

## An Anti-hypertensive Herbal Tea - Natural Remedy to Treat Hypertension

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### ABSTRACT

Hypertension is a chronic condition that can lead to several health problems, such as cardiovascular diseases, myocardial infarction, stroke, retinopathy and renal failure. Hypertension or high blood pressure is a condition in which force of the blood against the artery walls is too high. It is becoming one of the diseases that could turn fatal. If remained untreated or not managed, it may up the chances of many heart diseases. It is best to manage high blood pressure through a healthy diet. In the present study, a several ingredients were used in the form of tea in appropriate quantity with the main aim of treating and maintaining the hypertension. These ingredients have been used for their medicinal properties for controlling the hypertension. This tea not only starts a good day with a soothing effect but also has wide range of pharmacological actions in maintaining the hypertension. The anti-hypertensive tea is rich source of natural bioactive compounds like curcumin, allixin, reserpine, saracasin, carotenoids, flavonoids, terpenoids, phytosterols, oleoresins, steroids, tannins, and many more. Anti-hypertensive herbal ingredients supplements have shown promising results in the treatment of uncontrolled hypertension, lowering blood pressure.

**Keywords:** Anti-hypertensive herbs, Hypertension, Curcumin, Antioxidant Activity, High Blood Pressure.

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### INTRODUCTION

Hypertension, a worldwide illness, is a major factor in cardiovascular diseases that affects a large population of adults. Often referred to as the 'silent killer', high blood pressure or hypertension is a serious clinical condition that elevates the risk of heart and brain diseases. To define blood pressure, it is the force exerted with the circulating blood on the various arteries in the body. When this blood pressure is too high, it is called Hypertension. There is no specific underlying cause for high blood pressure, as it is a lifestyle-related disease. There are a couple of triggers that increase the risk of getting hypertension or elevated blood pressure, some of which are unhealthy diet, age, smoking, alcohol consumption, physical inactivity, obesity, heredity, diabetes and many more[1].

Many allopathic drugs are used for treatment of hypertension But these drugs have some side effect like muscle cramps, dizziness, extreme tiredness, dehydration, blurred vision, abnormal heart rate, skin rash *etc.* Herbal remedies are still widely used in world for the treatment of hypertension because herbal medicines are harmless as compared to allopathic medicines. The various medicinal plants having anti-hypertensive properties for controlling the hypertension are discussed in the paper[2].

Certain traditional plants like Turmeric, Garlic, Sarpagandha and Ashoka are mentioned in this paper which is also useful in the current market scenario of India. As per literature most of the plants

belongs to Zingiberaceae, Apocyanaceae, Leguminosae, Alliaceae or Liliaceae families. Tea is the most consumed drink in the world after water. In addition, its content of certain minerals and vitamins increases the antioxidant potential of this type of tea. Since ancient times, herbal tea has been considered by the traditional medicine as a healthful beverage. Recent human studies suggest that herbal tea may contribute to a reduction in the risk of cardiovascular disease such as anti-hypertensive effect, body weight control, antibacterial and antivirasic activity. Increasing interest in its health benefits has led to the inclusion of herbal tea in the group of beverages with functional properties. However, although all the evidence from research on herbal tea is very promising, future studies are necessary to fully understand its contributions to human health, and advice its regular consumption[1].

## MATERIAL AND METHOD

### Material Used for Carrying Out the Research Work

1. Turmeric Roots
2. Ashoka Roots
3. Sarpgandha roots
4. Garlic Cloves
5. Cardamom
6. Honey

### Description of Ingredients as Anti-Hypertensive Tea

#### 1. Turmeric

Botanical Name: *Curcuma longa*

Family: Zingiberaceae

Plant Part Used: Roots



Fig.1. Turmeric Roots

Turmeric has become a household name. Not just for its role as the primary spice in well-known dishes such as curry, but as a powerful medicinal herb with healing properties and very few side effects. Within turmeric is a potent anti-inflammatory agent called curcumin. These curcuminoids are the subject of numerous clinical studies in recent decades. Turmeric can help treat a broad spectrum of medical conditions. From aiding weight loss in people with metabolic disorders to treating arthritis and joint pain, it appears that curcumin can benefit almost any ailment. Turmeric can even be used as a blood thinner or as a natural supplement for liver detox[3].

