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REVIEW ON TRUNADHANYA (MILLETS) AS PATHYA AHARA IN PRAMEHA (DIABETES)

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ABSTRACT

Urbanization and changing diets contribute to lifestyle diseases like Diabetes, affecting 422 million people worldwide and causing 1.5 million deaths annually. Ayurveda refers to Diabetes as *Prameha*. *Prameha* is a major lifestyle disease, characterized by increased urine quantity and turbidity. *Pathya Ahara*, is crucial in managing *Prameha*, with *Trunadhanya* (Millets), small grass-like plants, playing a significant role in managing the condition. The use of Millets has increased due to their perceived benefits and an increase in lifestyle disorders, like *Prameha*. In recent days, inappropriate or excessive use of Millets in *Prameha* has been observed. This article explores the rationale for their appropriate use through an analysis of Ayurvedic and contemporary literature.

Key Words: *Prameha*, *Trunadhanya*, *Pathya*, *Ahara*, Millets, Diabetes

INTRODUCTION:

Urbanization and changing diet habits contribute to lifestyle diseases, which can be prevented and maintained by modifying our lifestyle and food habits, avoiding excessive fast-food intake and lack of exercise. According to WHO, India is one of the Nations whose people are suffering most of lifestyle disorder in such disorders Diabetes Mellitus is one of them.¹ WHO estimates about 422 million people worldwide have Diabetes,² and 1.5 million deaths are directly attributed to Diabetes each year. Both the number of cases and the prevalence of Diabetes have been steadily increasing over the past few decades. Diabetes Mellitus is major health problem in 21st century and India is one of the five countries which have highest sufferers of Diabetes Mellitus. Therefore, India is declared as "Diabetes Capital" now.³ Poorly controlled Diabetes can lead to several complications and food can be a powerful tool in preventing or reversing Diabetes.⁴

Diabetes is referred to as *Prameha* in Ayurveda.⁵ The Sanskrit term *Meha* called to micturate. It (*Prameha*) is qualified by prefix "Pra" meaning excess both in quantity and frequency. So, a person suffering from *Prameha vyadhi* micturate urine in excess frequency and quantity.⁶ *Prameha* is a disease with main characteristic being "prabhuta avila mutrata (increased quantity and turbidity of urine),"⁷ that includes the *dushyas* like "bahu drava shleshma, bahu abaddha medas" etc.⁸

Acharya Kashyapa described *Ahara* as "Mahabheshaja."⁹ *Pathya* plays a significant role in *Prameha*, a major

lifestyle disorder, with *Trunadhanya* being a key *Pathya Ahara Dravya* mentioned by Acharya's in the management of *Prameha*. *Trunadhanya* are small grass-like plants mentioned under *Ahara varga-Shukadhanya*, which have been referred to by various Acharyas as *Kudhanya* and *Kshudradhanya*. In the present days *Trunadhanyas* are together known as Millets.

AIMS AND OBJECTIVES:

- To collect literature on *Trunadhanya* from the classical textbooks of Ayurveda.
- To collect references available on *Pathya Ahara* in *Prameha* w.s.r *Trunadhanya* in Classical texts of Ayurveda along with research done till date.
- To understand the usage of these *Trunadhanya* in *Prameha*.

MATERIAL AND METHOD:

For the present study data was collected and compiled from Ayurveda classics like Charaka Samhita, Sushruta Samhita, Astanga Hridayam, Bhavaprakashanighantu, Bhaishajya Ratnavali, Yoagaratnakara and Kaiyadevanighantu, and reviewed various text books, magazines, journals, research papers, data available on internet for this review article.

RESULT**1. PRAMEHA**

All Ayurvedic classical texts provide detailed information about *Prameha Vyadhi*. *Prameha* is a Tridoshaja Vyadhi, but it is *Kaphapradhan* in nature. Thus, *Prameha* is a *Kapha pradhana Tridoshaja Vyadhi*. Chakrapani states that vitiated *Drava guna* of *Kapha Dosha* must be *Bahu* (large in quantity), if not will not lead to *Prameha Samprapti*

(pathogenesis). Hence, *Kapha Dosha* is a key element in the *Samprapti* of *Prameha*, with similar *Guna* to *Rasa*, *Rakta*, *Mamsa*, *Meda*, *Majja* and *Mootra*, which are also vitiated in *Prameha*. Further *Kapha* dominance is accompanied by *Medo Dhatu dushti*, which is abundant in *Prameha* and is not well formed. Most *gunas* of vitiated *Kapha* are similar to *Meda*, making them the main components in the *Samprapti* of *Prameha Vyadhi*.¹⁰

