

MORINGA OLIEIFERA (DRUMSTICK)LEAF POWDER FOR HYPERTENSION**Ms. Mangal S. Gaikwad*¹, Mr. Ajinkya Anna Kavitate*², Ms. Aishwarya Deshmukh*³,
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ABSTRACT

Introduction: Moringa oleifera is the most widely cultivated species of the genus Moringa, which is the only genus in the family Moringaceae. Most nutritious part of the plant is its leaves, and is a good source of vitamin B vitamins and C. It has been Reported Moringa oleifera shows antidiabetic effect. The leaf extract contains flavonoids, polyphenols, lycopene, and β -carotene, And possessed 2, 2-diphenyl-1-picrylhydrazyl, hydrogen peroxide, and hydroxyl radical scavenging activities.

Objective: The present study is designed to conduct effect of Moringa oleifera leaves on blood pressure among human subjects

Materials and Methods: A total of 20 males who are diagnosed with stage -1 hypertension patients with in the age group of 35-50 years were selected in the study as cases. The participants served as self-controls. Moringa oleifera leaves juices were Prepared and provided to the subjects two times in a day (15 leaves extract one time) for the period of 30 days. Diamond digital Sphygmomanometer is used to take the blood pressure.

Results: There was a significant decrease in both systolic and diastolic blood pressure followed by the intervention ($P < 0.0001^*$).

Conclusion: Thus the Moringa leaf can provide desired effect as a natural control measure for high blood pressure and can be Regarded as an alternative medicine.

Keywords: Moringa Oleifera, Blood Pressure, Hypertention.

I. INTRODUCTION

Moringa includes a number of Substances Including flavonoids, quercetin, and Phenolic compound, isoquerctin tannic Acid that in may be useful controlling Blood pressure. These Substances have The ability to lower blood pressure and Improve blood flow by relaxing blood Vessels Moringa oleifera is the most widely cultivated Species of the genus Moringa, which is the only genus In the family Moringaceae. English common names Include: Moringa, drumstick tree. Most nutritious part Of the plant is its leaves, and is a good source of vitamin B vitamins and C. It also contains provitamin A as beta-Carotene, vitamin K, manganese, and protein, among Other essential nutrients. Calcium present in Moringa Leaves is bound as crystals of calcium oxalate. It has Been reported Moringa oleifera shows antidiabetic Effect.

The leaf extract contains flavonoids, Polyphenols, lycopene, and β -carotene, and possessed 2, 2-diphenyl-1-picrylhydrazyl, hydrogen peroxide, and Hydroxyl radical scavenging activities. A Study on Db/db mice with M. oleifera significantly reduced the Altered fasting plasma glucose, triglyceride, and low-Density lipoprotein cholesterol. The same study showed Histopathological damage and expression levels of Tumor necrosis factor- α , interleukin (IL)- 1β , IL-6, Cyclooxygenase-2, and inducible nitric oxide synthase In renal tissue decreased.

It has been shown that water extract of leaves of Moringa reduced the chronotropic and inotropic effects On the isolated frog heart. Most of the studies conducted are on animal models And there are fewer studies conducted on humans. Hence, Present study is designed to conduct effect of Moringa oleifera leaves on blood pressure among Human subjects.

Several studies observe that intake of food which contains Flavonoid will decrease risk of hypertension. Taking into Consideration individual flavonoid subclasses, dietary Anthocyanins intake was associated with 8% reduction in Risk of hypertension, when comparing highest versus lowest Exposure. In 2019, a clinical study was conducted to Monitored the effect of eating cooked Moringa oleifera leaves On the BP of healthy participants in view of the perception That consumption of Moringa is associated with an increase in BP, which is contradictory to the findings from the literature.

The findings in human subjects indicated the lowering effect Of *M. oleifera* leaves consumption on the 2 h postprandial BP and showed a potential lowering effect on both systolic Blood pressure and diastolic blood pressure despite prior High consumption of salt (7 g/d).[5] The researcher felt that There is a need to investigate the effect of drumstick leaves Powder consumption of the level of BP among hypertensive Patients. So that it can be used as a alternative management For hypertension.

II. MATERIALS AND METHOD

Participants: A total of 20 males who are newly diagnosed with stage-1 hypertension and not yet under the medication patients with in the age group of 35-50 years were selected in the study as cases. The participants served as self-controls. The participants with any other systemic illness and those under the medications or following any other therapy and those not willing to provide informed consent were excluded from the study.

Intervention: 150 ml of *Moringa oleifera* leaves juices Were prepared and provided to the subjects two times in A day for the period of 30 days.

Methods: Take *Moringa oleifera* leaves & crush them, Filter the mixture with the help of a muslin cloth then 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).

Measurement of Blood Pressure: Quantitative Analysis is done by the survey. The readings of persons With high blood pressure are noted down before and After the intervention. Diamond digital Sphygmomanometer is used to take the readings. Recording of BP was based on new ACC and American Heart Association (AHA) guidelines.

