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VIDANGADYA LAUH: A COMPREHENSIVE DRUG REVIEW WITH SPECIAL REFERENCE TO *MADHUMEHA*

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ABSTRACT

Background: *Madhumeha* is a long-lasting disease placed under the *Vataja* group of *Prameha*. In this disease the patient passes a large amount of urine that tastes sweet like honey, and the body slowly loses its strength and tissues. It closely resembles Diabetes Mellitus, which has become one of the largest health problems in India. *Rasashastra* offers many herbo-mineral medicines for this disease, and *Vidangadya Lauh* is one such classical formulation described in *Bhaishajya Ratnavali*. It contains *Lauha Bhasma* along with *Vidanga*, *Triphala*, *Musta*, *Pippali*, *Shunthi* and two types of *Jiraka*. Together these drugs act on weak *Agni*, excess *Kapha*, loose *Meda* and loss of *Dhatu*, which are the main links in the disease process. A full review of this formulation is needed to bring together its classical basis and the present scientific support. **Aim and Objectives: Aim:** To carry out a comprehensive review of *Vidangadya Lauh* with special reference to *Madhumeha*. **Objectives:** To study the classical reference, composition, method of preparation, dose and indications of *Vidangadya Lauh*. To study the *Rasa Panchaka* and *Karma* of each ingredient. To collect the available pharmacological and clinical evidence. To explain the probable mode of action of the formulation on the *Samprapti* of *Madhumeha*. **Materials and Methods:** *Bhaishajya Ratnavali*, *Charaka Samhita*, *Ashtanga Hridaya*, *Sharangadhara Samhita*, *Rasa Tarangini* and standard *Dravyaguna* texts were studied. Research papers were searched on PubMed, Google Scholar and the AYUSH Research Portal. The data was arranged under suitable headings and analysed. **Results and Discussion:** The formulation breaks the *Samprapti* of *Madhumeha* at the level of *Agni*, *Kapha-Meda* and *Dhatu*. The antioxidant and blood sugar lowering actions of its herbs support this classical view. **Conclusion:** *Vidangadya Lauh* is a useful and low-cost classical formulation for *Madhumeha*, especially in obese patients. Larger controlled trials are needed to confirm its long-term benefit and safety.

Keywords: *Vidangadya Lauh*, *Madhumeha*, *Lauha Bhasma*, *Prameha*, Diabetes Mellitus, Herbo-mineral formulation

INTRODUCTION

Ayurveda describes *Prameha* as a group of twenty urinary disorders that arise mainly from over-nourishment and an inactive way of living. All of them share one common feature, that is, passing urine in large amount and with turbidity. Among the twenty types, *Madhumeha* is the most serious one. It belongs to the *Vataja* group, and the urine of the patient becomes sweet like honey (*Madhu*). *Acharya Charaka* has made it clear that every type of *Prameha*, if neglected for a long time, finally turns into *Madhumeha* and then becomes very hard to cure.[1] For this reason the classics advise a wide plan of treatment that includes purification (*Shodhana*), pacification (*Shamana*), proper diet and regular exercise. Under *Shamana*, both single herbs and compound formulations are used.

In modern medicine, Diabetes Mellitus (DM) is a chronic metabolic disease in which the blood sugar stays high because the body does not make enough insulin, or cannot use it well, or both. With time it damages the eyes, kidneys, nerves, heart and blood vessels. India now has one of the largest numbers of diabetic patients in the world. A large national survey under the Indian Council of Medical Research reported that 11.4% of Indian adults have diabetes and 15.3% have prediabetes, which means more than 100 million people are living with this disease.[2] Indians tend to store more fat around the abdomen even at a lower body weight, and this makes them more likely to develop diabetes. Modern drugs control the sugar level well, but they must be taken for life, some of them cause side effects, and the long-term complications still continue in many patients. Therefore, there is a real need for safe, low-cost and supportive options.

