

A CONCEPTUAL STUDY OF KATAK KHADIRADI KASHAYA IN THE MANAGEMENT OF MADHUMEHA

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ABSTRACT

Prevalence of Diabetes mellitus (DM) is rapidly rising throughout the globe at an alarming rate, where India leads with largest number of diabetics and become “Diabetes capital of the world.” Currently available conventional options for diabetes have certain limitations; Considering which options from alternative resources are being searched to meet the need. Ayurveda, the traditional system of Indian subcontinent holds huge number of remedies that can be useful in the treatment of diabetes and associated complications. To revalidate the actual efficacy of these formulations in DM (*Madhumeha*); Many studies have been carried out at different research centres of India. These therapies were found to increase quality of life, significantly effective and clinically safe as no adverse drug reactions were reported during the treatment period.

Keyword: *Madhumeha*, Diabetes mellitus, Ayurveda, *KatakKhadiradi Kashaya*.

INTRODUCTION

Madhumeha is one among the *Vatajaprameha* that has been considered as *Mahagada*.^[1] Diabetes Mellitus is a complex disease of the endocrine pancreas and the insulin regulating tissue characterized by a strong genetic susceptibility and by strong environmental influences resulting in insulin resistance and impaired beta cell function. The prevalence of Diabetes in adults globally was estimated to be 150 million and this figure is expected to double by 2025.^[2] Through Diabetes Mellitus was common in all populations of westernized countries, It has now dramatically increased in certain ethnic groups with modernization.^[3] Due to this increasing incidence, it has become a challenge for Ayurveda to search for an additional effective treatment. The present study is focused on conceptual

study is *Madhumeha* NIDDM in evaluating the effect of *KatakKhadiradi Kashaya*.^[4]

Need of Study: -

Nowadays, due to sedentary lifestyle and improper dietary habits the rate of *Madhumeha* is increasing. Modern drugs have limited and adverse drug reactions as rashes, photosensitivity of skin and so on. So, it has become necessary to find such herbal drugs which don't show adverse reactions. In the pathogenesis of the *Avaranajanya Madhumeha*, the *kapha* and *pitta* are the main *doshas* and most important *dushyas* are *meda* and *kleda*.^[5] So, its management must be against *meda* and *kleda* as well as having the *rasayana* effect. So, *Katak Khadiradi Kashaya* was chosen as it is low in cost and easily available.

Aim: -To evaluate the efficacy of *Katak Khadiradi Kashaya* in the management of *Madhumeha*.

Objective: -To evaluate the efficacy of *Katak Khadiradi Kashaya*.

Disease Review: -

Madhumeha is a variety of *Vatajaprameha*^[6,7,8] which is referred as a sequence of all varieties of *prameha*. Exposure to the etiological factors end up in the vitiation of *vatakaphapradhanatridoshas*, getting associated with *medas*, *ojas* etc *dhatu*s reaching the *moot-ravahastrotasa* resulting in the illness.

Diabetes Mellitus is characterized by three pathophysiologic abnormalities impaired insulin secretion, peripheral insulin resistance and excessive hepatic glucose production. Hyperglycaemia is associated with inability of the organism to metabolize glucose properly, which in turn places an undue stress on protein and fat catabolism for the availability of energy.

Santarpana, *Samshodana* and *Samshamana* measures are explained in the management of *Prameha* depending upon the *roga* and *rogibala*.^[9] Different groups of *yogas* have been explained for the treatment of this disease.

Prameha:-

The word 'Prameha' is composed of two sub-words, i.e. 'Pra' and 'Meha'. The word *Meha* is derived from the root 'Mihsechane' by adding 'Lue' *pratyaya* to it, meaning watering.

Halayudhakasha:- "Mehati, SinchatiMutraretansi" which means to excrete. The word *Meha* was at first found in *Rigveda* as *MehanadthanamKaranallium*. *Shayanacharya*, the commentator of *Rigveda* interpreted the word *mehana* as *medhra*, which meaning *shishna*.

'Pra' means excess in both frequency and quantity of urine. This derivation of word is again as substantiated when the clinical feature of *Prameha* is described as 'Prabhuta-mutrata and Avilmutrata'.

Madhumeha:-

The word *Madhumeha* consists of two words:

a) *Madhu* b) *Meha*

The word *Madhu* is derived from the root "Manyante Viseshena Jananti Jana Yasmin." In Sanskrit literature *Madhu* word is used in various context like

Now the etymology gets concise and specific, that the disease in which the excretion is having quality concordant with *Madhu* (Honey) in its colour, taste, smell, and consistency called *Madhumeha*. So, the 'Meha' word here is mainly related with the excretions through urine.

