



**A CONCEPTUAL STUDY ON ROLE OF *CHANDRA KALA GUDIKA* IN MADHUMEHA
(TYPE-II DIABETES MELLITUS)**

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Article Received on 12/08/2023

Article Revised on 02/09/2023

Article Accepted on 21/09/2023

ABSTRACT

Ayurveda is a science of life with a holistic approach to health and personalized medicine. It is considered as one of the oldest of the traditional systems of medicine accepted worldwide. The junction of the rich knowledge from different traditional systems of medicine can lead to new avenues in herbal drug discovery process. Interestingly, *Ayurveda* has ability to treat many chronic diseases such as liver diseases, diabetes, arthritis, skin disorders and asthma, which are untreatable in modern medicine. Unfortunately, due to lack of scientific validation in various concepts, this precious gift from our ancestors is trailing. Hence, evidence-based research is highly needed for global recognition and acceptance of *Ayurveda*, which needs further advancements in the research methodology. The present review highlights various fields of research including literary, fundamental, drug, pharmaceutical, and clinical research in *Ayurveda*. The review further focuses to improve the research methodology for *Ayurveda* with main emphasis on the fundamental research. This attempt will certainly encourage young researchers to work on various areas of research for the development and promotion of *Ayurveda*. *Ayurveda* is considered as one of the oldest of the traditional systems of medicine (TSMs) accepted worldwide. The ancient wisdom in this traditional system of medicine is still not exhaustively explored. The junction of the rich knowledge from different traditional systems of medicine can lead to new avenues in herbal drug discovery process. The lack of the understanding of the differences and similarities between the theoretical doctrines of these systems is the major hurdle towards their convergence apart from the other impediments in the discovery of plant based medicines. This review aims to bring into limelight the age old history and the basic principles of *Ayurveda*. This would help the budding scholars, researchers and practitioners gain deeper perspicuity of traditional systems of medicine, facilitate strengthening of the commonalities and overcome the challenges towards their global acceptance and harmonization of such medicinal systems.

KEYWORDS: *Ayurveda*, Naturopathy, Unani, Siddha, Homeopathy, *Rasayana*, Diabetes Mellitus, *Madhumeha*, *Chandra kala Gudika*.

INTRODUCTION

Diabetes mellitus is major health problem in 21st century in year 2000 India is one of the five countries which have highest sufferers of diabetes mellitus, hence India is declared as 'capital of diabetes' now. In spite of advanced medical researches, it is still burning issue that 50% of diabetic patient are remaining undiagnosed. World Health Organization (WHO) intended that India have 35 million diabetic populations, which will be 57.2 million by year 2025 & 79.4 million by the year 2030.

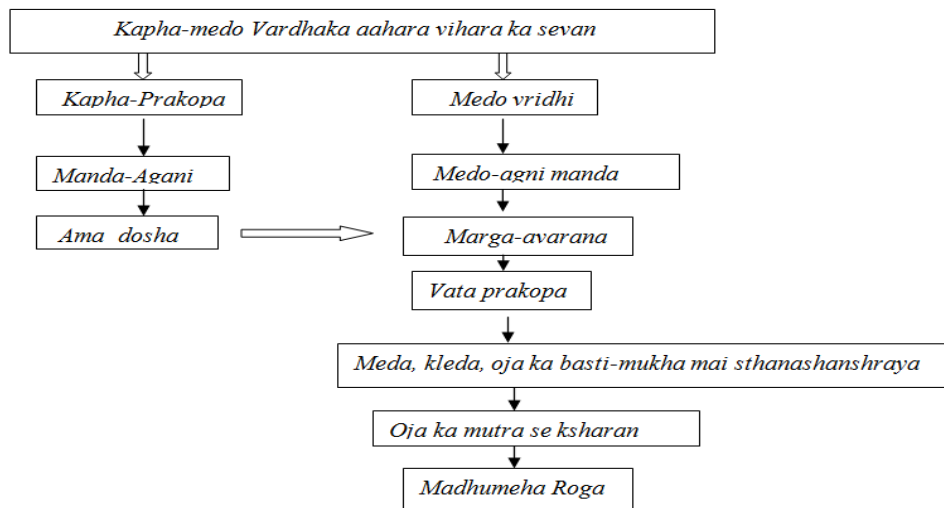
clear that exact way or remedies are still to find which can control these population. Diet control, exercise, life style changes are the measures to control diabetes accepted by peoples. But these measures are insufficient to control the disease. Because along with these measures insulin administration and hypoglycemic agents are used, only controls or subsides the symptoms. But root remains as it is. It is clear that ignorance of diabetes gives rise to complex of various diseases and which may be fatal. Diabetes can not be eliminated but can be certainly controlled.