III. RESULTS

The data were analyzed using inferential and descriptive statistics on the basis of objectives. The comparison between pre-test level of systolic BP among selected hypertensive patients in the experimental group and control group, the mean and standard deviation is -0.76 ± 0.06 . The unpaired t-test value is 2.24, $df=58$, $P < 0.05$, S (t-table value=2 for $df = 58$).The association of post-test level of diastolic BP Among hypertensive patients in the experimental group with The selected sociodemographic variables. It indicates that There was significant association between the post-test level of Diastolic BP among hypertensive patients with their selected Sociodemographic variables such as age, habit of cigarette Smoking, and habit of alcohol consumption and there was no Association between gender and dietary habits. the comparison between post-Test level of systolic BP among selected hypertensive patients In the experimental group and control group, the mean and Standard deviation is 17.96 ± 3.75 . The unpaired t-test value is 19.85, $df=58$, $P < 0.05$, S (t-table value=2 for $df = 58$); hence, Calculated value is greater than table value; hence, we reject The null hypothesis. Hence, there is significant difference in The post-test level of systolic BP in the experimental group And control group.

The results were presented in table 1 and 2.

Table 1. Demographic data of the participants

Parameter	Value
Age (years)	42±8
Height (cm)	165.09±2.46
Weight (kg)	122±10

Table 2: Blood pressure of the participants before and after *Moringa oleifera* leaves juices administration

Parameter	Pre-intervention	Post-intervention	P value
Systolic blood pressure (mmHg)	140 ± 22	111 ± 12	0.0001*
Diastolic Blood Pressure (mmHg)	97±15	79±10	0.0001*



IV. DISCUSSION

In the present study *Moringa oleifera* (MO) leaves Juice was given to subjects for 30 days. It is clear from Table 1 that subjects are obese. It is well known the Relation between obesity and hypertension. It was found That systolic blood pressure is drastically reduced in our Present study. The P value is 0.0001 which shows it is Statistically very significant. Similarly diastolic blood Pressure is very much reduced after administration of The juice. P value of diastolic blood pressure is also the Same as that systolic blood pressure. This shows that Both systolic blood pressure and diastolic blood Pressure reduced significantly after administration of MO leaves juice.

The beneficial vascular effects observed in the Present work are probably due to the presence of Tocopherols, phenolic acids (gallic and ferulic acids), And flavonoids (such as quercetin, catechin, and Epicatechin) known for their potential antioxidant Activity.

In our study number of subjects was restricted to One of the reasons for this was the difficulty for Getting consent from subjects for conducting the study. Another limitation for the study was subjects were kept As self control. Therefore further studies should be Conducted in larger population and with control group.

V. CONCLUSION

Moringa oleifera, commonly called as Drumstick Plant, is a reservoir of abundant number of Phytochemicals which have protective or disease Preventive properties. The intake of *Moringa* leaf, by Boiling with water can effect in the regulation of high Blood pressure to a normal rate. This is due to the Presence of various phytochemicals like, tannins, Flavonoids, saponins, anthraquinones, alkaloids and Reducing sugars, triterpanoids and steroids. Among this, flavanoids being a strong antioxidant have the Properties to reduce blood pressure. As the analysis done by the survey many agreed That it is effective than the modern medicine. The use of *Moringa* leaf gave a constant change; that too in a short Period of time while modern medicine do not give a Constant change in blood pressure reading. Thus the *Moringa* leaf can provide desired effect as a natural Control measure for high blood pressure and can be Regarded as an alternative medicine. Modern medicine Drugs are made in such a way that only the needed Phytochemical content is extracted and prepared the Medicine. But when we intake the leaf as a whole, Many phytochemical contents present in it work Together and make the action more effective. Future Studies have to carry out on pharmacological studies Using extracts to support the use of *M. oleifera* as a Medicinal plant.

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VI. FUTURE SCOPE

Moringa oleifera leaves are recognized as important sources of micro-nutrients and phytochemicals that can be used for the development of nutraceuticals and functional foods. *Moringa* leaves contain key phytochemicals, which makes this plant an essential therapeutic agent with properties such as antioxidant, anticancerous,

antimicrobial, antidiabetic, and anti-inflammatory properties. The dietary applications made this plant an important candidate for the development of major food products based on *Moringa oleifera* leaves, providing high nutritional value with acceptable sensory properties when used up to 10% in most food products. The food products based on these leaves showed more protein, dietary fibers, other nutrients, and important antioxidants. Moreover, consumption of moringa leaves within specific doses was also found to be safe. Overall, *Moringa oleifera* leaves are emerging as a prospective ingredient for developing food products that are nutritionally rich and therapeutically active. Furthermore, more clinical trials on the medicinal effects of moringa leaves are required to assess their safety for human consumption. Secondly, researchers need to extend their work on moringa polyphenols' bioavailability and how complexing these polyphenols with other compounds affect their bioaccessibility.

VII. REFERENCES

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