2. TRUNADHANYA

Charaka Samhita: *Trunadhanyas* mentioned by Acharya Charaka in the Sutra sthana are *Koradushaka*, *Shyamaka* and such other varieties. They have the property of *Kashaya-Madhura rasa* (Astringent and Sweet in taste), *Laghu* (Easily digestible), *Sheetah* (Cold in potency), *Vatalah* (Aggravate *Vata dosha*), *Kapha-Pittagnah* (Alleviate *Kapha-Pitta doshas*), *Sangrahi* (Bowel binding) and *Shoshanah* (Dry).¹¹

Sushruta Samhita: Acharya Sushruta calls *Trunadhanya* as *Kudhanya*, which are *Koradushaka*, *Shyamaka*, *Nivara*, *Uddalaka*, *Priyangu* etc. They have the properties of *Ushna* (Hot in potency), *Ruksha* (Dry), *Kashya-Madhura* (Astringent and Sweet in taste), *Katuvipaka* (Pungent in post digestive effect), *Shleshmaghna* (Mitigate *Kapha dosha*), *Vata-Pittaprakopana* (Aggravates *Vata* and *Pitta doshas*) and *Baddhanisyanda* (Binds urine).¹²

Ashtanga Hridayam: *Trunadhanyas* are grains produced by grass like plants and they are *Kangu*, *Kodrava*, *Nivara*, *Shyamaka* and others. The *gunas* are

Himam (Cold in potency), *Laghu* (Easily digestible), *Pavanakrut* (increases *Vata dosha*), *Lekhanam* (deplete body fat) and *Kaphapittahrut* (mitigate *Kapha* and *Pitta doshas*).¹³

Bhavaprakasha: In the *Dhanya varga*, he mentions *Kshudradhanya*, also called as *Kudhanya* and *Trunadhanya*, are *Anushna* (not hot in potency), *Kashayam-Madhuram* (Astringent and Sweet in taste), *Laghu* (Light to digest), *Lekhanam* (deplete body fat), *Katukam pake* (Pungent in post digestive effect), *Ruksham* (Drying), *Kleda shoshakam* (absorbent of body moisture), *Vatakrut* (increases *Vata dosha*), *Baddhavit* (binding the mala) and *Pitta-Rakta-Kaphapaha* (Cure the diseases of *Pitta*, *Rakta* and *Kapha*).¹⁴

Kaiyadeva Nighantu: Acharya Kaiyadeva mentions *Sitakangu*, *Shyamaka*, *Kodrava*, *Uddalaka*, *Nartaka*, *Gavedhuka*, *Devadhanya*, *Varuka*, *Varittika*, *Udri*, *Nadi*, *Toyaparni*, *Mukunda*, *Shimbira*, etc. as *Trunadhanyas*. And the properties are *Laghu* (easy for digestion), *Anushna* (not hot in potency), *Katupaka* (Pungent in post digestive effect), *Kashaya-Madhuram* (Astringent-Sweet in taste), *Lekhanam* (deplete body fat), *Ruksham* (Dry), *Avrushyam* (anti-aphrodisiac), *Kledashoshanam* (absorbent of body moisture), *Pittahrut* (decreases *Pitta dosha*), *Vatalam* (increases *Vata dosha*), *Baddhamalam* (binding the mala) and *Rakta-Kaphapaham* (decreases *Rakta-Kapha doshas*).¹⁵

General and Specific Properties of *Trunadhanya*:

General *Guna* and *Karma* of *Trunadhanya* are,^{16,17,18}

Table 1: Rasapanchaka of Trunadhanya

Rasa	Kashaya-Madhura
Guna	Laghu, Ruksha
Virya	Sheeta
Vipaka	Katu
Effect on Dosha and Dhatu	Kapha-Pittahara, Vatala, Rakta shaamaka
Karma	Lekhana, Avrishya, Kledashoshana, Baddhamalakara

