



# A Review Article On *Trimada* W.S.R. To High cholesterol

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## ABSTRACT

Across all income groups, coronary artery disease is the leading cause of death globally. Globalization has led to improvements in the health care system, but the indulgence in Western culture and sedentary lifestyles has increased the prevalence of cardiovascular risk factors. Elevated Cholesterol is one of the main causes of CAD. It is described as a disease where the body has higher than normal levels of lipids. *Ayurveda* takes a distinctive stance when diagnosing and treating high cholesterol. Elevated cholesterol is viewed as a sign of many different conditions rather than an illness in and of itself. The ailments are associated with *Rasavaha sroto dushti rogas*, which have been mentioned in ancient *Ayurvedic* texts. This illness results in a defect at the *Agni* level and is caused by diminished *Agnis* (*Jatharagni*, *Dhatwagni*, and *Bhutagni*). In light of this, we can arrange for the treatment of elevated cholesterol along the same lines as *Rasavaha sroto dushti*, necessitating the properties of *Deepana*, *Pachana*, and *Kaphghana*. One of the most widely used *Ayurvedic* formulations for a variety of uses is *trimada*. It is made up of three medications: *Vidanga*, *Mustaka*, and *Chitraka*. The purpose of this paper is to establish the relationship between high cholesterol and the role that taking *Trimada's* three medications can play in both preventing and treating high cholesterol.

**KEY WORDS:** High Cholesterol, *Rasavaha srotas*, *Trimada*, *Meda dhatu*, *Ayurveda*, *Agni*, Oxidative stress.

## INTRODUCTION

High cholesterol is defined as abnormally high blood fat (lipid) levels. Elevated blood triglyceride or cholesterol levels, or both, are indicative of it. Recent national studies have shown that 15-20% of subjects in rural areas and 25-30% of subjects in cities have high cholesterol. In comparison to high-income nations, this prevalence is lower<sup>[1]</sup>. Atherosclerosis, the main cause of CAD, is strongly correlated with elevated blood levels of cholesterol, triglycerides, LDL, and decreased HDL particles<sup>[2]</sup>. Coronary artery disease, or CAD, is the leading cause of death worldwide. A number of risk factors have been identified for CAD, the most common of which are high blood pressure, high LDL cholesterol, impaired glucose tolerance, and diabetes<sup>[3]</sup>. High cholesterol causes: Dietary errors, poor eating habits, and a sedentary lifestyle all contribute to abnormal cholesterol levels. The contributing factors include, to some extent, family history, genetics, and metabolic conditions. The high cholesterol levels cause plaques to stick together inside blood vessels, which results in

atherosclerosis and other problems. Peripheral vascular disease, CAD, and stroke are all associated with high plasma total and LDL cholesterol concentrations. Atherosclerosis pathogenesis and high cholesterol are linked by psychological stress, which is linked to increased oxidant production and oxidative stress<sup>[4]</sup>. Numerous biological reactions that can be triggered by oxidized lipids may play a role in the development of atherosclerotic lesions. According to the disease's pathophysiology, a combination of antioxidant and lipid-lowering activity would be very beneficial in slowing the atherosclerotic lesion's progression<sup>[5]</sup>. *Ayurveda*, The Ancient Indian Medical System is a body of organized knowledge explaining principles of physiology, pathology, pharmacology and therapeutics in various specialties. It defines life (*Ayu*) as a union of mind, body, spirit, and senses and a person is said to be healthy if all these factors are in the balanced state. According to the *Ayurvedic* concept, *Dosha*, *Dhatu* and *Mala* are the three pillars of the body. Our body is made up of innumerable channels (*Srotas*) which are responsible for proper functioning of physiological activities. The term *Srotas* is derived from “*susravana*” which means to flow, to ooze out. *Srotas* are those channels through which materials flow in the body<sup>[6]</sup>. Basically, they are the inner transport system of the human body which act as platform for activities of important bio factors like *Doshas*, *Dhatu*, *Mala*, *Oja*, *Agni* etc.

