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A critical review of *Vidangadi lauha* in the management of dyslipidemia

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Abstract
Introduction: Dyslipidemia is the disturbance of lipid transport resulting from abnormalities in synthesis or degradation of lipoproteins. Hyperlipidemia is a rise in plasma cholesterol, triglycerides or both. Elevated cholesterol primarily refers to high levels of low-density lipoprotein cholesterol (LDL-C) since 70% of cholesterol is carried in the LDL particle. Approximately 25-30% of urban and 15-20% of rural subjects in Indian population are suffering from dyslipidemia. It is more common among males, but can affect both genders. 30 to 40 years age group shows high tendency to develop dyslipidemia. Above 60 years, it becomes markedly high. Uncontrolled plasma lipid levels can contribute to the development of atherosclerosis and in turn to serious complications like coronary artery disease, stroke etc. Lipid disorders are correlated with *Medoroga* in *Ayurveda*. *Medoroga* possesses similarity with dyslipidemia in its causes, symptoms, complications and management. *Vidangadi lauha* is a formulation having properties like *Kapha-medohara*, *Agnideepana*, *Rasayana* etc.
Aim: To critically review *Vidangadi lauha* and understand its probable mode of action in the management of dyslipidemia.
Methods: Informations pertaining to *Vidangadi lauha* are reviewed from Ayurvedic texts and authentic publications.
Conclusion: *Vidangadi lauha* possesses *Rasapanchaka* and *Karmukata* which are helpful in effectively managing dyslipidemia. Phytochemicals present in the ingredients of *Vidangadi lauha* are effective in treating dyslipidemia and prevents complications.

Keywords: Dyslipidemia, *Medoroga*, *Vidangadi lauha*

Introduction

Dyslipidemia is a disorder of lipoprotein metabolism including lipoprotein overproduction or deficiency, or both [1]. This disorder can have different serological presentations like elevated plasma cholesterol, TG or both, or a low plasma concentration of high-density lipoprotein or all three. All these contribute to the development of atherosclerosis [2]. The most common types of dyslipidemia include high levels of low-density lipoprotein (LDL) cholesterol, high levels of triglycerides, and low levels of high-density lipoprotein. When LDL cholesterol levels are high, fatty plaques can build up in the blood vessels that, over time, create atherosclerosis and lead to peripheral artery disease, coronary heart disease or stroke [3].
World Health Organization (WHO) in 2002 reported that high cholesterol level is one of the main non-communicable disease-related risk factors in India [4]. Indian Council of Medical Research (ICMR) reported a prevalence of dyslipidemia of 37.5% among adults aged between 15 to 64 years, with an even higher prevalence of dyslipidemia (62%) among young male industrial workers [5].

Dyslipidemia is an asymptomatic disorder and it remains undetected until a complication occurs such as myocardial infarction due to early atherosclerosis.[6] Hence early detection and timely management is very much essential in order to prevent complications. Modern management includes both non pharmacological and pharmacological methods. Diet, weight reduction, exercise and discontinuation of cholesterol increasing drugs constitute the non-pharmacological management of dyslipidemia [7]. Statins are the most widely used drugs in this condition. Liver function test abnormalities and muscle problems, such as myalgia, asymptomatic increase in creatine kinase (CK), myositis are some of the rare but serious adverse effects of statins [8].

Dyslipidemia is correlated with *Medoroga* in *Ayurveda*. *Kapha dosha* and *Medo dhatu* play vital role in the development of *Medo roga*. *Prakupita kapha* leads to the *Medo vridhi* and *Medo dushti*. It produces various *Lakshana* as well as *Upadrava* too. Based on the etiology, clinical features and complications; dyslipidemia can be correlated with *Medoroga*. *Medoroga chikitsa* includes *Rukshana, Udvartana, Ruksha-ushna basti, Virechana* [9] and *Shamana prayogas* like *Guggulu, Shilajithu, Guduchi* etc.

Vidangadi lauha is a formulation explained in *Medoroga adhikara* of *Bhaishajya Ratnavali*. It contains ingredients having *Kapha-medo hara* properties [10]. Active principles of the ingredients of this formulation show lipid lowering and antioxidant properties, which help in the effective management of dyslipidemia.

Aims & Objectives

To critically review *Vidangadi lauha*, an Ayurvedic herbomineral formulation, and understand its probable mode of action in the management of dyslipidemia.