In present study, turmeric has shown an ability to modulate blood pressure and assist the cardiovascular system under certain conditions. If a person dealing with high blood pressure (HBP), curcumin is a natural means to manage it. Turmeric is an excellent antioxidant known for its ability to reduce inflammation in the body. It also enhances immunity while providing cardiovascular protective effects. Curcumin regulate cholesterol, stabilize blood sugar, and improve heart health with great success. For this reason, it is believed that turmeric is used to lower blood pressure in hypertensive patients[4].

#### 2. Sarpgandha

Botanical Name: *Rauwolfia serpentine*

Family: Apocyanaceae

Plant part used: Roots



Fig.2. Sarpgandha Seeds and Roots

*Rauwolfia serpentina* is native to the moist, deciduous forests of Southeast Asia, including India, Burma, Bangladesh, Sri Lanka, and Malaysia. The plant usually grows to a height between 60 and 90 cm and has pale green leaves that are 7 to 10 cm long and 3.5 to 5.0 cm wide. The leaves are elliptical or lanceolate shaped and occur in whorls of 3 to 5 leaves. The plant has many shiny, black or purple, round fruits that are approximately 0.5 cm in diameter. It also has small pink or white flowers. The plant has a prominent tuberous, soft taproot that reaches a length between 30 and 50 cm and a diameter between 1.2 and 2.5 cm[5].

*Rauwolfia* contains many different phytochemicals, including alcohols, sugars and glycosides, fatty acids, flavonoids, phytosterols, oleoresins, steroids, tannins, and alkaloids. The most important alkaloids found in the plant are indole alkaloids. All parts of the plant, including the stem and leaves, contain indole alkaloids, but they are found in highest concentration in the bark of the root. The identified indole and indole alkaloids include ajmalidine, ajmaline, ajmalinine, ajmalicine, aricine, canescine, coryanthine, deserpidine, isoajmaline, isoserine, isoserpine, lankanescine, neoajmaline, papaverine, raubasine, raucaffricine, rauhimbine, rauwolfinine, recanescine, rescinnamine, reserpiline, reserpine, reserpinine, sarpagine, serpentine, serpentinine, thebaine, yohimbine, and yohimbinine. Reserpine is one of the major alkaloids of the plant. The reserpine content has been found to be highest in the roots[6].

*Rauwolfia serpentina* is a safe and effective treatment for hypertension. The plant was used by many physicians throughout India in the 1940s and then was used throughout the world in the 1950s, including in the United States and Canada.

This herb lower blood pressure levels and this benefits the heart health as well. Sarpagandha is an excellent antioxidant known for its ability to reduce inflammation in the body. It also enhances immunity while providing cardiovascular protective effects[7].

### 3. Ashoka

Botanical Name: *Saraca asoca*; *Saraca indica*

Family: Leguminosae (Fabaceae)

Plant parts used: Roots



Fig.3. Ashoka Roots

Ashoka is a rain-forest tree. It is a native of Asia and South America. This tree is originally distributed in the central Areas of the Deccan Plateau. Ashoka is common to all parts of India and the other countries. Ashoka is rich in saracasin, saracadin, tannins, haematoxylin, flavonoids, saponins, volatile oils, glycosides, catechol, calcium, iron, ketosterol and various steroidal glycosides, various fatty acids like oleic acids, palmitic acids *etc*[8].

Ashoka is a cardiac tonic that can act as supportive therapy for people suffering from hypertension, circulatory problems. This herb lower blood pressure levels and this benefits the heart health as well. Ashoka is a tremendous antioxidant identified for its capability to reduce inflammation in the body. It also increases immunity while providing cardiovascular protective effects[9].

