

TRNADHANYA (MILLETS) IN CONTEMPORARY LIFE STYLE**Dr. Ankitha H.^{1*}, Dr. Rout Om Prakash² and Dr. Joshi Praveen Kumar³**

¹MD Scholar, Department of Dravyaguna, Shri NPA Govt. Ayurveda College, Raipur,
Chhattisgarh.

²Reader, Department of Dravyaguna, Shri NPA Govt. Ayurveda College, Raipur,
Chhattisgarh.

³Head of Department of Dravyaguna, Shri NPA Govt. Ayurveda College, Raipur,
Chhattisgarh.

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***Corresponding Author**

Dr. Ankitha H.

MD Scholar, Department of
Dravyaguna, Shri NPA
Govt. Ayurveda College,
Raipur, Chhattisgarh.

ABSTRACT

United Nations general assembly declared 2023 as international Year of Millet in order to improve its production and consumption for a healthy living. Millets are one of the classic grain which is utilised as a food and fodder. The name "Nutri cereals" was proposed by the Agricultural Ministry in 2018, denoting millets as a nutritional powerhouse. Millets are small annual grasses in the poaceae family that thrive in changing climatic circumstances, water scarcity, and are an effective treatment for malnutrition. Although there are several advantages to this, the general public exploits it very little. Millets are known by the names *Kshudradhanya*, *Trnadhanya*, and *Kudhanya* in ayurveda. The conventional medical system makes use of it both as a diet and a medicine. Ayurveda discusses the advantages of each and every *Trnadhanya* as well as how to use them in various diseased conditions. The sources and methodologies used for this article include

a review of many classics of ayurveda that describe *Trnadhanya*, numerous recent research publications focused on this subject, cultivation practises, and recipes that are suitable for day-to-day living. The fact that Ayurveda did not include it in *Nitya Sewaniya Dravya* shows that it is not a substitute for daily consumption. This is something we can consume in moderation in our diet. This might be as a result of the fact that most millet has the qualities of *Madhura Kashaya rasa*, *Laghu Ruksha guna*, *Katu vipaka*, *Sita virya*, *Kapha pittahara*, *Vatahara*, *Kleda Soshaka*, and *Lekhana*. We can apply this as a dietary regimen by taking

Desa, Kala, and Agnibala into consideration for Prameha, Grahani, Atisara, Kushta, Staulya, Pandu, Sopha, Hrdroga, Bhaghna, and other lifestyle disorders. We must consider its cultivation in addition to the growing demand of millets. Future millet cultivation is crucial because it keeps our planet's surface cool. Even though India is one of the countries that produces so much millets, relatively little of it is generally used by Indians. This might be a result of the lack of knowledge about these grains. People can utilise different *Trnadhanya* (Millets) in different recipes by properly understanding the indications and contraindications of each one, which helps them stay healthy and prevent certain non-communicable diseases.

KEYWORDS: *Trnadhanya* (Millets), Lifestyle disorders, Gluten, *Ahara*, Nutri-cereals.

INTRODUCTION

Ahara, Nidra and *Brahmacarya* are the three pillars which supports the life of a human being. Among these the first and foremost one is *Ahara* which is considered as *Mahabhaishajya* or the best medicine. According to ayurveda, *Ahara* is the element that causes both health and illness. A proper diet is all that *Ahara* needs to make someone disease-free. So, diet plays a crucial part in life. So, it is essential that we consider both the quantity and quality of the foods we consume. *Ahara* is specifically covered in various chapters in the *Samhitas, Nighantus* of Ayurveda, both in its raw and cooked forms. One food item is millet, which isn't very popular in daily life. But this small seeded grass plays a fantastic role in our food. It is recognized as the nutritional powerhouse. As per classics these are included in *Sookadhanya* under *Dhanyavarga*. It is known by the names of *Trnadhanya, Kshudradhanya, Kudhanya*. It includes *Priyangu* (*Setaria italica, Beauv.*), *Kodrava* (*Paspalum scrobiculatum, Linn.*), *Syamaka* (*Echinochloa frumentacea Linn.*), *Varaka* (*Panicum miliaceum Linn.*), *Nivar* (*Hygroryza aristata Nees.*), *Madhulika* (*Eleusine coracana Gaertn.*), *Yavanala* (*Sorghum vulgare (Linn.) Pers.*), *Gavedhuka* (*Coix lachrymal jobi Linn.*), *Vajrannam* (*Pennisetum typhoides Burm. f. Stapf. & Hubbard*) and so on. In general these *Trnadhanya* have a *Kashaya, Madhura rasa* with *laghu, ruksha guna, katu vipaka, kaphapittahara and vatacara properties*.