Rasashastra, the branch of *Ayurveda* that deals with metals and minerals, offers herbo-mineral medicines that work in small doses, act quickly and keep well for a long time. Formulations made with *Lauha Bhasma* (processed iron) form an important group in this branch and are commonly used in *Pandu*, *Prameha* and *Sthaulya*. *Vidangadya Lauh* is one such formulation in which *Lauha Bhasma* is combined with nine herbal drugs. An earlier drug review described its *Kapha-Medohara* and *Pramehaghna* properties and pointed out its possible value in type 2 diabetes.[3] However, the information on this drug is still scattered across classical texts and separate research papers. The present article brings all of it together in one place, in simple language, for students, teachers and clinicians.

AIM AND OBJECTIVES

Aim: To carry out a comprehensive review of *Vidangadya Lauh* with special reference to *Madhumeha*.

Objectives

- To study the classical reference, composition, method of preparation, dose and indications of *Vidangadya Lauh*.
- To study the *Rasa Panchaka* and *Karma* of each ingredient.
- To collect the available pharmacological and clinical evidence.
- To explain the probable mode of action of the formulation on the *Samprapti* of *Madhumeha*.

MATERIALS AND METHODS

This is a conceptual (literary) review. The main source of the formulation was *Bhaishajya Ratnavali* with its *Siddhiprada* Hindi commentary.[4] Other classical texts, namely *Charaka Samhita*, *Sushruta Samhita*, *Ashtanga Hridaya*, *Sharangadhara Samhita* and *Rasa Tarangini*, along with standard books of *Dravyaguna*, were also studied to collect information on the disease and on each ingredient. Modern information was gathered from research articles available on PubMed, Google Scholar, DOAJ and the AYUSH Research Portal, using the keywords "*Vidangadi Lauha*", "*Vidangadya Lauh*", "*Madhumeha*", "*Lauha Bhasma*", "*Embelia ribes*" and "Diabetes Mellitus". Only articles in English that dealt with the formulation or its ingredients were included. The collected matter was read carefully, compared, and

arranged under suitable headings, tables and a flow chart, and conclusions were drawn by logical analysis.

CONCEPTUAL STUDY – AYURVEDIC REVIEW

1. *Madhumeha* – A Brief *Ayurvedic* View

The word *Madhumeha* is made of two parts: *Madhu*, meaning honey, and *Meha*, meaning passing of urine. *Acharya Vagbhata* explains that in this disease the patient passes urine that is like honey, and that the disease comes up in two ways. In the first way, *Vata* becomes aggravated because the body tissues are getting used up (*Dhatukshaya*). In the second way, the path of *Vata* is blocked by the other *Doshas* (*Avarana*). He further says that the whole body of the patient takes on sweetness, so *Madhumeha* is a disease of the whole body and not of the urine alone.[5] Because the essence of all tissues, that is *Ojas*, is lost through the urine, the disease is also called *Ojomeha*. The four *Vataja* types of *Prameha* are *Vasameha*, *Majjameha*, *Hastimeha* and *Madhumeha*, and they are the hardest to treat.

2. *Nidana* (Causes)

In this verse, *Acharya Charaka* lists the causes of *Prameha* in a very short form. Enjoying long hours of sitting (*Asyasukha*) and long hours of sleep (*Swapnasukha*), regular use of curd, soups made from the meat of domestic, water-living and marshy-land animals, milk, freshly harvested grains and new drinks, products of jaggery and, in short, anything that increases *Kapha*, are said to cause *Prameha*.[6] For easy study, these causes can be placed in the following groups:

- **Diet related (*Aharaja*):** heavy (*Guru*), oily (*Snigdha*) and sweet (*Madhura*) food, *Navanna*, *Dadhi*, *Guda*, *Ikshu* and excess milk products.
- **Lifestyle related (*Viharaja*):** no exercise (*Avyayama*), day sleep (*Divaswapna*), long sitting and a lazy routine.
- **Mind related (*Manasika*):** worry, grief and stress, which mainly increase *Vata* and favour the *Dhatukshaya* route.
- **Hereditary (*Beeja Dosha*):** a defect in the *Beeja* of the parents, which leads to the inborn (*Sahaja*) type.