Definition: -

Madhumeha– The patient usually passes honey like or sweetish urine and sweetness present in the body of the patients is called *Madhumeha*.

However, *Sushruta* has used the term narrated, the term *KshaudraMeha* in place of *Madhumeha*. *Kshaudra* is nothing but variety of *Madhu*(honey), which is *Kapila* (tawny) in colour. So, it is undoubtedly resembling with *Madhumeha*. Further he asserted that when all the *Pramehas* ill-treated or neglected is converted into *Madhumeha* and especially the emphasized that the disease *Prameha* along with *Pidaka* should termed as *Madhumeha*.

Nidana – Main cause –

Sleeping in daytime, Lack of exercise, Laziness, Sedentary habits, consumes food and drinks which are cold, unctuous, Sweet and fatty items etc. (Fat rich diet).

1) *Sahaja*: (Hereditary) 2) *Apathynimittaja*: (Acquired)

General Nidana^{:-[10]}

a) *Ahara – GramyaAnupa, AudakaMamsa, Navapana, Navanna, Dadhi, GudaVikrita, ShleshmanajanaAhara, Amala, Lavana Rasa, Guru Dravya, Tikta, Katu, Kashaya Rasa.*

b) *Vihara - Asyasukham, Swapna Sukham, Diwaswappan, Avyayayama, Alasya.*

c) *Manasa – Vishada, TyaktaChinta*

d) *BeejaDosha*

Classification

1) **Prameha is classified aetiologically in to**

a) *Sahaja* (Hereditary)- *Sahaja* means due to *Matapitabbejadoshakruit*. (Chromosomal defect from parents).

b) *Apathyanimittaja* (Unwholesome things food and exercise etc.)

2) According to physical management

- a) *Apatharpanauthajaprameha* describing the lean diabetic
- b) *Santharpanauthajaprameha* relating the obese diabetic

3) According to the doshic causes, these pramehas are classified as twenty types:^[11]

- a) *Vatajapramehas*—There are totally four *Vatajaprameha*
- b) *Pittajapramehas*— There are totally six *Pittajaprameha*
- c) *Kaphajaprameha*— There are totally ten *Kaphajaprameha*

Out of these, diabetes mellitus is termed as *Madhumeha*. It is one of the four *Vatajapramehas*.

Samprapthighatakas:-^[12]

Dosha (humur) – Vata, Pitta, Kapha

Dushya – Meda, Mamsa, Kleda, Rakta, Vasa, Majja, Lasika, Rasa and Ojas.

Strotas (Channel) – Mootravha

Srotodusti – Atipravrutti

Agni – Dhatvagni

Vdhbhavasthana – Kosta

Vyaktasthana - Mootravahastrotas (Urinary tract)

Samprapti (Pathogenesis) :-^[13]

Kapha undergoing increase by the etiological factors, reaches various *dooshyas* like *rasa* (Plasma), *rakta* (blood) etc. As there is a *shaithilya* (looseness) in the body and it being fluid predominant spreads all over the body and gets vitiated, while spreading it gets vitiated draw them to the urinary bladder and produces *prameha*; similarly the *pitta* affects them, *Vata* also brings about vitiation in them and produce *prameha*.

Premonitory symptoms ^[14]

In Ayurveda we can find the described of early symptoms of the disease.

They are accumulation of dirt on the teeth (mouth, eyes, nose and ears), a feeling burning sensation in the palms and soles, stickiness of the skin all over the body, thirst and a sweet taste in the mouth etc, and *mootramadhuryam* (sweetness of urine).

Clinical symptoms

A. *Prabhootamutrata* (polyuria)

B. *Avilmutrata* (turbid urine)

C. *Medodushtilakshanas* are the main symptoms of *prameha*.

- 1) *Malina danta*
- 2) *Hasta padadaha*
- 3) *Dehachikkanta*
- 4) *Trishna*
- 5) *Madhuryamasya*
- 6) *Prabhutamutrata*
- 7) *Avilmutrata*
- 8) *Madhu samana varna*
- 9) *Sweda*
- 10) *Angagandha*
- 11) *Shithilangata*
- 12) *Shayana asana Swapna sukha*
- 13) *Gala talushosha*
- 14) *Shitapriyatwa*

The classic symptoms of untreated diabetes are loss of weight, polyuria, polydipsia and polyphagia.