Nowadays, most people lead sedentary lifestyles, which predisposes them to becoming patients at a young age. Therefore we may at least focus on some dietary adjustments that are simple to prepare and beneficial to our overall health. Indians utilize cereals as their main source of nutrition. Millets are one of them that we can incorporate into our diet. Millets are an excellent source of gluten-free protein, fibre, carbohydrates, vitamins, macro and micro

minerals such as iron, magnesium, phosphorus, and potassium. It releases a lower percentage of glucose over a longer period of time, which is particularly beneficial to diabetic people.

India is one of the largest producer of millet but Indians are less exploring this grain. Apart from India Africa, China are also larger producers. 80% of Asia's production contribution is by India. Millets are widely grown in India, where they produce 17.26 million metric tonnes annually, 4.77 million of which are sorghum, placing India fifth in the world for sorghum output. With an annual production of over 12.46 million metric tonnes from an area of 8.87 million hectares, India is the largest producer of pearl millet, finger millet, tiny millet, kodo millet, and barnyard millet in the world. With 7.29 million tonnes generated from 5.91 million hectares, Rajasthan leads the way in millet production, followed by Karnataka, Madhya Pradesh, Maharashtra, Uttar Pradesh, Tamil Nadu and Telangana states In India, the state of Karnataka is well renowned for growing minor millets, including finger millet.^[1] Various programmes were also initiated by Indian government for improving the production of these grains which includes Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP), Increase in Minimum Support Price (MSP), Input support like seed kits, Millet international initiative for research and awareness and so on. Millets can be grown in arid and semiarid zones that require less water for sustenance and have a short growth season. In most cases, seeds can be harvested in 65 days. Millets are divided into two types: Major and Minor. Pearl millet (Bajra), finger millet (Ragi), and big millet (Jowar) are the major millets, while Foxtail, Proso, Small, Kodo, and Barnyard are minor millets.

MATERIALS AND METHODS

1. Collection of references on *Trnadhanya* (Millets) from different Ayurvedic Samhitas, Nighantus.
2. Collection of references on millets from modern science textbooks, international journals, World Wide Web references etc.
3. Tabulation and comparison of the *Trnadhanya* with each other for their fundamental characteristics i.e., Ayurvedic properties, functions and health benefits along with their nutritional value.
4. Critical analysis of the observations and results and drawing the conclusions.

Trnadhanya in Samhita^[2,3,4,5]

Brihatrayis follow several dietary regimens for the well-being of both healthy and diseased individuals. Trnadhanyas were mentioned in Sutrasthanas under Sookadhanya in Caraka Samhita's Annapana vidhi adhyaya, Annaswarupavijnaniya in Ashtanga hrdaya and Ashtanga Samgraha, and Susruta Samhita's Annapana vidhi adhyaya.

Table 1: References of Trnadhanya in Samhitas.

<i>Caraka Samhita</i>	<i>Susruta Samhita</i>	<i>Ashtanga Hridaya/Ashtanga Samgraha</i>
Koradusha	Koradushaka	Kanku
Syamaka, Hastisyamaka	Syamaka	Kodrava
Neevara	Nivara	Jurnahvagadi
Toyaparni	Santanu	Varunapadika
Gavedhuka	Varaka	Silbika
Prasantika	Uddalaka	Sisiroddala
Lauhitya	Priyangu	Varuka
Anu	Madhulika	Varakotkata
Priyangu	Nandimukhi	Madhulika
Mukunda	Kuruvinde	Venuparni
Varuka	Gavedhuka	Prasantika
Varaka	Sara	Gavedhu
Utkata	Baruka	Lauhitya
Jurnahva	Toyaparni	Toyaparni
Sivira	Mukundaka	Mukundara
Jhintigarmuti	Venuyava	Nivara
		Syamaka, Toya syamaka, hastisyamaka