Materials and Methods

Various references pertaining to *Vidangadi lauha* along with its ingredients are collected and reviewed. Scientific publications regarding phytochemical and experimental studies conducted on each ingredient are reviewed.

Table 1: Ingredients of *Vidangadi Lauha*

Sl.	Name of the drug	Scientific name	Part used	Proportion
1	*Vidanga*	*Embelia ribes*	Seeds	1 part
2	*Hareetaki*	*Terminalia chebula*	Fruit	1 part
3	*Vibheetaki*	*Terminalia bellirica*	Fruit	1 part
4	*Amalaki*	*Phyllanthus emblica*	Fruit	1 part
5	*Musta*	*Cyperus rotundus*	Root	1 part
6	*Pippali*	*Piper longum*	Fruit	1 part
7	*Shunti*	*Zingiber officinale*	Rhizome	1 part
8	*Bilva*	*Aegle marmelos*	Root	1 part
9	*Chandana*	*Santalum album*	Stem	1 part
10	*Hreevera*	*Pavonia odorata*	Root	1 part
11	*Patha*	*Cissampelos pareira*	Rhizome	1 part
12	*Usheera*	*Vetiveria zizanioides*	Root	1 part
13	*Bala*	*Sida cordifolia*	Root	1 part
14	*Loha bhasma*	Iron calx		13 part

Table 2: Properties of the ingredients of *Vidangadi lauha*

Dravya	***Rasa***	***Guna***	***Veerya***	***Vipaka***	***Doshaghnata***	***Karma***
Vidanga	*Tikta*	*Ruksha, Laghu*	*Ushna*	*Katu*	*Vata Kapha hara*	*Krimihara, Vishahara, Agnideepana*
Haritaki	*Lavana varjita pancharasa*	*Laghu, Ruksha*	*Ushna*	*Madhura*	*Tridoshahara*	*Anulomana, Medhya, Rasayana, Mehahara*
Vibhitaki	*Kashaya*	*Ruksha, Laghu*	*Ushna*	*Madhura*	*Pitta Kapha hara*	*Keshya, Chakshushya, Bhedana*
Amalaki	*Lavana varjita pancharasa*	*Laghu, Ruksha*	*Sheeta*	*Madhura*	*Tridoshahara*	*Medohara, Rasayana, Vrishya,*
Musta	*Tikta*	*Laghu, Ruksha*	*Sheeta*	*Katu*	*Pitta Kapha hara*	*Deepana, Pachana, Grahi, Krimihara*
Pippali	*Katu*	*Laghu, Snigdha*	*Ushna*	*Madhura*	*Kapha Vata hara*	*Deepana, Pachana, Hridya, Rasayana*
Shunti	*Katu*	*Laghu, Snigdha*	*Ushna*	*Madhura*	*Vata Kapha hara*	*Deepana, Pachana, Grahi*
Bilva	*Tikta, Kashaya*	*Laghu, Teekshna*	*Ushna*	*Katu*	*Vata Kapha hara*	*Deepana, Pachana, Grahi*
Chandana	*Tikta*	*Ruksha, Laghu*	*Sheeta*	*Madhura*	*Pitta Kapha hara*	*Shramahara, Hridya, Varnya*
Hreevera	*Tikta*	*Ruksha, Laghu*	*Sheeta*	*Madhura*	*Pittahara*	*Deepana, Pachana, Krimihara*
Patha	*Kashaya, Madhura*	*Teekshna, Laghu*	*Sheeta*	*Katu*	*Tridoshahara*	*Mehahara, Vishahara, Krimihara*
Usheera	*Tikta, Madhura*	*Ruksha, Laghu*	*Sheeta*	*Katu*	*Pitta Kapha hara*	*Stambhana, Vishahara, Trishnahara*
Bala	*Madhura*	*Laghu, Snigdha*	*Sheeta*	*Madhura*	*Vata Pitta hara*	*Balya, Rasayana, Vrishya*
Lauha	*Kashaya, Tikta*	*Guru, Sara*	*Sheeta*	*Madhura*	*Kapha Pitta hara*	*Medohara, Mehahara, Krimihara, Rasayana*