Main Symptoms

- 1) Polyuria
- 2) Polyphagia
- 3) Polydipsia
- 4) Exhaustion/Tiredness
- 5) Body ache
- 6) Giddiness
- 7) Polyneuritis (Numbness/Tingling)
- 8) Visual disturbance

Purvarupa

Ancient scholars have given a description about the *purvarupa* or *prodoma* signs and symptoms of *Madhumeha*. It is not available in modern science, numbness in the hands and feet, sweetness in the mouth, thirst increases, feeling of tiredness and laziness, excess urination, increase sweating, flies are stacked to urine, more sleep and body odour becomes raw flesh like.

By getting any of these signs and symptoms one should become doubtful about his/her disease and becomes conscious about the routine path.

Drug Review: -

Katak Khadiradi Kashaya:

[*Sahastrayogam*]^[15]

Drug Name	Latin Name	Rasa	Virya	Vipaka	Guna	Doshaghanta
<i>Katak</i> ^[16]	<i>Strychnos potatorum</i>	<i>Madhur, Tikta, Kashaya</i>	<i>Sheet</i>	<i>Madhur</i>	<i>Laghu Vishada</i>	<i>Kaphavatashamak</i>
<i>Khadir</i> ^[17]	<i>Acacia catechu</i>	<i>Tikta, Kashaya</i>	<i>Sheet</i>	<i>Katu</i>	<i>Laghu, Ruksha</i>	<i>Kaphapittashamak</i>
<i>Amalki</i> ^[18]	<i>Emblica officianalis</i>	<i>Pancharas, Lavanvarjit</i>	<i>Sheet</i>	<i>Madhur</i>	<i>Ghuru Ruksha Sheet</i>	<i>Tridosahar</i>
<i>Saptarangi</i> ^[19]	<i>Salacia chinensis</i>	<i>Tikta, Kashaya</i>	<i>Ushna</i>	<i>Katu</i>	<i>Laghu, Ruksh, Teeshan</i>	<i>Kaphapittashamak</i>
<i>Daruharidra</i> ^[20]	<i>Berberis aristata</i>	<i>Tikta, Kashaya</i>	<i>Ushna</i>	<i>Katu</i>	<i>Laghu, Ruksha</i>	<i>Kaphapittashamak</i>
<i>Samanga [Lajjalu]</i> ^[21]	<i>Mimosa pudica</i>	<i>Kashaya, Tikta</i>	<i>Sheet</i>	<i>Katu</i>	<i>Laghu, Ruksha</i>	<i>Kaphapittashamak</i>
<i>Vidul [Hijjal]</i> ^[22]	<i>Barringtonia acutangula</i>	<i>Tikta, Katu</i>	<i>Ushna</i>	<i>Katu</i>	<i>Laghu</i>	<i>Kaphapittasanshodan, Vatshaman</i>
<i>Haridra</i> ^[23]	<i>Curcuma longa</i>	<i>Tikta, Katu</i>	<i>Ushna</i>	<i>Katu</i>	<i>Laghu Ruksha Teekshna</i>	<i>Kaphapittashamak</i>
<i>Patha</i> ^[24]	<i>Cissampelos pareira</i>	<i>Tikta</i>	<i>Ushna</i>	<i>Katu</i>	<i>Laghu, Teekshna</i>	<i>Kaphapittashamak</i>
<i>Chutbija [Amakiguthali]</i> ^[25]	<i>Mangifera indica</i>	<i>Kashaya</i>	<i>Sheet</i>	<i>Katu</i>	<i>Laghu, Ruksha</i>	<i>Kaphapittashamak</i>
<i>Haritki</i> ^[26]	<i>Terminalia chebula</i>	<i>Panchras [Lavanvarjit] Kashaypradhan</i>	<i>Ushan</i>	<i>Madhur</i>	<i>Laghu, Ruksha</i>	<i>Tridoshar</i>
<i>Mustak</i> ^[27]	<i>Cyperus rotundus</i>	<i>Tikta, Katu, Kashaya</i>	<i>Sheet</i>	<i>Katu</i>	<i>Ruksha Laghu</i>	<i>Kaphapittashamak</i>

Mode of action of Katak Khadiradi Kashaya:-^[28]

In *Kashaya yoga prakarana* of *Sahastra yoga Katak Khadiradi Kashaya* is explained. There are 12 drugs in this *yoga*. Most of ingredients have following common properties in them. Most of them have *Kashayarasa, Tiktarasa, Laghu, Rookshaguna* and drugs like *Abhaya* and *Dhatri* have *anulomana* property and some other drugs like *Khadira, Chootabheeja* have *kledashoshaka* property.

