



## **A REVIEW ON ANTIHYPERTENSIVE ACTIVITY OF SOME HERBAL PLANT**

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### **ABSTRACT:**

The medical word for high blood pressure is hypertension (HTN). In addition to raising the risk of heart disease and stroke, it is harmful because it causes the heart to work too hard and leads to atherosclerosis, or the hardening of the arteries. Congestive heart failure, renal disease, and blindness are among the various diseases that can result from high blood pressure. The majority of conventional antihypertensives have a long list of adverse effects. Due to their superior body acceptance and fewer adverse effects, herbal medications are used for primary healthcare by between 75 and 80 percent of the world's population, primarily in underdeveloped nations. The impact of some of these medicinal herbs on hypotension Certain medicinal plants have been shown to have hypotensive effects, whereas others have not. Nevertheless, in order to fully utilize the antihypertensive potential of such herbal medicines, more scientific research is required to clarify the safety profile and confirm their efficiency in conjunction with contemporary therapy.

Keyword: Hypertension, Antihypertensive, Mechanism of action, Herbal Plant.

### **Introduction:**

High blood pressure, or hypertension (HTN or HT), is a chronic medical disorder characterized by a continuously raised blood pressure in the arteries. Typically, high blood pressure is asymptomatic. However, prolonged high blood pressure poses a serious risk for peripheral vascular disease, heart failure, coronary artery disease, stroke, eyesight loss, and chronic kidney disease.

There are two types of high blood pressure: secondary high blood pressure and main (essential) high blood pressure. Ninety-nine to ninety-five percent of cases are primary, which is high blood pressure caused by nonspecific lifestyle factors and genetics. Lifestyle variables that raise the risk include alcohol consumption, smoking, excess body weight, and salt intake.

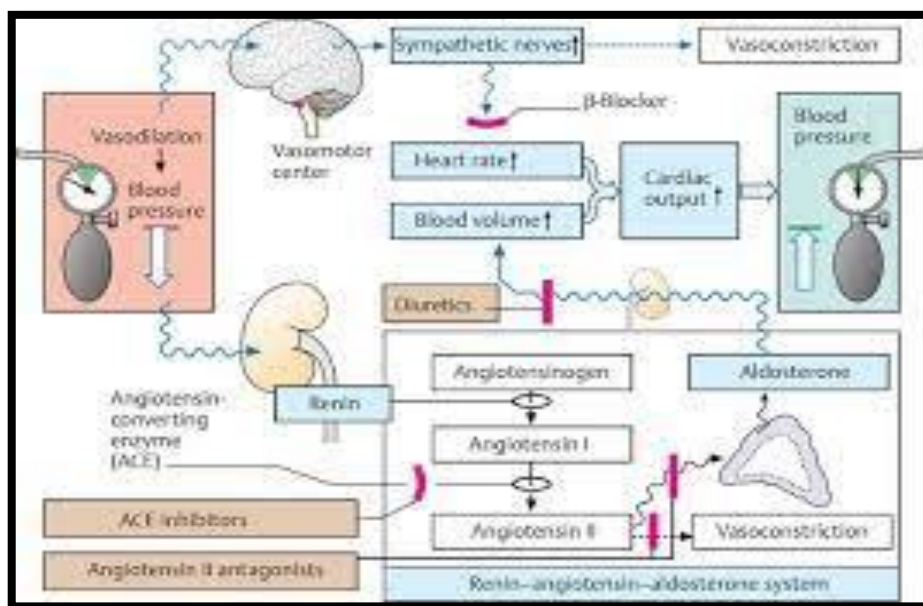
The other 5–10% of instances fall into the category of secondary high blood pressure, which is high blood pressure with a known cause, such as the use of birth control pills, kidney artery narrowing, endocrine disorders, or chronic kidney disease.

The two measurements used to express blood pressure are the diastolic pressure, which is the lowest pressure, and the systolic pressure, which is the maximum pressure. At rest, normal blood pressure ranges from 60 to 90 millimeters mercury (mm/Hg) diastolic and between 100 and 140 mm/Hg systolic. For the majority of adults, high blood pressure is defined as resting blood pressure that is consistently at or above 140/90 (mm/Hg). Children's blood pressure readings should be compared to those taken in an office setting. Ambulatory blood pressure monitoring over a 24-hour period seems to be more accurate. A nutritious diet. Ninety percent of people's blood pressure can be controlled with three drugs and lifestyle modifications such as cutting back on salt intake, exercising, and losing weight. The use of drugs to treat moderately elevated arterial blood pressure (defined as 160/100 mmHg). is linked to a longer life expectancy. Less is known about the impact of treating blood pressure between 140/90 mmHg and 160/100 mmHg; some reviews indicate benefits, while others find no evidence of any kind. Globally, between 16 and 37% of people suffer with high blood pressure. In 2016, it was estimated that 18.8% (9.4 million) of deaths were related to hypertension<sup>24</sup>.

### **Pathophysiology:**

A area of biology called pathophysiology explains how the body functions under pathological conditions. The field of hypertension pathophysiology aims to provide a mechanistic explanation for the etiology of hypertension, a chronic illness marked by elevated blood pressure. Based on its etiology, hypertension can be categorized as secondary or essential. Essential hypertension accounts for 90–95% of cases of hypertension. A specific underlying problem with a well-established cause, such as chronic kidney disease, narrowing of the aorta or renal arteries, or endocrine abnormalities such as excess aldosterone, cortisol, or catecholamines, is indicated by the term "secondary hypertension." The two factors that determine arterial pressure are cardiac output and peripheral resistance. Heart rate and stroke volume govern cardiac output; the former is influenced by myocardial contractility and the latter by the size of the vascular compartment. Anatomical and functional alterations in tiny arteries and arterioles impact peripheral resistance.