Drug Review

Vidanga (*Embelia ribes*) possesses *Tikta rasa, Ruksha-laghu Guna, Ushna veerya and Katu vipaka.* It pacifies *Vata-kapha doshas. Vidanga* is the best among *Krimihara dravyas*. It is *Agnideepaka and Vishahara* also. The ethanolic extract of *E.ribes* shown significant reduction in serum total cholesterol (TC) and triglycerides (TG). It was also found to increase the HDL-C level in diabetic rats. Presence of antioxidants in the extract was determined and it protects the tissues from lipid peroxidation [11]. Embelin is a major constituent of *E.ribes* which at a dose of 50 mg/kg showed significant antihyperglycemic, lipid lowering and antioxidant activities in alloxan induced diabetic rats. Embelin is reported to have high therapeutic index (LD50) with a wide margin of safety. Embelin therapy (50 mg/kg) for 21 days significantly lowered serum TC, TG, LDL and apo-B levels. This lead to profound reduction in atherogenic and coronary indices. Embelin therapy also enhanced the activity of enzymatic

antioxidants like glutathionine (GSH), superoxide dismutase (SOD) and catalase (CAT), thereby reduced the level of malondialdehyde which is a byproduct of lipid peroxidation [12].

Hareetaki (*Terminalia chebula*) has *Lavana varjita pancharasa, Laghu-ruksha guna, Ushna veerya* and *Madhura vipaka*. It is *Tridoshahara* and *Rasayana. T.chebula* contains ellagic acid, gallic acid, chebulinic acid, chebugalic acid etc. Administration of *Hareetaki* in doses of 1.5 mg, 2.1 mg/kg body weight per day for 14 days showed statistically significant decrease in TC, TG and increased HDL-C. Significant reduction in atherogenic index was also observed [13]. High amount of saponins, phytosterols, chebulinic acid and corilagin present in hareetaki may be responsible for the hypolipidemic effect [14]. Antioxidant and free radical scavenging activity of the phytochemicals present in *T.chebula* helps in the management of long term complications of dyslipidemia and diabetes mellitus [15].

Vibheetaki (*Terminalia bellirica*) possesses *Kashaya rasa, Ruksha-laghu guna, Ushna veerya* and *Madhura vipaka*. It is *Pitta kaphahara*. *T.bellirica* contains polyphenols like gallic acid and ellagic acid and chebugalic acid [16]. Oxidized LDL-C seen in the atherosclerotic lesions is responsible for atherosclerosis. Gallic acid and ellagic acid has free radical scavenging property which inhibits lipid peroxidation and thus prevents atherosclerosis [17]. *T.bellirica* extract is reported to prolong the LDL oxidation lag time indicating the inhibition of free radical induced peroxidation of LDL. It also reduces the mRNA expression of pro inflammatory cytokines like tumor necrosis factor - alpha (TNF α) and interleukin 1 - beta (IL-1 β) leading to the reduction in macrophage mediated inflammation and atherosclerosis progression [18].

Amalaki (*Phyllanthus emblica*) has *Lavana varjita pancharasa, Laghu-ruksha guna, Sheeta veerya* and *Madhura vipaka*. It is *Tridosha hara* and considered to be a best *Rasayana dravya*. It is *Medohara*. *P.emblica* fruit extract (PEFE) showed presence of phytochemical constituents such as flavonoids, tannins, terpenoids, alkaloids, carbohydrates and proteins with absence of steroids [19]. Vitamin C is a water soluble non enzymatic antioxidant present in *P.emblica* prevents the oxidants from causing detectable oxidative damage. Digallic acid was found as a major component of PEFE. Digallic acid showed significant antilipolytic activity compared to the standard drug orlistat [20]. *P.emblica* reduces LDL-C significantly and inhibits lipid peroxidation [21]. It is also found to inhibit 3-hydroxy-3-methylglutaryl coenzyme A (HMG-CoA) reductase, the rate limiting enzyme in the cholesterol synthesis, affecting lipoprotein metabolism and reducing absorption of cholesterol [22]. Polyphenolic flavonoids may prevent coronary artery disease by reducing plasma cholesterol level and by inhibiting LDL-C peroxidation [23].

Musta (*Cyperus rotundus*) has *Tikta rasa, Laghu-ruksha guna, Sheeta veerya* and *Katu vipaka*. It is *Pitta kaphahara* having *Deepana, Pachana, Grahi* properties. *C.rotundus* contains pharmacologically active molecules like scirpusin A and B, piceatannol etc. These two phytochemicals are found to have anti-adipogenic properties and effectively manage weight and hypercholesterolemia [24]. Alcoholic extract of *C.rotundus* significantly reduced serum TC, TG, LDL-C in high fat diet induced hyperlipidemic rats [25].