Bahudravashleshma, bahwabaddhameda and the *kledadushti* are the main factors in the pathogenesis of diabetes, upon which the *Katak Khadiradi Kashaya* is acting. The *laghurookshaguna* along with *Kashaya* rasa of most of the drugs make *shoshana* of *Kapha* and *Kleda* in the body. In treating *abaddhameda* the drugs

having *lekhana* properties like *Haridra, Daruharidra, Musta* etc. are helpful. The drugs like *Hareetaki, Amalki* which are having *Anulomana* property are helpful in treating *durvirechya* property of *Madhumehas*.

DISCUSSION

The classical Ayurvedic literature is efficient with plenty of description of the disease and discussion regarding to patho-physiological and pathological aspect of the *Dosha* and *dushya* regarding *Madhumeha* are available in detail. Various pathological processes regarding *Dosha* and etiological factors available in the classics various research studies were carried out

to, find out the exact pathogenesis of *Madhumeha* and its treatment.

Pathogenesis of *madhumeha* is best described by *Acharya Vagbhata*. He said *Madhumeha* can originate in two ways-

- 1) By the aggravation of *vata* caused by *Dhatukshaya*.
- 2) By the obstruction of *vata* caused by *Doshas* covering it.

Madhumeha which is caused by *Dhatukshaya* manifests as thin and asthenic individual due to loss of *Oja*. All this is *Ojakshaya* meaning an imbalance in *Ojus*. In *margavaranjanyamadhumeha* the vitiated *Kapha* and *meda* obstruct the passage of *Vata*. The obstructed *vata* is vitiated again and carries *Ojus* to *Basti* thus manifests *Madhumeha*.

Katak Khadiradi Kashyahas is *Katu*, *Tikta rasa* and *Jatharagnimandya* is present in *Madhumeha*. It may act in *Agnivardhana*.

Kashaya rasa is present up to 83.33%, which may produce *mutra sangrahniyaprabhava*. *Tikta*, *Kashaya rasa* present in this formulation produces *shoshana* effect. Hence the *Prabhootamutrata* in *Prameha* end to regress.

Most of the drugs possess *laghu*, *rukshaguna*. *Rukshaguna* helps in alleviation of *bahudravashleshma* and *abaddhameda*, the annexation of two being initial triggering event in *samprapti* of disease obstruction of *Vata* by *Kapha* and *medas* *Kapha*, here *aarambhakdosha* and *vata* is *prerakadosha*. *Laghu* and *Rukshaguna* by virtue of their *kaphaghana* and *medoghanaprabhava* help in reducing tissue weight. Now it can be suspected that *Kashaya rasa*, *laghu*, *rukshaguna* like properties can further aggravate *Vatadosha* in *Madhumeha*. In this context it is proposed that here it is obstructed *Vata* [primarily by *Kapha* and *Medas*] which is causing trouble; *vata* here may not be increased quantity wise in body, only obstruction is there in its natural passages which can be alleviated by *Kaphahara*, *Medohara* drugs.

In most drugs are found to have *ushna Virya* and helps in alleviation of *Kapha* and *Vata*. As for as *Vipaka* is concerned *Katu vipaka* enhances *jatharagni*, *dhatvagni* and normalize metabolic process. *Sheeta*

Virya and *Madhura Vipaka* helps in replenishment of *Ojus* which become depleted with disease progression owing to continued exposure of body to vitiated *vata*.

It has been clear from above account that *Katak Khadiradi Kashayam* can well disintegrate *samprapti* of *Madhumeha* by acting at various levels i.e. alleviating *dhatvagnimandya* owing to presence of certain *deepana*, *pachana* drugs in it like *Brihati*, *Mustak* and *Haridra* also *rukshata* and *laghuta* present in drug will combat increased *Kapha* and *Meda* which similitude in their properties. *Aamalki* and *Haritaki* are two drugs which are known to exert *rasayanaprabhava* too thereby causing *ojavardhana* which is being depleted in body of *Madhumehi* owing to chronic exposure to *Vata* in body.

In the pathogenesis of the *Avaranjanya Madhumeha* the *Kapha* and *Pitta* are the main *Dosha* and the most important. *Dushayas* are *meda* and *Kleda*. So, its management must be against *Meda* and *Kleda* as well as having the *rasayana* effect.

All 12 drugs have *Kaphahara* properties and as *Madhumeha* is a *Kaphapradanavyadhi* this medicine is useful.