3. *Samprapti* (Pathogenesis)

When the above causes are taken for a long time, the digestive fire (*Jatharagni*) and the fire of the fat tissue (*Medodhatvagni*) both become weak. As a result, *Kapha* increases in a watery form (*Bahudrava Shleshma*) and unhealthy, loose fat (*Abaddha Meda*) gathers in the body. This *Kapha* mixes with *Meda*, *Mamsa* and the body fluid (*Kleda*), moves down to the urinary bladder (*Basti*) and is passed out as excess and turbid urine. *Acharya Charaka* explains that the disease can reach the stage of *Madhumeha* by two routes: by blockage of the path of *Vata* by *Kapha* and *Meda*, or by aggravation of *Vata* due to loss of tissues.[7] In both routes, the aggravated *Vata* drags the sweet *Ojas* towards the *Basti*, so the urine becomes sweet and the body becomes weak. The full process is shown in Figure 1 and the components are given in Table 1.

Figure 1: *Samprapti* of *Madhumeha* (Flow Chart)

Nidana Sevana – Guru, Snigdha, Madhura Ahara, Navanna, Dadhi, Guda, Avyayama, Divaswapna, Beeja Dosha

↓

Jatharagni Mandya* → formation of *Ama

↓

Medodhatvagni Mandya → Abaddha Meda Vriddhi + Bahudrava Kapha Prakopa

↓

Kapha spreads in the body and mixes with _Meda_, _Mamsa_, _Kleda_, _Vasa_, _Lasika_ (_Dosha-Dushya Sammurchhana_)

↓

Vitiated _Kleda_ enters _Mutravaha Srotas_ and reaches _Basti_

↓

Prabhuta* and *Avila Mutrata* – early *Kaphaja Prameha

↓

(neglected / chronic stage)

Avaranajanya (*Sthula* patient): *Kapha-Meda* block the path of *Vata*	Dhatukshayajanya (*Krisha* patient): loss of *Dhatu* leads to *Vata Prakopa*

Aggravated *Vata* carries sweet *Ojas* to *Basti*

↓

***MADHUMEHA* – honey-like urine, thirst, weakness, weight loss (Diabetes Mellitus)**

Table 1: *Samprapti Ghataka* of *Madhumeha*

Component	Description
Dosha	*Kapha*-dominant *Tridosha* in the beginning; *Vata*-dominant in *Madhumeha*
Dushya	*Meda*, *Mamsa*, *Kleda*, *Rasa*, *Rakta*, *Shukra*, *Ambu*, *Vasa*, *Majja*, *Lasika*, *Ojas*
Agni	*Jatharagni Mandya* and *Medodhatvagni Mandya*
Srotas	*Mutravaha*, *Medovaha* and *Udakavaha Srotas*
Srotodushti	*Atipravritti* (excess flow)
Udbhava Sthana	*Amashaya*
Adhishthana	*Basti*
Vyakta Sthana	*Mutra* (urine)
Swabhava	*Chirakari* (slow and long-lasting)
Sadhyasadhyata	*Yapya* (controllable) to *Asadhya* (incurable)

4. *Vidangadya Lauh* – Source, Name and Composition

Vidangadya Lauh belongs to the *Lauha Kalpa* group of *Rasaushadhi*. It is described in *Bhaishajya Ratnavali*, a well-known text of the medieval period, and is used in practice for *Prameha*, *Sthaulya* (obesity) and *Pandu* (anaemia). The name has three parts: *Vidanga*, the first drug of the recipe; *Adya*, meaning "beginning with"; and *Lauh*, meaning iron, which is the main content of the formulation. The nine herbal drugs are taken in equal parts, and *Lauha Bhasma* is taken equal to all of them together, that is, nine parts (Table 2). In some published versions and commercial products, *Maricha* is seen in place of *Shunthi*, so the edition being followed should always be checked.