As per high rate of increase in diabetic population. It is

Ayurveda is non-invasive, cost effective and safe form of treatment. It is proved as an ideal medical option which cures not only diseased person, but also to the healthy person to avoid occurrence of disease in his body. It is a science which has explained definition of well being in early period and narrated the ideal definition of health. i.e. “*Samadosha Samagni Samdhatumaakriya.....*” In the same way this holistic science also described definition of ideal therapy or treatment for the *Madhumeha*. It explains that it is not coherent treatment in which medicine modifies to the disease only but on other hand it gives rise to new complications.

Ayurveda treats patient as whole and never treats disease but diseased one. So here we are putting step forward to

Samprapti



Samprapti Ghataka

Dosha	Tridosha – Kapha (Bahudrava Shleshma), Vata –Pradhana(vyana,apana), Pitta
Agni	Dhatuagni mandya
Srotasa	Mutravaha, Medovaha, Udakavaha, Mamsavaha, Swedavaha
Srotodushti	Sanga, Atipravritti
Adhithana	Sarva sharira, Basti
Dushya	Meda, Mamsa, Shukra, Shonit, Vasa, Majja, Lasika, Rasa, Oja, Kleda, Ambu, Sweda
Vyakta sthana	Mutravaha srotasa
Marga	Madhyama
Swabhava	Chirakari, Anushangi
Prabhav	Yapya, asadhya

Drug Review

Chandra kala gudika

ऐला सकपूरशिला सधात्री-जातीफलं केशरशाल्मली च।

सूताभ्रवंग अयसभ्रस्म सर्वमेतत्समानं परिभावयेतु।।

गुडूचिकाशाल्मलिकाकषायै निष्कार्दमानां मधुना ततश्च।

बद्ध्वा गुडी चन्द्रकलेतिसंजां मेहेषु सर्वेषु योजयेत्च।।-

(भै.र.चि.३७/६८-६९)

find out safe and effective drug to control diabetes with having no side effect. In *Ayurvedic* classics ‘*Madhumeha*’ (sub type of *Vataja Prameha*) is described ‘*Asadhya*’ *Vyadhi* it can not be cured totally but controlled definitely. Here aim is to find out a drug which helps to control the disease as well as endowers good healthy life to the patient. *Acharyas* explained that patient of *Asadhya vyadhi* should not be left untreated.

MATERIALS AND METHODS

For this article literature review is done from *Charaka Samhita*, *Sushruta Samhita*, *Asthanga Hridayam*, *Asthanga Sangraha*, *Chakrapani*, *Madhava Nidana*, *Bhavaprakasha*, *Bhaishajya Ratnavali* and few other articles.

S.No	Drug name	Latin name	Family	Part used	Part
1	<i>Ela</i>	<i>Elettaria cardamomum</i>	Zingiberaceae	<i>Beeja</i>	1
2	<i>Kapura</i>	<i>Cinnamomum camphor</i>	Lauraceae	<i>Niryas</i>	1
3	<i>Shilajit</i>			<i>Niryas</i>	1
4	<i>Amalaki</i>	<i>Embilica officinalis</i>	Euphorbiaceae	<i>Phala</i>	1
5	<i>Jatiphala</i>	<i>Myristica fragrans</i>	Myristicaceae	<i>Beejha</i>	1
6	<i>Nagkeshar</i>	<i>Mesua ferra</i>	Guttiferae	<i>Pukeshar</i>	1
7	<i>Shalmali</i>	<i>Salmaalina malabarica</i>	Bombacaceae	<i>Moola, Pushpa, Niryas(mocharas)</i>	1
8	<i>Ras-sindur</i>	<i>Red sulphide of mercury</i>			1
9	<i>Abhrak bhasm</i>	$K(Mg_2Fe)_3AlSiO_{10}(F,OH)_2$			1
10	<i>Vang bhasm</i>	<i>Sno2</i>			1
11	<i>Loha bhasm</i>	<i>Fe</i>			1