- 1) *Katak* has got the action of *Lekhana* so these drugs will be helpful in the patient of *Madhumeha*, who are *sthula*.
- 2) *Kataka* has also got antioxidant effect.
- 3) *Khadir* has *Tikta*, *Kashaya ras* *katu vipaka* and *kaphapittaashamak* properties to manage the vitiation of *vata* caused by *Kapha*, *Pitta* and *Meda* *Avarana*.
- 4) *Amalki* Particularly having the actions *rasayana* and *chakshusya* because of which it will be helpful in the *Madhumeha* patient who will be having the symptoms of *daurbalya*. *Amalki* has an anti hypercholesteremic effect.
- 5) *Saptarangi* (*Salaretin*) attributes to intestinal *α-glucosidase* inhibition, this inhibition in turn leads to retardation in the digestion of carbohydrates. So, there will be decreased absorption of the carbohydrate micro-components in small intestine. This finally results in decreased blood glucose level.

- 6) *Daruharidra-Tikta, Kashaya ras, katu vipaka, Kaphapittahara* properties to manage the *Madhumeha* caused by *Kapha, Pitta* and *Meda Avarana*. Also have *Dipana, Rochana, Shothohara, Vranashodhana, Chakshushya* properties, because of these properties it will helpful for the skin lesions which are produced in the disease *Madhumeha*.
- 7) *Samanga-Tikta, Kashaya ras* present produces *shoshana* effect. Hence the *prabhootamutrata* in *prameha* tend to regress. *Laghu, rukshagun; Rukshaguna* helps in alleviation of *bahudravashleshma* and *abaddhameda* the annexation of two being initial triggering event in *samprapti* of disease.
- 8) *Vidul (Hijjal)-Tikta, Katuras* which help in reducing *jatharagnimandya* present in *Madhumeha*. *Ushnaviryia* helps in alleviation of *kapha* and *vata*. *Katu vipaka* enhances *jatharagni, dhatvagni* and normalize metabolic process.
- 9) *Haridra* also have *Tikta, katuras* which has same properties as *vidul*. In research study administration of turmeric or curcumin to diabetic rats reduced the blood sugar, Hb and HbA1c levels significantly. *Curcuma longa* rhizome extracts showed blood glucose lowering activity in experimental induced diabetic rats. After 3 and 6 hr of curcuma injection [10mg], 37.2% and 54.5% falls was observed respectively in glucose levels.
- 10) *Patha-Tikta rasa jatharagnimandya* present in *Madhumeha*: It may act in *agnivardhana*. *Ushanaguna* helps in alleviation of *kapha* and *vata*. *Katu vipaka* enhances *jatharagni, dhatvagni* and normalize metabolic process.
- 11) *Chutabija* have *kleda shoshaka* property. *Kashaya rasa* present which may produce *mutrasangrahniyaprabhava*. *Sheetaviryia* helps in replenishment of *ojus* which become depleted with disease progression owing to continued exposure of body to vitiated *vata*. *Laghu, ruksha guna*.
- 12) *Hariitki* have anuloman property. *Kashayapradhana ras* which may produce *mutrasangrahniyaprabhava*. *Ushnaviryia* helps in alleviation of *kapha* and *vata*. *Madhuravipaka* helps in replen-

ishment of *ojus* which become depleted with disease progression owing to continued exposure of body to vitiated *vata*.

- 13) *Mustak-Lekhana* action, so is helpful in the patient of *Madhumeha* who are *sthula*. *Raktaprasadana, shothahara* action helpful for the skin lesions which are produced in the disease *Madhumeha*. *Tikta, Katu, Kashaya ras* to manage the vitiation of *Vata* caused by *Kapha, Pitta* and *Meda Avarana*.

CONCLUSION

Madhumeha has been discussed in *Prameharoga* as one of the *Vataj Prameha*. Literary evidence proves its modern correlate as Diabetes Mellitus. In this study it is found that *Madhumeha* mostly affects individuals in 5th, 6th, 7th decade of life with slight male preponderance. Prevalence is seen more in married. The study confirms that *Katak Khadiradi Kashayam* is effective in management of *Madhumeha* and reduces the symptoms of illness that includes *Prabhutamutrata, Atisweda, Mukhashosha, Klama, Alasya, Vibandh*. After overall study it can be concluded that the proposed *Katak Khadiradi Kashaya* exhibits significant hypoglycaemic activity and can be given safely in patients of *Madhumeha*.

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