Pippali (*Piper longum*) has *Katu rasa, Laghu-snigdha guna, Ushna veerya* and *Madhura vipaka*. It is *Kapha vatahara, Deepana-pachana and Rasayana*. *P.longum* contains active principle ingredients such as piperine, methyl piperine, pipernonaline, piperettine, asarinine etc. [26] Piperine shows significant reduction in TC, TG, LDL-C levels. Piperine at a dose of 30 mg/kg body weight significantly reduced the adipocyte cell size by 53.01% in subcutaneous white adipose tissue (SAT) and 35.88% in visceral white adipose tissue (VAT). Piperine down-regulates lipid synthesis in visceral fat than in subcutaneous fat and up-regulates lipolysis in visceral fat. These processes leads to the reduction in TC, TG and LDL-C levels [27]. N-isobutyl-5-(3,4-methylenedioxyphenyl)-2E,4E-pentadienamine (GB-N) is a piperine derivative from *P.longum*. GB-N is reported to have high hypolipidemic effects on high fat diet induced hyperlipidemic rats. GB-N increases the levels of lecithin cholesterol acyltransferase (LCAT) mRNA protein expression. LCAT plays significant role in HDL-C metabolism which catalyses free cholesterol in to esterification. GB-N increases the levels of low-density lipoprotein receptor (LDLR) protein expression in turn increasing the efficiency of reducing LDL-C from blood. It also increases the cytochrome P450 7A1 (CYP7A1) which is a rate limiting enzyme for converting cholesterol into bile acid thus decreasing the TC level [28].

Shunti (*Zingiber officinale*) has *Katu rasa, Laghu-snigdha guna, Ushna veerya* and *Madhura vipaka*. It is *Vata kapha hara* having *Deepana-pachana* and *Grahi* actions. *Z. officinale* contains bioactive molecules like zingerone, 6-gingerol, 8-gingerol, 10-gingerol, and 6-shogaol, which are responsible for the antioxidant, hypolipidemic, and antiatherosclerotic effects [29]. *Z. officinale* extract treatment showed small LDL-C/HDL-C and TC/HDL-C ratios suggesting its antiatherogenic effects [30]. 400mg/kg body weight of aqueous ginger infusion is found to be more effective as a hypocholesterolemic agent than atorvastatin.[31] The [E]-8b, 17-epoxylabd-12-ene-15,16-dial (ZT) compound that was isolated from ginger reduced plasma cholesterol levels in hypercholesterolaemic rats by inhibiting cholesterol biosynthesis [32] Niacin present in ginger causes increased clearance of VLDL, lowers triglyceride levels, increases hepatic uptake of LDL and inhibits cholesterogenesis [33]. Ginger when added to the animal diet showed increase in the pancreatic and intestine lipase which plays a vital role in fat digestion [34].

Bilva (*Aegle marmelos*) has *Tikta-kashaya rasa, Laghu-teekshna guna, Ushna veerya* and *Katu vipaka*. It is *Vata-kaphahara* and *Deepana-pachana. A.marmelos* contains alkaloidal amide aegeline 2 which is reported to be effective in reducing TG by 55%, TC by 24%, and free fatty acids (FFA) by 24% in experimental rat models [35]. It also increases HDL-C by 28% *A.marmelos* extract showed significant effect on lipids in isoproterenol (ISO) treated rats. This may be because of the free radical scavenging and prevention of lipid peroxidation [36].

Chandana (*Santalum album*) has *Tikta rasa, Ruksha-laghu guna, Sheeta veerya* and *Madhura vipaka*. It is *Pitta-kaphahara* having *Shramahara, Hridya, Varnya* actions. It contains α-santalene, α-santalal, β-santalal, epi-βsantalal, α-santalol, β-santalol, (E)-β-santalol, α-bergamotol and spirosantalol [37]. Santalum album treatment in diabetic rats showed reduction in TG, TC triglyceride, total cholesterol and increased HDL by 46%. Overall atherogenic index was also reduced [38].

Hreevera (*Pavonia odorata*) has *Tikta rasa, Ruksha-laghu guna, Sheeta veerya* and *Madhura vipaka*. It is *Pittahara* and *Deepana-pachana*. *P.odorata* contains alkaloids, flavonoids, glycosides, saponins and phenolic compounds [39]. It

possesses anti-inflammatory, antioxidant, antidiabetic aand cardiovascular activity [40].