Pharmacological action and therapeutic action of drug

DRUG NAME	RASA	GUNA	VIRYA	VIPAKA	CHEMICAL COMPOSITION	THERAPEUTIC USES	PHARMACOLOGICAL USES
<i>Ela</i>	<i>Katu, Madhura</i>	<i>Laghu, Ruksha</i>	<i>Sheeta</i>	<i>Madhura</i>	Terpinene, Sabinene, Limonene	<i>Kaphahara, Deepana,</i>	Anti-oxidant, Diuretic
<i>Kapura</i>	<i>Tikta, Katu, Madhura</i>	<i>Laghu, Tikshna</i>	<i>Sheeta</i>	<i>Katu</i>	Menthol, Thymol, Phenol, Naphthol	<i>Chedana, Lekhana, Medohar</i>	Antidiabetic, Hypolipidemic
<i>Shilajit</i>	<i>Katu, Tikta, Kashaya</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	Fulvic-acid, Humic acid	<i>Pramehaghna, Rasayana, Lekhana</i>	Anti-diabetic, Neuroprotective
<i>Amalaki</i>	<i>Lavanrahit panchras</i>	<i>Guru, Ruksha,</i>	<i>Ushna</i>	<i>Madhura</i>	Vitamin C, Galic acid, Tannic acid,	<i>Pramehaghna, Kousthghna</i>	Antidiabetic, Antioxidant, Diuretic
<i>Jatiphala</i>	<i>Tikta, Katu</i>	<i>Laghu, Tikshna</i>	<i>Ushna</i>	<i>Katu</i>	Limonene, Sabinene, α - β pinene	<i>Kaphnisaraka</i>	Antidiabetic, Hepato-protective
<i>Nagkeshar</i>	<i>Kashaya, Tikta</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	Palmitic acid, Stearic acid	<i>Kaphahaghna, Mutrajannana</i>	Antioxidant, Hepatoprotective
<i>Shalmali</i>	<i>Madhura, Mochras Kashaya</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	Arachidic acid, Linoleic acid, Mysterious acid	<i>Shothhara, Dahaprashamna</i>	Anti-hyperglycemic, Hypolipidemic,
<i>Ras-sindur</i>	<i>Katu, Tikta, Kashaya</i>	<i>Sara</i>	<i>Ushna</i>	<i>Madhura</i>	Mercury, Sulphur	<i>Pramehaghna, Pandu, Pleeha</i>	Immuno-modulatory
<i>Abhrak bhasm</i>	<i>Madhur, Kashaya</i>	<i>Somya</i>	<i>Sheeta</i>	<i>Madhura</i>	Silicon, Iron, Calcium, Chlorine	<i>Rasayana, Pachana, Deepana</i>	Diabetes, Anti-asthmatic
<i>Vang bhasm</i>	<i>Tikta</i>	<i>Laghu, Ruksha</i>	<i>Ushna</i>	<i>Katu</i>	Tin	<i>Saptdhatupusti</i>	Diabetes, Genitourinary disorder
<i>Loha bhasm</i>	<i>Madhura, Tikta</i>	<i>Ruksha, Guru</i>	<i>Sheeta</i>	<i>Madhura</i>	Iron	<i>Pramehaghna, Medoroga, Deepana</i>	Hematogenic disorder

Bhavana - Dravya

S. No.	DRUG	RASA	GUNA	VIRYA	VIPAKA	KARMA	PHARMA-COLOGICAL ACTION	THERAPEUTIC USES
1	<i>Giloya</i>	<i>Kashaya, Tikta</i>	<i>Laghu, Snigdha</i>	<i>Ushna</i>	<i>Madhura</i>	<i>Tridosha-hara</i>	Anti-diabetic, Anti-oxidant	<i>Agni-deepana, Mehahara, Amahara</i>
2	<i>Shalmali</i>	<i>Madhura, Kashaya</i>	<i>Laghu, Snigdha</i>	<i>Sheeta</i>	<i>Madhura</i>	Arachidic acid, Linoleic acid, Mysterious acid	<i>Shothhara, Dahaprashamna</i>	Anti-hyperglycemic, Hypolipidemic

1. *Ela (Elettaria cardamomum)*
Family- Zingiberaceae

Pharmacological properties and actions
Guna- *Laghu, Ruksha*
Rasa – *Katu, Madhura*
Vipaka- *Madhura*

Virya- Sheeta**Karma-Tridoshahara, Deepana, Pachana, Roochna****Chemical constituents:** Terpinene, Sabinene, Limonene, 1,8-cineole, α -terpineol, Acetate**Pharmacological action:** Anti-bacterial, Anti-inflammatory, Diuretic.**Therapeutic uses-** Kaphahara, Deepana**Dose:** seed powder-0.5 to 1 gm**Clinical Studies**

Elletaria Cardamom active constituents can control insulin secretion, insulin resistance through increasing the amount of SIRT1, PPAR γ coactivator-1 alpha (PGC-1 α), and attenuating the factor kappa-light-chain-enhancer of activated B cells (NF-kB) as well as controlling glucose metabolism by inhibiting α -glucosidase and α -amylase.