Diagrammatically-Pathophysiology of Hypertension Vasodilation + Blood-pressure@



### Symptoms of High

#### Blood Pressure:-

1. Rare symptoms include dizzy, headaches and nosebleeds.
2. Nervousness, sweating, difficulty in sleeping or facial flushing..
3. Blood spot in eye.
4. Vision loss.
5. Kidney damage.
6. Fluid buildup in the lung.
7. Memory loss.
8. Chest pain.
9. Difficulty in breathing
10. Fatigue and Confusion.
11. Blood in urine.

#### Methodology:

A wide range of sources, including books, theses, and published research articles, were carefully examined in order to gather important data about the medicinal plants that are used to treat hypertension. Journals on ethnobotany and herbal medicine, including the Journal of Ethnopharmacology, were manually searched, as well as the references of papers that were found. The scientific, family, and local names of each plant species, together with the parts used, preparation technique, and additional medical benefits of the detected plants, were all meticulously described and presented in a table using the resources and instruments at hand.

#### HERBAL PLANT USED FOR HYPERTENSION TREATMENT TO

##### 1. GARLIC:.

- Synonyms: Lehsun, Rasun, Belluli, Vallaippundu, Garlic,
- Biological source
- : Lehsun consists of the fresh compound bulb of *Allium sativum* Linn.
- Family: Liliaceae,



Garlic

➤ Chemical Constituents:

**1. Essential oil**

- I. Alliin, a sulphur containing amino acid
  - II. Allicin-allylsulphide.
  - III. Polysulphide responsible for the unpleasant smell of the oil
2. Amino acid: Leucine, methionine, S-methyl cysteine, S-allyl cysteine.
  3. Allyl propyl disulphide.
  4. Vitamins: A, B, C and D and Fatty acid, mucilage and albumin. Minerals: Calcium, Iron and Zinc.

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**Mechanism of Action:**

The treatment of numerous cardiovascular conditions, such as high blood pressure, heart disease, and excessive cholesterol, usually involves the use of garlic (*Allium sativum*).

- ii. Allicin, or daily thiosulfinate, is known to be the active component in garlic.
- iii. There are several ways in which garlic can lower blood pressure: by making nitric oxide more available and active, by blocking ACE and so blocking several pathways that are known to lower plasma volume and vasoconstriction, and, finally, by producing more  $H_2S$ , which causes vascular smooth muscle cells to become hyperpolarized.

**Uses:**

1. Analgesic, Stimulant, Anticonvulsant, Antibacterial, Diuretic, Tonic.
2. Used in hypertension and atherosclerosis (thickening of arterial wall).
3. Carminative, gastric stimulant and aids in digestion and absorption of food.
4. Used in the treatment of malignant tumors.
5. Tuberculosis and whooping cough.
6. Aphrodisiac.
7. Piles and duodenal ulcer.
8. Treatment of epilepsy.
9. Reduce blood sugar level.

**CORIANDER:-**

- Synonym:- English-Cilantro Hindi- Dhania
- Biological source:- It consists of the dried ripe fruits of *coriandrum sativum*
- Family: Umbelliferae



## Coriander

### ► Chemical constituents:

#### 1. Volatile oil:

(i) Main (+) linalool (coriandrol) and  $\alpha$ -pinene

(ii) camphor

(iii) geraniol

(iv) borneol

2. Fixed oil

3. Malic acid

4. Tannin

5. Vitamin A.

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### Mechanism of Action:

1. One great way to control high blood pressure is using coriander. It is full of fiber that is good for the heart.
2. According to studies, components of coriander interact with acetylcholine, a neurotransmitter, and calcium ions to help reduce blood vessel stress.

The spice also works wonders at regulating gastrointestinal function, which is crucial for controlling elevated blood pressure.

IV. The diuretic action of coriander seeds is also present. Urine flow is increased with the aid of a diuretic. You can get rid of the extra salt that has built up in your system through urine.

### ► Use:-

Coriander (*Coriandrum sativum*) is traditionally used for various gastrointestinal and cardiovascular disorders

### Used in:-

- i. Hypertension
- ii. Diuretics
- iii. Loss of appetite.
- iv. Spasms.
- v. Intestinal gas (flatulence).
- vi. Diarrhea.
- vii. Bacterial or fungal infections.
- viii. Hemorrhoids.
- ix. Toothaches.
- x. Nausea
- xi. Joint pain

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### CONCLUSION:

Comparing herbal medications to synthetic treatments, the former is less expensive and has no adverse effects. For millennia, people have utilized botanicals to treat a wide range of illnesses, including heart problems. It comes as no surprise that they have demonstrated efficacy in reducing blood pressure and enhancing cardiac performance.

The current review came to the conclusion that herbal remedies for hypertension included coriander, garlic, and trees.

Unlike manufactured drugs, these plants have few or no negative effects. These plants are easier to find than synthetic compounds.

Comparing these herbal plants to synthetic drugs, they are less expensive or less economical. Compared to synthetic compounds, plants have active elements with antihypertensive activity that are easier to extract and isolate.

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