Patha (*Cissampelos pareira*) has *kashaya-madhura rasa, Teekshna-laghu guna, Sheeta veerya* and *Katu vipaka*. It is *Tridoshahara* having *Mehahara, Vishahara* and *Krimihara* actions. *C.pareira* contains alkaloids such as hayatin, hayatidin, hayatinin, cissampeline, cissampareine, warifterine, tetradrine etc. *Cissampelos pareira* aqueous extract (CPAE) treatment in diabetic mice showed significant increase in HDL-C level while LDL-C was unaffected [41]. Alkaloid fraction of *C.pareira* showed strong in vitro antioxidant activity [42].

Usheera (*Vetiveria zizanioides*) has *Tikta-madhura rasa, Ruksha-laghu guna, Sheeta veerya* and *Katu vipaka*. It is *Pitta-kaphahara* having *Stambhana, Vishahara* actions. *V.zizanioides* contains alkaloids, flavonoids, tannins, phenols, terpanoids and saponins. Ethanolic extract of *V.zizanioides* showed reduction of ferric cyanide to ferrous form and it is a strong indicator of the antioxidant activity [43].

Bala (*Sida cordifolia*) has *Madhura rasa, Laghu-snigdha guna, Sheeta veerya* and *Madhura vipaka*. It is *Vata-pittahara, Balya* and *Rasayana. S.cordifolia* contains sterols, terpanoids, glycosides, tannins, phenols etc. It showed significant increase in HDL-C level and decrease in TG, TC and LDL-C [44]. This could be achieved probably due to the presence of flavonoids in *S.cordifolia* [45].

Lauha bhasma has *Kashaya-tikta rasa, Guru-sara guna, Sheeta veerya* and *Madhura vipaka.* It is *Kapha-pittahara* having *Medohara, Mehahara, Rasayana* actions. *Lauha bhasma* has *Lekhana* property which helps in removing the excessive fat [46]. *Lauha churna* contains metallic iron which is converted into iron oxide (Fe_2O_3) when *Lauha bhasma* is prepared [47]. This increases the bioavailability of *Lauha bhasma* than that of *Lauha churna*. Iron in ferrous form (Fe^{2+}) is found to be more beneficial than in ferric form (Fe^{3+}) as Fe^{2+} is better absorbed [48]. *Triphala kwatha* is used excessively in the preparation of *Lauha bhasma.* Ascorbic acid in *Triphala* increases the bioavailability of iron by converting Fe^{3+} to Fe^{2+}.[49]

Review of clinical studies on *Vidangadi lauha*

1) *Vidangadi Lauha* for Obese Type 2 Diabetes mellitus; Randomized controlled clinical study [50].

This open labelled randomized controlled clinical study was done to evaluate clinical efficacy of '*Vidangadi Lauha*' in comparison with metformin for obese type II diabetes mellitus. Trial group received *Vidangadi Lauha* 5gm BID and control group received tablet metformin 500mg BID for duration of 3 months. Among 550 screened participants 120 participants were eligible, out of them 100 participants were enrolled and randomized by computer generated method, out of them 80 patients (40 in each group) completed the trial. Both the treatments were found to be equally effective in reducing blood sugar fasting (F), post meal (PM) glycated Haemoglobin (HbA1C) and Body Mass Index (BMI). *Vidangadi Lauha* is more effective in reducing Ayurvedic Symptoms, waist hip ratio and cholesterol as compared to Metformin. High Density Lipoproteins (HDL) was improved by minor clinical difference in both the groups. Both the treatment does not have statistically significant effect in reducing Low Density Lipoproteins (LDL).

Some herbs mentioned in the formulation *Vidangadi Lauha* shows alpha glucosidase inhibition, antidiabetic, dislipidemic, hypoglycaemic, beta cells protective activity, prevention of platelet agregation and thrombus formation, inhibited the activities of αamylase, α-glucosidase, and dipeptidyl peptidase-4, anti-obesity, endothelial dysfunction, oxidative stress, systemic inflammation.