Table 2: Composition of *Vidangadya Lauh*

No.	Ingredient	Botanical Name	Family	Part Used	Part
1	*Vidanga*	*Embelia ribes* Burm. f.	Primulaceae	Fruit	1 part
2	*Haritaki*	*Terminalia chebula* Retz.	Combretaceae	Fruit rind	1 part
3	*Bibhitaki*	*Terminalia bellirica* Roxb.	Combretaceae	Fruit rind	1 part
4	*Amalaki*	*Emblica officinalis* Gaertn.	Phyllanthaceae	Fruit	1 part
5	*Musta*	*Cyperus rotundus* Linn.	Cyperaceae	Rhizome	1 part
6	*Pippali*	*Piper longum* Linn.	Piperaceae	Fruit	1 part

No.	Ingredient	Botanical Name	Family	Part Used	Part
7	*Shunthi*	*Zingiber officinale* Rosc.	Zingiberaceae	Rhizome	1 part
8	*Jiraka*	*Cuminum cyminum* Linn.	Apiaceae	Fruit	1 part
9	*Krishna Jiraka*	*Carum carvi* Linn.	Apiaceae	Fruit	1 part
10	*Lauha Bhasma*	Processed iron (Ferrum)	—	*Bhasma*	9 parts

5. Method of Preparation

The formulation is prepared as a *Vati* (tablet) by following the general rules of *Vatika Kalpana* given by *Acharya Sharangadhara*, in which fine powders of drugs are ground well and rolled into pills of a fixed weight.[8] The steps are as follows:

- All raw herbs are collected, identified and checked for quality as per the *Ayurvedic* Pharmacopoeia of India.
- *Lauha Bhasma* is prepared separately through *Shodhana*, *Marana* and *Amritikarana*, and is tested for proper quality.
- The nine herbal drugs are dried, powdered and sieved through a fine cloth (*Vastragalita Churna*).
- One part of each herbal powder is mixed with nine parts of *Lauha Bhasma* and ground in a *Khalva Yantra* for uniform mixing.
- Enough water is added during grinding to make a soft mass, and pills of about 250 mg are rolled.
- The pills are dried in shade and kept in clean, airtight glass containers away from moisture.

6. *Lauha Bhasma* – The Main Content

Lauha Bhasma is the fine ash of iron obtained after many steps of purification and incineration. In *Samanya Shodhana*, heated iron is dipped in turn into sesame oil, buttermilk, cow urine, sour gruel and horse gram decoction. In *Vishesha Shodhana* it is dipped in *Triphala* decoction. *Marana* is then done by repeated grinding with herbal juices and heating in *Puta*, and *Amritikarana* is done to remove any remaining harmful effect. A properly prepared *Bhasma* must pass classical tests such as *Rekhapurnata* (it fills the lines of the fingers), *Varitara* (it floats on water), *Nishchandra* (no shine) and *Apunarbhava* (it does not return to metal form). *Rasa Tarangini* describes *Lauha Bhasma* as a drug that removes *Prameha*, *Pandu*, *Sthaulya* and *Shotha*, and also as a *Rasayana* that gives strength and long life.[9] In *Madhumeha*, where the patient becomes weak and thin, this *Rasayana* and *Balya* action of *Lauha Bhasma* is very useful.

7. *Rasa Panchaka* of Ingredients

Rasa Panchaka means the five basic properties of a drug, namely taste (*Rasa*), quality (*Guna*), potency (*Virya*), post-digestive effect (*Vipaka*) and action (*Karma*). These properties decide how a drug works in the body. The properties of each ingredient, as described in standard *Dravyaguna* texts, are given in Table 3.[10]