Table 2: Trnadhanya in Nighantu.^[6,7,8,9,10,11,12]

<i>Trnadhanya</i>	<i>Ra.Ni</i>	<i>Bh.Pr.</i>	<i>Dh.Ni.</i>	<i>Mad.Ni</i>	<i>Kai.Ni.</i>	<i>Sali.Ni.</i>	<i>Pri.Ni</i>
Syamaka Barnyard millet (<i>Echinochloa frumentacea</i> Linn.)	Madhura Kashaya Laghu Snigdha Sita Vatakr Kaphapittaghna Grahi Vishahara	Soshana Ruksha Vatala Kaphapittahara	Madhura Kashaya Laghu Snigdha Sita Vatakr Kaphapittaghna Grahi Vishahara	Ruksha Sita Soshana Pittakaphahara	Sita pittahara	Madhura Kashaya Laghu Snigdha Sita Vatakr Kaphapittaghna Grahi Vishahara	Atiruksha Sita Dhatuoshana Pittakaphahara Vatakr
Kodrava Kodo millet (<i>Paspalum scrobiculatum</i> , Linn.)	Madhura Tikta Ruksha Guru Kaphapittahara Vatakr Vranina pathya	Sita Vatala Grahi Pittakaphahara	Sita Grahi Kaphapittaghna Vishaghna	Sita Grahi Kaphapittaghna Vishaghna	Sita Vishaghna	Madhura Tikta Ruksha Guru Kaphapittahara Vatakr	Sita Ruksha Vatavardhaka Vibandhakarak kaphapittasaman
Varaka /Cinaka Common millet <i>Panicum miliaceum</i> Linn.	Madhura Kashaya Ruksha Vatapittakrt	Guru Ruksha Sita Brmhana kaphahara Bhaghnasandhana Vatakara			Kashaya Madhura Ruksha Laghu Sita Raktapittahara Kaphahara Avrshya Kledahara	Madhura Kashaya Ruksha Vatapittakrt	Cinaka Atiruksha Guru Vatavrdhaka Bhaghnasandhana

					Vatakr		
Kanguni/ Priyangu Foxtail millet (<i>Setaria italica</i> , Beauv.)	Madhura Kashaya Ruksha Sita Vatakr Pittadahara Bhaghnsandhana	Guru Ruksha Sita Brmhana kaphahara Bhaghnsandhana Vatakr	Madhura Kashaya Ruksha Sita Vatakr Pittadahara Bhaghnsandhana	Guru Pittahara Vrshya Bhaghnsandhanakara	Guru Ruksha Kaphahara Vatakr Brmhana Bhaghnsandhana	Madhura Kashaya Ruksha Sita Vatakr Pittadahara Bhaghnsandhana	Atiruksha Guru Vatavardhaka Bhaghnsandhana
Nivara (<i>Hygroryza</i> <i>aristata</i> Nees.)	Madhura Snigdha Laghu Pathya	Sita Grahi Pittaghna Kaphavatakr	Madhura Snigdha Laghu Pathya	Sita Grahi Pittaghna Kaphavatakr	Sita Pittahara Kaphavardhaka	Madhura Snigdha Laghu Pathya	Sita Laghu Grahi Grahani Prameha pathya
Ragi/ Madhulika/ Nartak Finger millet (<i>Eleusine coracana</i> Gaertn.)	Tikta Madhura Kashaya Sita Pittarakthara balada	-	-		Nartak Pittahara Sita	Tikta Madhura Tarpana Laghu Sita Balya Pittahara Tridoshasamana Raktadosahara	Madhulika Tikta Madhura Kashaya Sita Laghu Ruksha Vatavardhaka Pittasaman Asmaribhedan Jalasoshan
Kuri (<i>Urochloa</i> <i>panicoides</i> Beauv.)	Madhura Balaprada						
Yavanala Jowar Great millet <i>Sorghum</i> <i>vulgare</i> (Linn.)Pers.	-	Madhura Kashaya laghu Ruksha Sita Kaphapittahara Avrshya Kledakarak	-	Madhura Sita Vatala Kaphapittaghna	Kashaya Madhura Ruksha Laghu Sita Raktapittahara Kaphahara Avrshya Kledahara Vatakr	Madhura Kashaya laghu Ruksha Sita Kaphapittahara Avrshya Kledakarak	Kashaya Madhura Ruksha Sita Sukranasaka Kledahara Vatakr
Gavedhuka Job tears <i>Coix lachrymajobi</i> Linn.	-	Katu Madhura Karsyakrt Kaphahara	-	Katu Madhura Karsyakrt Kaphahara	Katu Madhura Karsyakrt Kaphahara		Katu Madhura Ruksha Vatavardhak Karsyakrt Kaphahara Indiyasakti ksheenakara
Vajrannam Bajra Pearl millet <i>Pennisetum</i> <i>typhoides</i> <i>Burm.f.</i> Stapf. & Habbard							Madhura Ruksha Ushna Balya Durjaram Vatapittakara Pumstwahara Kaphahara