2. Kapura (Cinnamomum camphor)**Family-** Lauraceae**Pharmacological properties and actions****Guna-** Laghu, Tikshna**Rasa-** Tikta, Katu Madhura**Vipaka-** Katu**Virya-** Sheeta**Karma-** Kapha-Pitta shamaka, Chedana, Lekhana, Medohara**Chemical constituents-** Menthol, Thymol, Phenol, Naphthol, Salicylic acid, Campherol**Pharmacological action** - Anti-inflammatory, Antidiabetic Hypolipidemic**Therapeutic uses** - Chedana, Lekhana, Medohar**Dose** – 125 to 375 mg**Clinical Studies**

A-Glucosidase inhibitors are widely used to suppress postprandial glycemia in the treatment of type-2 Diabetes Mellitus. The cyanidin exerted strong inhibitory activity on α -glucosidase.

The inhibitory activity of cyaniding was stronger than that of acarbose.

The cyaniding inhibited α - glucosidase, through K_i value of 0.0183Mm.

Cyanidin interact with several residues close to the catalytic site of α -glucosidase through π - π stack interaction and hydrogen bonds.

3. Shilajit**Pharmacological properties and actions****Guna** – Laghu, Ruksha**Rasa** – Katu, Tikta, Kashaya**Vipaka** – Katu**Virya** – Ushna**Karma** – Tridosha-shamaka (vatashamaka, pitta sanshodhana, kapha nisaraka), Lekhana**Chemical constituents** – Fulvic acid, Humic acid**Pharmacological action:** Anti-diabetic, Anti-inflammatory, Anti-fungal, Neuroprotective**Therapeutic uses:** Balya, Pramehaghna, Shothahara**Dose:** 300- 500mg**Clinical studies**

- *Shilajit* reduces macrophage and lymphocyte activation and migration as a part of its immunomodulatory activity.
- Being an antioxidant it will prevent damage to the pancreatic islet cell induced by the cytotoxic oxygen radicals.

4. Amalaki (Emblica officinalis)**Family-** Euphorbiaceae**Pharmacological properties and actions****Guna-** Guru, Ruksha, Sheeta**Rasa-** Lavanrahit panchrasa**Vipaka-** Madhura**Virya-** Ushna**Karma-** Tridoshara, Visheshata Pitta shamaka**Chemical composition-** Vitamin C, Galic acid, Tannic acid, Linolic acid, Acetic acid**Pharmacological action** – Anti-diabetic, Anti-inflammatory, Antioxidant, Diuretic.**Therapeutic uses-** Pramehghana, Kousthghana**Dose:** 500mg**Clinical studies**

Phenolic phytochemicals are natural inhibitor of α -amylase and α -glucosidase.

It contain Chromium that make the body more responsive to insulin.

5. Jatiphala (Myristica fragrans)**Family-** Myristicaceae**Pharmacological properties and actions****Chemical compositions** – Limonene, Sabinene, α -pinene, β -pinene, Myristicin, Safrol**Guna-** Laghu, Tikshna**Rasa-** Tikta, Katu**Vipaka-** Katu**Virya-** Ushna**Karma:** Kapha- Vata shamaka, Kapha nisaraka, Vrishya**Pharmacological action** – Anti-diabetic, Anti-obesity, Anti-inflammatory, Hepatoprotective**Therapeutic uses:** Jawarhagna, Kousthghana**Dose:** 250 mg to 2 gm**Clinical Studies**

It contains minerals like Potassium, Phosphorus, Magnesium, Calcium and Iron. As it contains good amount of vitamins like Riboflavin, Thiamine, Niacin which are useful for treating diabetic neuropathy.

6. Nagkeshar (Mesua ferra)**Family-** Guttiferae**Pharmacological properties and actions**

Chemical composition – Palmitic acid, Stearic acid, Oleic acid, Mesuol, Bioflavonone

Guna – Laghu, Ruksha

Rasa – Kashaya, Tikta

Vipaka – Katu

Virya – Ushna

Karma: Kapha-pitta shamaka, Deepana, Pachana, Mutrajannana, Trishnanighrahana

Pharmacological action – Antioxidant, Anti-inflammatory, Immunostimulant

Therapeutic uses: Basti-roghahara, Kandughna, Trishnahara

Dose: 1-3gm powder /day

Clinical studies

Insulinotropic activity of methanolic extract of mesua ferra- the research indicates the insulin secretagogue effect through beta cell physiological pathways.