Guna and Karma of some Specific Trunadhanyas are,¹⁹

Table 2: Properties of Trunadhanya with their English names and Vernacular names

Sanskrit Name	English name (Millet)	Botanical Name	Rasa (Taste)	Guna (Quality)	Karma (Action)
Kangu/Priyangu	Foxtail	<i>Setaria italica</i>	Madhura, Kashaya	Guru, Ruksha	Bhagnasandhanakrut, Bruhmana
Shyamak	Barnyard	<i>Echinochloa frumentace Linn.</i>	Madhura, Kashaya	Ruksha, Snigdha, Laghu	Kapha-Pittahrut, Vishadoshahrit, Sangrahi, Shoshaka
Cheenak	Proso	<i>Panicum miliaceum</i>	Madhura, Kashaya	Guru, Ruksha	Bhagnasandhanakrut, Bruhmana, Shleshmahara
Kodrava/Koradushaka	Kodo	<i>Paspalum scrobiculatum L.</i>	Madhura, Tikta	Guru, Sheeta	Grahi, Pitta-Kaphapaha, Vrana
Nartaki	Finger	<i>Eleusine coracana</i>	Tikta, Madhura, Kashaya	Laghu, Sheeta	Pitta-Asranashana, Balya, Tridosha shamaka
Yavanala	White	<i>Sorghum vulgare</i>	Kashaya, Madhura	Laghu, Sheeta	Kledaghna, Rakta-Pitta-Kaphapaha
Vajranna	Pearl	<i>Pennisetum glaucum Linn.</i>	Madhura	Ruksha, Ushna	Vata-Pittakara, Agnipradipana
Nivara	Wild Rice	<i>Hygroryza aristate Nees</i>	Madhura, Kashaya	Ruksha, Sheeta	Vata vardhaka, Kapha Pitta shamaka
Gavedhuka	Adlay/ Job's Tear	<i>Coix lachryma jobi</i>	Katu	Ruksha	Karshakrit, Kaphanashaka

3. TRUNADHANYA IN PRAMEHA

Charaka Samhita: In the Chikitsa sthana, Trunadhanya is mentioned as Pathya Ahara for Prameha,²⁰ and Acharya Chakrapani comments by mentioning the Trunadhanya as Shyamaka and such other varieties of rice together.

Sushruta Samhita: Among the Trunadhanya, Kodrava and Uddalaka, which are purana are mentioned as Pathya Ahara for Prameha in the Chikitsa sthana.²¹

"Shyamaka nivara vruttihi" has been said by Acharya. One must regularly consume Shyamaka and Nivara without fail.²²

Ashtanga Hridayam: Acharya mentions Trunadhanya as Pathya Ahara for Prameha in the Chikitsa sthana.²³

Bhavaprakasha: In the Pramehadhikara, Acharya Bhavamishra says Millets like Shyamaka, Kodrava, Uddalaka, which are stored for a year after harvesting, are ideal to consume as food by patients of Prameha (Diabetes).²⁴

Bhaisajya Ratnavali: In the Prameha Roga chapter, Shyamaka, Kodrava,

Uddalaka, Nivara and Kangu have been indicated for a *Pramehi* as *Pathya*.^{25,26}

Yogaratanakara: *Shyamaka, Kodrava and Uddalaka* have been indicated by Acharya for the treatment of *Prameha* as *Pathya*.²⁷

DISCUSSION: *Prameha* is a *Santarpana janya vyadhi*,²⁸ caused due to sedentary lifestyle with no physical activities, and consumption of food and drinks which are *sheeta* (cold), *snigdha* (unctuous), *madhura* (sweet), *medya* (with lot of fat).²⁹ Stopping the *nidana* (aetiology) is crucial for the effective treatment of any disease, including *Prameha*. The three major classification of *Prameha* are *Kaphaja*, which is *Sadhya, Pittaja- Yapy,* and *Vataja* being *Asadhya*. Though all *Pramehas* will lead into *Madhumeha* in the end (subtype of *Vataja, Asadhya*),³⁰ one should always try to make sure that the *Kaphaja* or *Pittaja Prameha* will not turn into *Vataja*, which is *Asadhya*, by virtue of his negligence or inappropriate treatment (including *Pathya*). *Prameha* being a *Kaphapradhana Tridoshaja vyadhi*, with *Bahu Abaddha Medas* being the *dushya vishesa* requires *Apatarpana* line of treatment. As it helps in reducing the *Kapha* and *Medas* (which are the main *dushyas* in *Prameha*) and other similar *dhatu*s contributing to the *samprapti* of *Prameha*. Not just the *Chikitsa*, but also the *Pathya* follows the same principle. *Pathya* will not only help in *chikitsa* but also to prevent (or to postpone) the occurrence of *Prameha Upadrava* in the future. *Trunadhanya* (Millets) has been given an important place as *Pathya Ahara* in the Treatment of *Prameha* in Ayurveda and Contemporary Medical Science.