“*Rasavahanama srotasama hridayam mulam dash ch dhamnaye*” (Ch.Vi 5/7)

*Acharya Charaka*, *Sushruta* and *Vagbhatta* had described various types of *srotas*, among them *rasavaha srotas* is one. *Hridaya* and 10 *Dhamniya* are the *mulas* of *rasavaha srotas*<sup>[7]</sup>.

“*Guru sheetam atisnigdham atimatram samshrantama, Rasavahini dushyanti chintyanama ch atichintnata*” (Ch.Vi 5/13)

Factors responsible for the *dushti* (spoilage) of *Rasavaha srotas* are bad eating habits like *Guru* (heavy food), *Atisnigdha ahara* (oily food), *Sheeta ahara* (cold food), *Atimatram* (Excessive eating) etc. *Atichintya* (overthinking) is also one of the major reasons of *Rasavaha Stroto Dushti*<sup>[8]</sup>. The lexicons state that *Rasavaha stroto dushti* causes *Atisthaulya*, and that *Medovaha stroto dushti* is a symptom of that condition; however, they do not provide evidence linking the two conditions. In *Ayurvedic* literature, the term "*Atisthaulya*" refers to obesity and the pathological effects it is associated with. *Vishama-dhatuposhana* and *Medativridhi* are the two primary pathological phenomena in *Atisthoulya*<sup>[9]</sup>.

## MATERIALS AND METHODS

Physiological Aspect: The *Dhatus* are the structural components of the body which take part in the construction of the body. An increase or decrease in their quantity indicates the presence of metabolic or nutritional disorders in the body caused by improper formation of *Rasa Dhatu*. After the digestion of the food the *Poshaka rasa dhatu* is formed (essence of the food whose purpose is to nourish). This *Rasa dhatu* being pushed by *Vyana vayu* reaches the heart and from the heart it enters the *Dhamanis* through which it reaches the different parts of the body. This way the *Rasa dhatu* nourishes the other *Dhatus* and forms other *Dhatus* like *Rakta*, *Mamsa*, *Meda dhatu* etc. As the *Rasa dhatu* circulates it nourishes the tissues, organs etc. In the healthy state this *Poshaka rasa* does *Tarpanam* (nourishes the people at all ages), *Vardhanam* (growth and development), *Dharanam* (providing strength), *Avsadanam* (provide stability to the body)etc<sup>[10]</sup>

The triggering factors cause *Rasa dhatu dushti* and *Rasavaha srotodushti* which affects the metabolism through vitiation of the *Doshas* and the *Dhatus*. This results in vitiation of the digestive fire (*Jatharagni*) causing annulment of *Rasa dhatu*. *Agni* is the basic medium responsible for the digestion and metabolism in the body. *Ras dhatu* being the primary *Dhatu* disturbs the other *Dhatus* in the body like *Rakta* and *Meda dhatu* which may lead to further aggravation of symptoms of High Cholesterol. The disturbed *Meda dhatu*

tends to form the *Mala* which clings to the *Strotas* causing hyperlipidemic disorders. *Dravyaguna Vigyana* is the bridging subject of *Ayurveda* which deals with the properties, actions & uses of *Dravyas* (Drugs).

The *Ayurvedic* Pharmacology of *drugs* is described under the heading of *Dravya, Rasa, Guna, Virya, Vipaka, Prabhav* and *Karma*. As per the principles of *Ayurveda* drugs which are *Kaphahara* with *Deepana, Pachana, Bhedana* and *Lekhana karma* have a best role in High Cholesterol. The drugs with *Deepana* and *Pachana karma* increases the digestive fire (*Jatharagni*) due to *Vayu* and *Agni* predominance. The *drugs* with *Lekhana* and *Bhedana karma* works in scraping of *Dhatas* and *Malas* (lipid waste) after absorbing moisture from them and disintegrate them in channels. Yogindranath Sen opines that *Bhedana dravya* liquifies the *Pindita mala* and expels it out<sup>[11]</sup>.