Table 3: *Rasa Panchaka* and *Karma* of Ingredients

Drug	*Rasa*	*Guna*	*Virya*	*Vipaka*	Main *Karma*
Vidanga	*Katu, Kashaya*	*Laghu, Ruksha, Tikshna*	*Ushna*	*Katu*	*Krimighna, Deepana, Kapha-Vatahara*
Haritaki	*Pancharasa* (no *Lavana*), *Kashaya* main	*Laghu, Ruksha*	*Ushna*	*Madhura*	*Tridoshahara, Anulomana, Rasayana*
Bibhitaki	*Kashaya*	*Laghu, Ruksha*	*Ushna*	*Madhura*	*Kapha-Pittahara, Bhedana*
Amalaki	*Pancharasa* (no *Lavana*), *Amla* main	*Guru, Ruksha, Sheeta*	*Sheeta*	*Madhura*	*Tridoshahara, Rasayana, Pramehaghna*

Drug	*Rasa*	*Guna*	*Virya*	*Vipaka*	Main *Karma*
Musta	*Tikta, Katu, Kashaya*	*Laghu, Ruksha*	*Sheeta*	*Katu*	*Deepana, Pachana, Grahi, Kapha-Pittahara*
Pippali	*Katu*	*Laghu, Snigdha, Tikshna*	*Anushna-Sheeta*	*Madhura*	*Deepana, Rasayana, Kapha-Vatahara*
Shunthi	*Katu*	*Laghu, Snigdha*	*Ushna*	*Madhura*	*Deepana, Pachana, Kapha-Vatahara*
Jiraka	*Katu*	*Laghu, Ruksha*	*Ushna*	*Katu*	*Deepana, Pachana, Grahi*
Krishna Jiraka	*Katu*	*Laghu, Ruksha*	*Ushna*	*Katu*	*Deepana, Kapha-Vatahara*
Lauha Bhasma	*Tikta, Kashaya, Madhura*	*Guru, Ruksha*	*Sheeta*	*Madhura*	*Lekhana, Pramehaghna, Rasayana*

A look at Table 3 shows that *Katu* taste is present in seven drugs and *Kashaya* taste in six drugs. Eight drugs are *Laghu* and eight are *Ruksha* in quality. Six drugs have *Ushna Virya*, three have *Sheeta Virya* and one (*Pippali*) is *Anushna-Sheeta*. This mix of light, dry and hot qualities works directly against the heavy, oily and watery nature of *Kapha*, *Meda* and *Kleda* in *Madhumeha*, while the *Sheeta* drugs (*Amalaki*, *Musta*, *Lauha Bhasma*) keep the formula balanced and reduce burning.

8. Dose, *Anupana, Indications and Precautions*

- **Dose:** 250–500 mg (1–2 *Vati*) twice a day, before or after food, as decided by the physician according to the strength of the patient and *Agni*.
- **Anupana:** lukewarm water; *Madhu* (honey) may be used as per classical practice, keeping the sugar level in mind.
- **Indications:** *Prameha*, *Madhumeha*, *Sthaulya*, *Medoroga*, *Pandu* and *Krimi Roga*.
- **Precautions:** to be taken only under medical advice; to be avoided in iron overload states, peptic ulcer and pregnancy unless advised; constipation and dark stools may occur with iron.

9. Pharmacological Studies on the Ingredients

Vidanga is the leading drug of this formulation. Its main active compound, embelin, has been studied widely. In an animal study on diabetic rats, the extract of *Embelia ribes* lowered blood sugar and glycated haemoglobin, improved the levels of the body's own antioxidant enzymes and protected the insulin-making beta cells of the pancreas from damage.[11] Other studies on *Vidanga* have shown fat-reducing and lipid-lowering effects, which are helpful in the obese diabetic patient.

Triphala, made of *Haritaki*, *Bibhitaki* and *Amalaki*, forms one-third of the herbal part of the formula. A detailed review on *Triphala* reported its antioxidant, anti-inflammatory, blood sugar lowering, weight-reducing and gut-supporting actions, and its role in keeping the bowel regular.[12] *Musta*, *Pippali*, *Shunthi*, *Jiraka* and *Krishna Jiraka* have also shown blood sugar lowering, lipid lowering and digestive-stimulant effects in various experimental studies. These findings give a scientific base to the *Deepana*, *Pachana*, *Lekhana* and *Pramehaghna* actions described in the classics.