#### 4. Garlic

Botanical Name: *Allium sativa*

Family: Alliaceae or Liliaceae

Plant Part Used: Dried Cloves



Fig.4. Garlic Cloves

Garlic is an herb that is grown around the world. It is related to onion, leeks, and chives. It is thought that garlic is native to Siberia, but spread to other parts of the world over 5000 years ago. Garlic is most commonly used for conditions related to the heart and blood system. These conditions include high blood pressure, high levels of cholesterol or other fats (lipids) in the blood (hyperlipidemia), and hardening of the arteries (atherosclerosis). Garlic produces a chemical called allicin. the sulphur in garlic stimulates nitric oxide production in blood vessels. This relaxes and improves their elasticity, helping lower blood pressure and further reducing the risk of strokes and atherosclerosis (hardening of the arteries). Allicin in garlic is said to be a reactive compound. It is an active ingredient associated with garlic's blood-pressure lowering effect, especially in those who have high blood pressure and hypertension. Garlic reduces systolic blood pressure (the top number) by about 7-9 mmHg and diastolic blood pressure (the bottom number) by about 4-6 mmHg in people with high blood pressure. People with high blood pressure who took garlic supplements daily for up to five months "saw their blood pressure levels drop significantly. This pungent seasoning can do more than just flavor your food and

ruin your breath. Garlic may have the ability to lower your blood pressure by helping to increase a substance in the body known as nitric oxide, which can cause your blood vessels to relax and dilate. This lets blood flow more freely and reduces blood pressure[10,11].

#### 5. Elaichi

Botanical Name: *Elettaria cardamomum*

Family: Zingibaraceae

Plant Part Used: Fruit



Fig. 5. Elaichi

*Elettaria cardamomum* is a valuable spice with multi properties belonging to family Zingibaraceae and also known as 'Queen of Spices'. It originates from coastal regions of India and now grown in Tanzania, Gautemala, El Salvador, Sri Lanka, Vietnam, Cambodia and Laos. It is indigenously grown in evergreen forests of Western Ghats in South India[12].

*Elettaria cardamomum* (L.) fruit powder was evaluated for its antihypertensive potential and its effect on some of the cardiovascular risk factors in individuals with hypertension. Cardamom also contains fiber, the nutrient that can help lower cholesterol levels and enhance heart health. Because of these properties, the spice also can lower blood pressure levels and this benefits the heart health as well. Cardamom possesses valuable medicinal properties as cardiotoxic. Elaichi is a superb antioxidant

herb recognized for its medicinal capability to decrease the blood pressure. It also boosts immunity while providing cardiovascular protective effects[13,14].

## 6. Honey



Fig. 6. Honey

Honey is a substance produced by bees from the nectar of plants. It is commonly used as a sweetener in food. It may also be used as a medicine. As per Ayurveda, honey and water could do wonders to bring high blood pressure levels in control. According to “The Complete Book of Ayurvedic Home Remedies’ by Dr. Vasant Lad,”. Add a teaspoon of honey and 5 to 10 drops of apple cider vinegar to a cup of hot water, and drink it early in the morning. This drink helps to reduce cholesterol, maintains vasodilation, and helps to regulate blood pressure[15,16].

### METHODOLOGY

Four ingredients Turmeric Roots, Ashoka Roots, Sargandha roots, and Garlic Cloves (dried) were taken. All the four ingredients were soaked in water for a week or seven days. These ingredients absorb enough water so, that they can be easily grinded. After drying all the ingredients, separately powder was prepared by grinding and dried properly (Figure 7). Now, a fine dry herbal powder is obtained shown in figure 8-11.

One gram of each powder is to be taken and dissolved in a glass of warm water. After adding all the ingredients, 5ml of

honey is added so that the bitter taste is reduced and 1 gm of Elaichi powder is added for the fragrance, flavor and taste. In this way, a natural anti-hypertensive herbal tea is prepared for controlling the hypertension or high blood pressure.

One gram of each powder of four gram was packed in packet tea bags (Figure 12). These tea bags are used for making the anti-hypertensive tea which controlled and maintained the Hypertension of patients.