### Drug review:

India possesses a vast history of using medicinal plants. Its diverse flora is utilized by traditional healers and the local populace to treat a range of illnesses, including lipid disorders. The following is a brief description of the three *Trimada* medications, *Mustaka, Vidanga, and Chitraka*:

### CHITRAKA

*Phyllanthus zeylanica* Linn. A perennial shrub commonly found throughout the Indian peninsula and eastern regions, it is referred to as *Chitraka* and belongs to the *Plumbaginaceae* family. With ovate leaves with short petioles and either an acute or subacute apex, it has an erect, striated stem. The white flowers have stalked glands and an ellipsoid ovary with a sharply pointed and furrowed capsule<sup>[12]</sup>. In *Lekhaniya, Bhedaniya, Dipaniya, Arshoghna, Triptighna, and Sulaprasamana mahakshaya* as well as in *Katuskandha, Charaka* has made reference to it<sup>[13]</sup>. In the *Aragvadhadi, Varunadi, Muskadi, Pippalyadi, Mustadi, and Amalakayadi gana, Sushruta* has made reference to it<sup>[14]</sup>. According to *Charaka, Chitraka* is the best herb among the drugs *Dipaniya, Pacaniya, Arsoghna, and Sulahara*<sup>[15]</sup>. Additionally, the plant is frequently advised for obesity<sup>[16]</sup>. It has been reported that plubagin, a significant phytoconstituent of *Plumbago zeylanica* roots, has anti-hyperlipidemic effects on rabbits<sup>[17]</sup>. Numerous researches indicate that *Plumbago zeylanica* roots' aqueous extract may have antioxidant properties. therefore may be helpful in the treatment of hyperlipidemia and atherosclerosis.<sup>[18]</sup>

### MUSTAKA

*Mustaka* (*Cyperus rotundus* L.) also known as the nutgrass of family *Cyperaceae*, is a colonial, perennial herb widely used in *Ayurveda* to treat several ailments. It is 7–40 cm tall with fibrous roots and has dark reddish-brown rhizome. Shiny and narrow dark green leaves which looks like grass are present. The upright stems support a much-branched inflorescence with bisexual flowers<sup>[19]</sup>. *Charaka* has mentioned it in *Lekhaniya, Triptighna, Kandughana, Stanyashodhana mahakshaya*<sup>[13]</sup>. *Sushruta* has mentioned it in *Vacadi* and *Mustadi gana*<sup>[14]</sup>. It is an acclaimed digestant & carminative. This plant has various metabolites that show analgesic, anti-hypertensive, anti-inflammatory, anti-obesity, antioxidant, cardioprotective, neuroprotective properties. Studies on the ethnobotanical use of *C. rotundus* showed that the rhizomes were used to treat aging, atherosclerosis, cancer and various disorders<sup>[20]</sup>. The alcoholic and aqueous extracts of the tubers of *Cyperus rotundus* possess lipolytic action by regulating serum lipid profiles, reducing the oxidative stress and decreasing adipose tissue mass and body weight gain<sup>[21]</sup>.

## VIDANGA

*Vidanga*, a well-known herb in *Ayurveda*, is a large, flexible, woody shrub with hairy brownish grey roots that belongs to the Myrsinaceae family. The leaves have a cylindrical petiole and are lanceolate, obtusely acuminate, and somewhat silvery beneath. Flowers are many, tiny, and pentamerous. Long, free, greenish-yellow petals. When ripe, the smooth, globose, black fruits have horny, reddish seeds<sup>[22]</sup>. In *Krimighna*, *Kushthaghna*, and *Truptighna mahakshaya*<sup>[13]</sup>, *Charaka* has made reference to it. It is mentioned in *Surasadi gana* and *Pippalyadi gana* by *Sushruta*<sup>[14]</sup>. *Vidanga*, a well-known herb in *Ayurveda*, is a large, flexible, woody shrub with hairy brownish grey roots that belongs to the Myrsinaceae family. The leaves have a cylindrical petiole and are lanceolate, obtusely acuminate, and somewhat silvery beneath. Flowers are many, tiny, and pentamerous. Long, free, greenish-yellow petals. When ripe, the smooth, globose, black fruits have horny, reddish seeds<sup>[22]</sup>. In *Krimighna*, *Kushthaghna*, and *Truptighna mahakshaya*<sup>[13]</sup>, *Charaka* has made reference to it. It is mentioned in *Surasadi gana* and *Pippalyadi gana* by *Sushruta*<sup>[14]</sup>.