Table No. 2 reveals that different Millets have varying *rasa* predominance and properties, with some exhibiting *Madhur Rasa* (sweet), being *Ruksha* (Dry), or *Ushna* (Hot in potency) and some exhibiting *Snighdha* (Unctuous), *Laghu* (Light), or *Sheeta* (Cold) properties. Hence, consuming any kind of Millets by a *Pramehi*, without considering the *vyadhi avastha* might cause harm to the body. It should be consumed appropriately according to the requirement of the *Pramehi*.³¹ Though Millets are best for treating *Kaphaja Roga, Pittaja Roga,* and *Raktadushti*, but should be considered before using in case of *Vataja Roga* as they can aggravate the condition. In case of *Kaphaja Prameha*, where there is increased *Sharira kleda, drava kapha, abaddha meda,* etc., *Trunadhanya* becomes the best choice due to its *kashaya rasa, ruksha, ushna, lekhana, shoshana gunas* and *kaphahara karma*. And in *Pittaja Prameha*, it might be helpful due to *kashaya-madhura rasa, ruksha, sheeta,* or due to *tikta rasa and guru guna,* and *pittahara, raktashamaka karmas* (*Ashaya-Ashayi sambandha*). But when we see the *Vataja Prameha*, though *Madhura rasa* and *Ushna guna* will help to some extent, on excessive usage it may harm the person due to its *kashya-tikta rasa, sheeta, ruksha, laghu guna, vatahara karma* or *katu vipaka*. Thus, *Lekhana* of *Kapha, Meda,* and *Shoshana* of *Kleda* will be helpful in *Kaphaja* types. Yet, it might not be much helpful in *Pittaja* and might be risky to do so in *Vataja*.³² Consuming Millets without paying attention to its *guna karma* and one's health status, on enormous/inordinate usage may

potentially promote *Kaphaja Prameha's* progression to *Vataja Prameha*, an incurable variety.

Apart from general properties, different *Trunadhanya* has different or some special *karma*. Like, *Priyangu* with *Bhagnasandhanakara karma* can be helpful in a *pramehi* who has fracture, and *Koradushaka* being *param grahi* (helping in stopping discharge of fluids) can be used in *Pramehapidaka* where there is excessive discharge.³³ Thus, the choice of *Trunadhanya* has a chief role. In the contemporary science as well, we can see the usage of Millets in conditions of Diabetes Mellitus. In a clinical study, Foxtail millet significantly improved glycaemic control in individuals with impaired glucose tolerance, possibly due to increased leptin concentrations, decreased insulin resistance, and reduced inflammation. Other whole grain foods also have similar effects, suggesting increased consumption.³⁴ In a systematic review and meta-analysis, it has clearly showed that Millets, with lower GI compared to other cereals such as maize, milled rice and refined wheat flour, have potential in dietary management and prevention of Diabetes, with policy implications and nutrition-sensitive agricultural interventions.³⁵

It is crucial to consider the *Rasapanchaka* of the *Trunadhanya*, type of *Vyadhi* (type of *Prameha*), *Rogi Avastha* (*Avastha* of the *Pramehi*) and also *Ashta Aharavidhi Visheshayatana* in the treatment of a disease. Though all Millets have been specifically identified as *Pathya* in various diseases, the *guna karma* might vary depending on type of *Trunadhanya*. Thus

Trunadhanya (Millets) must be consumed wisely.

CONCLUSION:

Usage of *Trunadhanya* (Millets) as *Pathya* in *Prameha* must be tailor made rather than generalising it for regular usage. Considering the fact that *Prameha* is a *Santarpanajanaya*, will definitely indicate the *Trunadhanya* as *Pathya*, but consuming Millets without the proper knowledge of Type of *Prameha*, *Avastha* of *Pramehi*, *Rasapanchaka* of the *Trunadhanya*, *Ashta Aharavidhi Visheshayatana* as harmful as an inappropriate treatment given. The description of *Pathya* as a synonym for treatment, by Acharya Charaka, often highlights the significance of *Pathya* and *Apathya* in Ayurveda. *Trunadhanya* as *Pathya Ahara* can be beneficial not only for managing *Prameha* but also for preventing new *lakshana* (signs and symptoms) and *Upadrava* in future, when utilized properly.

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