10. Clinical Evidence

An open-label randomised controlled trial was done on obese type 2 diabetic patients at Government *Ayurved* College, Nagpur. One group received *Vidangadi Lauha* 5 g twice daily before food with lukewarm water, and the other group received metformin 500 mg twice daily, for 90 days. In the *Vidangadi Lauha* group, HbA1c fell from 8.05% to 7.14%, fasting blood sugar from 151.6 to 117.2 mg/dl, and post-meal blood sugar from 248.3 to 162.9 mg/dl, which was similar to the metformin group. The *Vidangadi Lauha* group also showed a better fall in BMI (26.2 to 24.5), waist-hip ratio, total cholesterol and triglycerides, and a greater relief in *Ayurvedic* symptoms and quality of life. No serious side effect was reported.[13]

11. *Samprapti Vighatana* by *Vidangadya Lauh*

Samprapti Vighatana means breaking the chain of disease formation. Table 4 shows how the different ingredients of *Vidangadya Lauh* act on each link of the *Samprapti* of *Madhumeha*.

Table 4: Action of *Vidangadya Lauh* on *Samprapti* of *Madhumeha*

Samprapti Link	Ingredients Acting	Action
Jatharagni and *Medodhatvagni Mandya*	*Pippali*, *Shunthi*, *Jiraka*, *Krishna Jiraka*, *Vidanga*	*Deepana*, *Pachana*
Ama	*Musta*, *Shunthi*, *Vidanga*	*Ama Pachana*
Bahudrava Kapha and *Kleda*	*Katu-Tikta-Kashaya*, *Ushna*, *Ruksha* drugs	*Kaphahara*, *Kleda Shoshana*
Abaddha Meda	*Vidanga*, *Triphala*, *Musta*, *Lauha Bhasma*	*Lekhana*, *Medohara*
Prabhuta Mutrata	*Triphala*, *Musta*, *Lauha Bhasma*	*Kashaya*, *Grahi*, *Pramehaghna*
Vata Avarana	*Haritaki*, *Vidanga*, *Shunthi*	*Anulomana*, *Srotoshodhana*
Dhatukshaya and *Ojakshaya*	*Lauha Bhasma*, *Amalaki*, *Haritaki*, *Pippali*	*Rasayana*, *Balya*

12. *Pathya* During Treatment

The drug works best when it is supported by proper diet and daily routine. Old cereals such as *Yava* (barley), *Purana Shali*, *Mudga*, *Kulattha*, bitter vegetables like *Karavellaka* and *Patola*, and fruits like *Jambu* and *Amalaki* are advised. Daily brisk walking, *Vyayama*, *Udvartana* and *Yoga* are helpful. New grains, curd, jaggery, sweets, excess milk products, day sleep and long sitting should be avoided.

RESULTS AND FINDINGS

- *Vidangadya Lauh* is a classical herbo-mineral formulation of *Bhaishajya Ratnavali*, belonging to the *Lauha Kalpa* group.
- It contains nine herbal drugs in equal parts and *Lauha Bhasma* in nine parts, and is prepared in *Vati* form.
- Seven ingredients have *Katu Rasa* and six have *Kashaya Rasa*; eight are *Laghu* and eight are *Ruksha* in *Guna*.
- Six ingredients are *Ushna Virya*, which supports *Deepana*, *Pachana* and *Kapha-Meda* reduction.
- The formulation acts mainly as *Deepana*, *Pachana*, *Lekhana*, *Kapha-Medohara*, *Pramehaghna* and *Rasayana*.
- *Lauha Bhasma* gives strength and acts on both the *Avarana* and the *Dhatukshaya* routes of *Madhumeha*.
- *Vidanga* (embelin) and *Triphala* have shown blood sugar lowering, antioxidant and beta cell protective actions in research.
- A clinical trial showed that *Vidangadi Lauha* lowered HbA1c, fasting and post-meal blood sugar in a way similar to metformin.
- It gave better results than metformin in BMI, waist-hip ratio, lipid profile, symptom score and quality of life.
- The formulation is most suitable for the *Sthula* (obese) type of *Madhumeha*, along with *Pathya* and *Vyayama*.