7. Shalmali (*Salmaia malabarica*)

Family – Bombacaceae

Pharmacological properties and actions

Guna – Laghu, Snigdha

Rasa – Madhura, Mochras kashaya

Vipaka – Madhura

Virya – Sheeta

Karma- Tridoshahara

Chemical composition – Arachidic acid, Linoleic acid, Myristic acid, Oleic acid

Pharmacological action – Anti-hyperglycemic, Immune modulatory, Hypolipidemic,

Therapeutic uses - Shothhara, Balya, Briharna, Mootral, Dahaprashamna

Dose: 1-3 gm

Clinical studies: according to research article the presence of alkaloid, glycoside, tannins, and flavonoids put down glucose level significantly by inhibiting α -glucosidase enzyme and decrease glucose transport through the intestinal epithelium cell.

8. Ras-sindura

Pharmacological properties and actions

Guna – Sara

Rasa – Katu, Tikta, Kashaya

Vipaka – Madhura

Virya – Ushna

Karma- Tridosha shamaka (Vaata vyadhi nashaka)

Chemical composition – Mercury, Sulphur

Pharmacological action – Immunomodulatory

Therapeutic uses- Pramehaghna, Jwara, Pandu, Pleeha

Dose- 125 – 250 mg

Clinical Studies

The metallic elements presents in bhasma useful for reducing oxidative stress induced by free radicals.

9. Abhrak bhasm ($K(Mg_2Fe)3AlSiO_{10}(F,OH)_2$)

Pharmacological properties and actions

Guna- Somya

Rasa – Madhura, Kashaya

Vipaka- Madhura

Virya- Sheeta

Karma- Tridosha (vata-pitta kshya), Deepana, Pachana, Rochana

Chemical composition- Silicon, Iron, Calcium, Magnesium, Potassium, Aluminium, Sodium

Pharmacological action- Anti-inflammatory, Anti-diabetes, Gastrointestinal disorder

Therapeutic uses – Pramehghna, Rasayana, Medhya,

Dose - 125mg to 250 mg/bd

Clinical studies

The metallic elements presents in bhasma useful for reducing oxidative stress induced by free radicals.

10. Vang bhasm (SnO₂)

Pharmacological properties and actions

Guna- Laghu, Ruksha

Rasa- Tikta

Vipaka- Katu

Virya- Ushna

Karma- Kapha Shamaka, Sapthdhatupushti

Pharmacological action – Anti-diabetic, Hypolipidemic

Dose – 30 to 60 mg

Action

It also acts as Insulinsecretogauges, induces the secretion of insulin from pancreas thereby reducing the blood glucose by acting as a cellular regenerator.

11. Loha bhasma

Pharmacological properties and action

Guna- Ruksha, Guru

Rasa- Madhura, Tikta

Vipaka- Madhura

Virya- Sheeta

Karma- Tridosha-Shamaka (Pitta-kapha-shamaka), Lekhana, Deepana, Vriysha, Prameha,

Chemical composition- Iron

Pharmacological action- Anemia, Diabetes, Asthma, Hematogenic

Therapeutic uses – Pramehghna, Deepana, Lekhana, Medoroga, Rasayana,

Dose- 91 mg (¼ ratti) - 364mg (2 ratti)

Clinical Studies

The metallic elements presents in bhasma useful for reducing oxidative stress induced by free radicals.

DISCUSSION

Most of the Dravya have the properties of Kapha-Vatahara, Deepana, Pachana, Dahaprashamana, Mootral, Rasayana, Pramehaghna, Yogavahi, Lekhana, Sapthdhatupushti, Deepana, Pachana, and Tridoshasamaka. So in Chandra Kala Gudika, Tikta-Katu-Kashaya Rasa, Laghu-Ruksha, Tikshna Guna, Ushna Virya.

CONCLUSION

Madhumeha is a Tridoshaja (kapha-vata pardhan vyaadhi) which has the clinical features similar to

Diabetes mellitus. *Chandra kala gudika* had a significant result in symptoms of *Madhumeha*. High intake of Sweets, Fatty Food, Dairy Products, Fast Food, and Lack of exercise precipitate the disease. Stress and Sedentary Life style are the most powerful factor for causing Diabetes. Since Diabetes is a multi factorial disease, treatment modalities should be based upon vitiated *Kapha-Vata Dosha* along with *Pitta*. No adverse drugs effects were observed at the end of study, thus it can be concluded that *Madhumeha* patients can be effectively managed by *Ayurveda*.

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