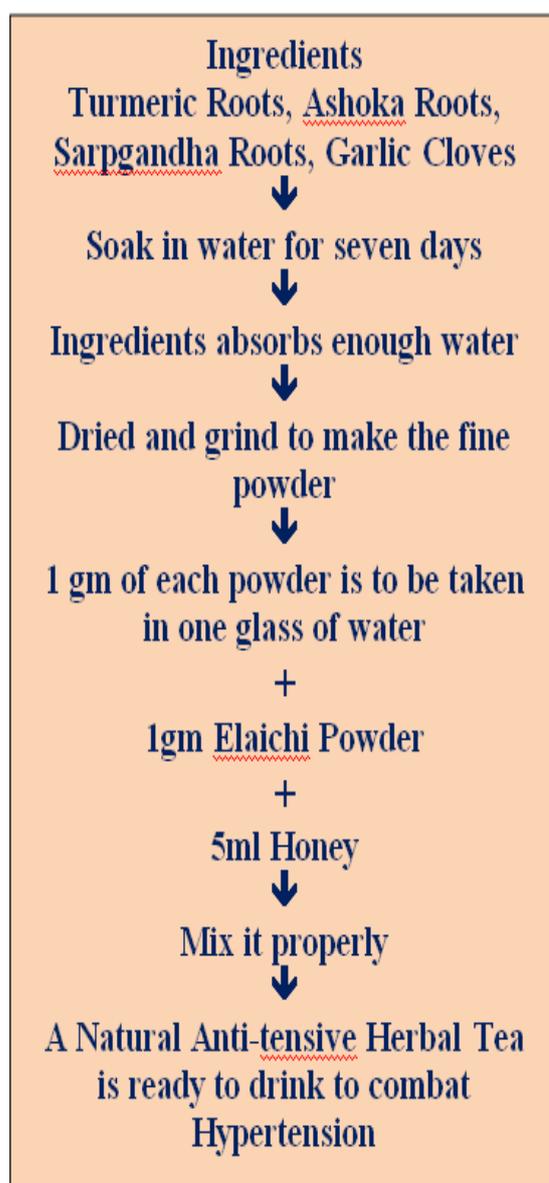


Fig.7. Flow Chart Presenting the Methodology



Fig.8. Dried Powder of Turmeric



Fig.9. Dried Powder of Sarpagandha



Fig.10. Dried Powder of Ashoka



Fig.11. Dried Powder of Garlic



Fig.12. Tea Bags Prepared from Dried Mixture of Plants

## RESULT AND DISCUSSION

The results were remarkable and significant. Curcumin exerts beneficial effects on cardiovascular diseases, including hypertension. *Rauwolfia* in the treatment of high blood pressure. *Rauwolfia* appears to be a safe and

effective treatment for hypertension when used in appropriate low doses. An equivalent dose of pure *Rauwolfia* alkaloids, also known as pure reserpine, can also be used to treat hypertension. These ingredients have the potential to lower BP in hypertensive

individuals similarly to standard BP medication, via biologically plausible mechanisms of action.

## CONCLUSION

Often referred to as the 'silent killer', high blood pressure or hypertension is a serious clinical condition that elevates the risk of heart and brain diseases. To define blood pressure, it is the force exerted with the circulating blood on the various arteries in the body. When this blood pressure is too high, it is called Hypertension. There is no specific underlying cause for high blood pressure, as it is a lifestyle-related disease. There are a couple of triggers that increase the risk of getting hypertension or elevated blood pressure, some of which are unhealthy diet, age, smoking, alcohol consumption, physical inactivity, obesity, heredity, diabetes and many more. Many allopathic drugs are used for treatment of hypertension But these drugs have some side effect like muscle cramps, dizziness, extreme tiredness, dehydration, blurred vision, abnormal heart rate, skin rash *etc.* Herbal remedies are still widely used in world for the treatment of hypertension because herbal medicines are harmless as compared to allopathic medicines. The various medicinal plants which are used for the treatment of hypertension are discussed in the paper.

A very famous saying states that "Prevention is better than cure". The anti-hypertensive herbal tea is a natural therapy that can be used in daily life in order to achieve normal blood pressure, fit and a healthy body. And from this article, it can be concluded that scientific evidence of the anti-hypertensive herbal tea shows better health and medical effects of anti-hypertensive herbal tea. Drinking of anti-hypertensive herbal tea instead of regular tea very helpful for the ability to help reduce high blood pressure and combat hypertension and keeps the heart healthy

and fit and a good start of day with numerous other health benefits. Goodness of Honey and widely acceptable flavor of cardamom which are also medicinally for treating hypertension plays a very significant role in providing taste, flavor and fragrance makes it a pre-eminent anti-hypertensive herbal tea.

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