DISCUSSION

The main base of *Madhumeha* in the obese patient is weak *Agni*, increase of watery *Kapha* and gathering of loose *Meda*, which later block the path of *Vata*. *Vidangadya Lauh* acts directly on these points. Most of its drugs are *Katu*, *Tikta* and *Kashaya* in taste and *Laghu*, *Ruksha* and *Ushna* in nature, so they dry up the excess *Kapha* and *Kleda* and scrape away the extra *Meda*. *Pippali*, *Shunthi*, *Jiraka* and *Vidanga* correct the *Jatharagni* and *Medodhatvagni*, so that fresh *Ama* and unhealthy fat are not formed again. In modern terms, the loose *Meda* can be compared with excess body fat and fat around the abdomen, which is the main cause of insulin resistance. It has been shown that the single frame of *Prameha* covers obesity, metabolic syndrome and diabetes together, and that *Kapha* and *Meda* reducing measures fit well with the obese type 2 diabetic patient.[14] The better fall in BMI, waist-hip ratio and lipid levels in the clinical trial supports this *Lekhana* action.

The formulation is also well balanced in its design. *Pippali* and *Shunthi* act as *Yogavahi*, that is, they carry and increase the effect of other drugs. Piperine, the main compound of the *Piper* group, has been shown to slow down drug-breaking enzymes in the gut and liver, and thus improve the absorption and availability of other drugs given with it.[15] This may help the body take up the active parts of the herbs and also the iron. *Triphala* and the two *Jirakas* keep the bowel clean and the gut healthy. On the other side, *Lauha Bhasma*, *Amalaki* and *Haritaki* work as *Rasayana* and prevent further loss of *Dhatu* and *Ojas*. Thus the drug covers both routes of *Madhumeha*: it removes *Avarana* by its *Lekhana* action and checks *Dhatukshaya* by its *Rasayana* action. The antioxidant effect of its herbs may also protect the beta cells, which matches the classical idea of saving the *Ojas*.

At the same time, some care is needed. Iron is a useful mineral, but too much stored iron in the body has been linked with insulin resistance, damage to beta cells and a higher risk of type 2 diabetes.[16] Therefore, *Lauha Bhasma* must be prepared strictly as per classical methods and must pass all quality tests, and the dose and duration should be fixed by the physician. Haemoglobin and serum ferritin may be checked before and during long-term use, and the drug should be avoided in patients with iron overload. The present evidence also has limits, as there is only one randomised trial, it was open-label, and it was done at a single centre. Larger, blinded, multi-centre trials, proper standardisation and heavy metal testing of the finished product are needed to confirm the safety and benefit of *Vidangadya Lauh* in *Madhumeha*.

CONCLUSION

Vidangadya Lauh is a classical herbo-mineral formulation of *Bhaishajya Ratnavali* in which *Lauha Bhasma* is combined with *Vidanga*, *Triphala*, *Musta*, *Pippali*, *Shunthi* and two *Jirakas*. Its ingredients are mostly *Katu*, *Tikta* and *Kashaya* in taste with *Laghu*, *Ruksha* and *Ushna* qualities, so they correct *Agni*, reduce *Kapha*, *Meda* and *Kleda*, and give strength through *Rasayana* action. In this way the formulation breaks the *Samprapti* of *Madhumeha* at many levels and is especially suited to the obese type 2 diabetic patient. Research on its herbs and one clinical trial support its blood sugar lowering, fat-reducing and antioxidant effects. When properly prepared and given with *Pathya Ahara* and *Vyayama*, it can be a useful supportive drug in the management of *Madhumeha*. Further well-designed clinical studies are needed to establish its long-term safety and benefit.

CONFLICT OF INTEREST

Nil

SOURCE OF SUPPORT

None

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