## PROPERTIES OF INDIVIDUAL DRUGS

Plant	Botanical Name	Rasa	Guna	Veerya	Vipaka	Dosha Action
<i>Chitraka</i> <sup>25</sup>	<i>Plumbago zeylanica</i> ( <i>plumbaginaceae</i> )	<i>Katu</i>	<i>Laghu, rooksha, tikshana</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavatashamaka</i>
<i>Mustaka</i> <sup>26</sup>	<i>Cyperus rotundus</i> ( <i>Cyperaceae</i> )	<i>Tikta, katu, kshaya</i>	<i>Laghu, rooksha</i>	<i>Sheeta</i>	<i>Katu</i>	<i>Kaphapittashamaka</i>
<i>Vidanga</i> <sup>27</sup>	<i>Embeliya ribes</i> ( <i>Myrsinaceae</i> )	<i>Katu, Kshaya</i>	<i>Laghu, rooksha, tikshana</i>	<i>Ushna</i>	<i>Katu</i>	<i>Kaphavatashamaka</i>

Name of Plant	Panchbhautika composition	Karma	Panchbhautika Composition <sup>28</sup>
<i>Chitaraka</i>	<i>Vayu + Agni</i>	<i>Deepana</i>	<i>Vayu (predominant) + Agni</i>
<i>Mustaka</i>	<i>Vayu + Agni</i> <i>Vayu + Aakash</i> <i>Vayu + Prithvi</i>	<i>Pachana</i>	<i>Vayu + Agni (predominant)</i>
<i>Vidanga</i>	<i>Vayu + Agni</i> <i>Vayu + Prithvi</i>	<i>Lekhana</i>	<i>Vayu + Agni</i>

## DISCUSSION

According to the pathophysiology of high cholesterol, which is caused by *Rasa dhatu dushti* and *Medo dhatu vikara*. The dravyas of *Agni deepaka*, *Kaphahara*, and *Pachaka* are advantageous. The drugs best in *Bhedaka* and *Lekhana karma* are used to stop the adhesion of *Mala* (lipid waste) in the *Strotas*. *Trimada's* qualities are precisely what are needed to treat high cholesterol. They attribute their *Rasa*, *Guna*, *Veerya*, and *Vipaka* to this action. By inducing the body to absorb and metabolize *meda* (lipids), they help to restart the metabolism. The properties of the three drugs—*Chitraka*, *Mustaka*, and *Vidanga*—are *Katu rasa pradhana*, *Laghu Rooksha guna*, and *KaphVatahara*. Since these medications are carminatives and digestants, they balance the metabolism by ensuring that *Ahara rasa* is properly absorbed and digested. This further aids in equipoising the *Rasa dhatu*, thereby averting the complete annihilation of the *Rakta*, *Mamsa*, and *Meda dhatus*.

Consequently, the *Agni* is balanced, aiding in the appropriate nourishing of the other *Dhatu*s. This prevents the *Malas* from adhering to one location and supports the appropriate flow of *Doshas* through various *Srotas*. According to their *Rasa panchaka*, they function as a great medication for *Lekhana*, demonstrating a scraping action on the plaque that adheres to the *Srotas* (blood vessels) and facilitating the right movement of *Dhatu*s. Furthermore, *Bhedaniya* action breaks down the accumulated *Malas* (lipid waste) into smaller pieces. By doing this, they will be kept from building up in the body's vascular system. *Tamoguna* and *Atichintaniyam* have been shown to be highly effective in treating high cholesterol brought on by oxidative stress, which vitiates the *Kapha dosha* and disturbs the *Rasa, Rakta, and Medo Dhatu*s. Consequently, this prevents high cholesterol's symptoms and consequences.

## CONCLUSION

Being a common metabolic disorder, high cholesterol is the primary cause of numerous serious illnesses, including coronary artery disease (CAD) and elevated cholesterol levels. It's critical to comprehend its pathophysiology and identify strategies within the conventional medical community that can effectively prevent high cholesterol. *Trimada's* role in treating diseases associated with metabolic disorders is widely recognized. This review provides a scientific justification for using *Trimada* in this way. For *Trimada* to be used more widely for many disorders of this type and to confirm its therapeutic potency, extensive research and clinical trials are necessary.

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