2) Clinical open randomised comparative study of *Vidangadi Lauha* and *Navaka Guggulu* in management of *Sthaulya* with special reference to obesity[51]

In this clinical study, 30 subjects of Group A received *Vidangadi Lauha* and 30 subjects of Group B received *Navaka Guggulu* for a period of 56 days. Assessment was done based on the improvements in Sthoulya lakshanas, anthropometric measurements and lipid profile. Both medications showed significant improvement in the parameters. On comparing, *Vidangadi Lauha* was found to be more effective than *Navaka Guggulu.* It showed significant reduction in TG, LDL and VLDL and increase in HDL.

3) Clinical evaluation of *Vidangadi Lauha* in the management of *Pandu Roga*[52]

In this clinical study, 16 patients were selected and administered with *Vidangadli Lauha* tablet for duration of 6 weeks. Assessment was done on basis of the improvements in *Pandu Lakshanas* and blood parameters. Significant improvement was observed in the above said parameters. *Vidangadi Lauha* was found to be improving the *Agni* which led to the production of best quality of *Rasa* and *Rakta Dhatus*.

Method of Preparation

All ingredients are powdered separately into fine powder form and mixed together. This homogenous powder is taken in a *Khalva yantra,* mixed thoroughly and triturated with honey and ghee to obtain fine paste consistency. Paste is put in to a tablet punching machine. Tablets weighing 250 mg are prepared and dried well in a drier.

Dose & Anupana

2 tab of 250 mg each before food bd with warm water.

Discussion

Dislipidemia is correlated with *Medoroga* in *Ayurveda. Kapha pradhana tridoshas* play vital role in causing *Medoroga. Prakupita kapha* increases the *Medodhatu* and it causes obstruction to the movement of *Vata. Vata* stays in the *Koshta* and increases the *Koshta agni*. As a result of this the person consumes large quantity of food.[53] Though the *Agni* is increased, *Ahara rasa* formed will be *Ama rasa* or *Madhura praya anna rasa* due to the "*Adhyashana sheela*" (excessive food intake).[54] This type of *Anna rasa* does not contribute to the nourishment of body but increases the *Meda* leading to *Medoroga.*

From the *Samprapti*, it is clear that the *Chikitsa* for *Medoroga* should be multifaceted. Medicines used in *Medoroga* should be able to correct the *Agni*, pacify *Kapha pradhana tridoshas* and reduce the *Atimedas*. *Vidangadi lauha* is such a formulation explained in *Bhaishajya ratnavali medoroga adhikara.*[55] Ingredients of *Vidangadi lauha* possesses *Tikta-kashaya rasa, Laghu-ruksha guna, Sheeta veerya* and *Madhura vipaka* predominantly. Since *Prakupita kapha* and *Dushita meda* are the main factors in *Medo roga, Tikta-kashaya rasas* and *Laghu-ruksha guna* will help in management. *Tikta-kashaya rasas* are *Kapha hara* and do

Rukshana which reduces *Meda.*[56],[57] *Koshtagni* is increased in the *Samprapti* of *Medoroga*, so these *Rasa-gunas* can further increase *Agni*. This may be compensated by the action of *Madhura vipaka* and *Sheeta veerya.* Some of the ingredients possess *Deepana-pachana* properties which may be helpful in doing the *Pachana* of *Ama anna rasa (madhura praya annarasa)* and thus preventing the formation of excessive *Meda.* Some ingredients have *Rasayana* property. This may be helpful not only in curing the disease but also in preventing complications.

Phytochemical analysis and experimental study results of the ingredients of vidangadi lauha show highly significant hypolipidemic activity. Most of the drugs help in lowering the TC, TG, LDL-C and increase HDL-C levels. Antioxidant and free radical scavenging activity of the drugs gives protection from lipid peroxidation and oxidative damages. Some drugs down-regulates lipogenesis and up-regulates lipolysis in the visceral fat. Reduction in atherogenic index was also observed in the experimental models. Based on these actions of the drugs, it can be understood that vidangadi lauha is not only helpful in lowering lipid levels, but also prevents the complications like coronary artery disease (CAD).

Conclusion

Vidangadi lauha predominantly has *Tikta-kashaya rasa, laghu-ruksha guna, sheeta veerya* and *Madhura vipaka.* These properties help in reducing the excessive *Meda.* They also normalize *Agni* thus leading to the formation of proper *Anna rasa* and *Medo dhatu.* Ingredients of *Vidangadi lauha* possess hypolipidemic activity which helps in lowering the lipoprotein levels. Antioxidant and free radical scavenging activities of the ingredients help in preventing the progression of dyslipidemia, formation of atherosclerotic plaques and occurrence of complications.

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