysis using 3 days dietary record.

Table 1: BMI Index of Hypotension Respondents

| S.N. | Characteristics          | Category | Frequency |
|------|--------------------------|----------|-----------|
| 1.   | Height (m)               | 152-155  | 19 (38)   |
|      |                          | 155-161  | 22 (44)   |
|      |                          | 161-170  | 9 (18)    |
| 2.   | Weight (kg)              | 40-45    | 14 (28)   |
|      |                          | 46-50    | 9 (18)    |
|      |                          | 51-55    | 9 (18)    |
|      |                          | 56-60    | 11 (22)   |
|      |                          | 61-65    | 7 (14)    |
| 3.   | BMI (kg/m <sup>2</sup> ) | 16-20    | 24 (48)   |
|      |                          | 20-25    | 21 (42)   |
|      |                          | 25-30    | 5 (10)    |

\*Figure in parentheses indicate percentage

## 3. Result and Discussion

This investigation shows the effect of holy basil leaves extract supplementation on raising low blood pressure among the selected hypotension patients. The study was completed with selected 50 hypotension women in one month period. During this period all the relevant information was collected accordingly. An attempt is made to throw light on research strategy that has been made in this present study. The result and discussion are presented under the following heads:

### 3.1. Phase-I

- General and Specific information related to hypotension patients
- Physiological Information related to hypotension patients
- Dietary Information related to hypotension patients
- Anthropometric Information related to hypotension patients
- Nutrient intake of the hypotension patients

### 3.2. Phase-II: Experimental Study of the Hypotension Patients

- Blood pressure level before supplementation
- Blood pressure level after supplementation
- Mean, standard deviation and "t" value of blood pressure before and after supplementation(experimental group)

It was observed that 48% respondents were under weight, 42% of respondents were in normal range and 10% of respondents were grade-I obese. Hypotension is the opposite of Hypertension. It is the best understood as a physiological state, rather than a disease. It is often associated with shock though not necessarily indicative of it. For many people, excessively low blood pressure can cause dizziness and fainting or indicate serious heart, endocrine disorders [3].

Table 2: Blood Pressure before and after Supplementation

| Characteristics           | Category | Frequency |         |
|---------------------------|----------|-----------|---------|
|                           |          | Before    | After   |
| Blood pressure (mmHg)     |          |           |         |
| SYSTOLIC PRESSURE (mmHg)  | 96-105   | 12 (24)   | 19 (38) |
|                           | 76-95    | 17 (34)   | 18 (36) |
|                           | 55-75    | 21 (42)   | 13 (26) |
| DIASTOLIC PRESSURE (mmHg) | 66-75    | 9 (18)    | 14 (28) |
|                           | 56-65    | 17 (34)   | 19 (38) |
|                           | 46-55    | 16 (32)   | 13 (26) |
|                           | 35-45    | 8 (16)    | 4 (8)   |

\*Figure in parentheses indicate percentage

Table 2 revealed that before supplementation, 24%, 34% and 42% respondents were lying between 96-105mmhg, 76-95mmhg, 55-75mmhg respectively and after supplementation, it is raised by 38%, 36% and 26% respondents in between 96-105mmhg, 76-95mmhg and 16 in between 66-75mmhg, 56-65mmhg, 46-55mmhg and 35-45mmhg and after supplementation 28%, 38%, 26% and 8% respondents were laid in between 66-75mmhg, 56-65mmhg, 46-55mmhg, 35-45mmhg respectively. Water intake increases the blood volume which raises the blood pressure whereas low blood pressure occurs from dehydration [4].

Table 3: Mean Value, Standard Deviation & T-Test of Blood Pressure of before & after Supplementation of Holy Basil Leaves Juice

| Parameter                       | Mean value of before supplementation | Mean value of after supplementation | Standard Deviation (Before) | Standard Deviation (After) | t-test value |
|---------------------------------|--------------------------------------|-------------------------------------|-----------------------------|----------------------------|--------------|
| Systolic Blood Pressure (mmhg)  | 80.49                                | 53.42                               | 19.12                       | 17.08                      | 1.48         |
| Diastolic Blood Pressure (mmhg) | 53.42                                | 60.02                               | 21.14                       | 17.92                      | 2.06         |

There was significant in between the blood pressure level of before and after supplementation of holy basil leaves juice to the hypotension patients. Above table revealed that before supplementation mean, standard deviation of systolic

In this study, 32% hypotension respondents were belonging to the age between 21-23years, 14%, 24%, 30% respondents to 18-20years, 24-26years, 27-30years respectively. This was surprising to see that 8% respondents were illiterate which belong to HIG and MIG. This is also important for this study that 58% respondents were belonged to nuclear family and 42% to joint family respectively.

Food habits decide the dietary pattern of a person. It is observed that 68% respondents were vegetarian whereas 32% were non vegetarian. It was seen that only 46% respondents were having Protein rich foods whereas 22% respondents were having Vitamin C rich foods. There was absence of green leafy vegetable in respondent's diet. Fresh fruits intake was not very common in this age

group. There was deficiency of Vitamin B12 and Folic acid in their diet which could lead to anaemia and continuous deficiency may create Hypotension [5]. Tea intake was very often. According to Mayo Clinic, Caffeine also helps to raise the blood pressure [6].

There was significant difference in between the blood pressure level of before and after supplementation of holy basil leaves juice to the hypotension patients. Above table revealed that before supplementation mean, standard deviation of systolic was 80.49, 19.12 whereas diastolic blood pressure was 53.42, 17.08 and "t" value were 1.48. After supplementation mean, standard deviation of systolic was 53.42, 21.14 and diastolic blood pressure was 60.02, 17.92 and "t" value was 2.06 respectively. The calculated "t" value is different from tabulated "t" value so the result is shown the positive effect according to these values. The holy basil leaves has given a significant result in low blood pressure patients and this extract is also shown the significant decrease in blood sugar levels who are sufferer from Diabetes with cardio problems [7], [8].

#### 4. Conclusion

There is a concluding evidence of effectiveness of Holy basil leaves extract on low blood pressure women. Although these leaves have the ability to prevent the early events of carcinogenesis , antioxidant [9], anti HIV-I properties and helps to boost the body ability to fight off damaging free radicals but also help to reduce the stress and balance the mind, nerve and emotions [10].

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