Cultivation of millets

Millets are susceptible to frost and need warm temperatures for germination and development. They are typically planted from the middle of June to the middle of July. The ideal soil temperature range for seed germination is 68°F to 86°F. produce well on well-drained loamy soils. They will not stand water-logged soils or extreme drought, Proso millet does not make good on coarse, sandy soils. It can be directly sown in drilled land. It grow from seed to flower within 50-60 days, depending on species, with seeds maturing shortly thereafter nearly in late September to November.^[13]

Millet recipes

As part of the Millet mission, the Chattisgarh government established a Millet café in Raigarh district, which is maintained by a group of ten women. This is a programme to improve the production and consumption of ragi, kodo, and kudki millet. Millets can be used to make a variety of dishes such as dosa, iddli, momos, cheela, pazta, and kodo biriyani. Unique recipes with each millet like sorghum bites, sorghum kulfi, sorghum idli burger, sorghum suji fingers, sorghum gulab jamun, sorghum pani puri, sorghum burfi, sorghum vermicelli upma, pearl millet sev, pearl millet rusk, upma, roti, khichdi, finger millet murukku, soft mudde etc.^[14] They are all highlighting the fact that we may replace our daily recipes with healthy millets recipes that can be made available in a variety of formats based on the preferences of the individual. Ayurveda has been concentrating on this subject since the beginning of time, therefore Acharyas proposed the Krtanna varga, which delivers a broad selection of recipes according to the Agni, Bala, Desa and Kala of a person.

DISCUSSION

The prevalence of lifestyle problems is escalating frequently. Unhealthy eating patterns are one of the causes of this. Even though there are numerous alternatives, rice and wheat are the two main foods that Indians eat every day. Several families are considering alternatives to these grains in light of the rising number of diabetic individuals. Millet is one of the greatest alternatives for this. It is possible that it is not a substitute for daily use because Ayurveda did not include it in *Nitya sewaniya dravya*. This can be incorporated into our diet in moderation. The majority of millet has *Madhura Kashaya rasa*, *Laghu Ruksha guna*, *Katu vipaka*, *Sita virya*, *Kapha pittahara*, *Vatakara*, *Kleda Soshaka*, and *Lekhana* properties. So, continued usage of this product could lead to a body imbalance.

Millets can be used in many diseases caused by vitiation of the *Kapha*, *Pitta*, and *Rakta*, with the exception of *Vatavyadhi*, where their *Vatakara* quality may make the illness worse. We can use this as a dietary regimen for *Prameha*, *Grahani*, *Atisara*, *Kushta*, *Staulya*, *Pandu*, *Sopha*, *Hrdroga*, *Bhaghna*, *Vrana*, and other lifestyle problems. The *karma* responsible for accelerating the quality of these millets is *Kledahara*, *Soshana*, *Lekhana* and *Grahi*. On the other hand *Desa*, *Kala*, and *Agnibala* of the person should be taken into account when prescribing them. Since some of the *Trinadhanya* include *Guru*, *Ruksha*, and *Durjara* properties which may be due to its higher fibre and protein content than other foods, after digestion. Millets are therefore generally not recommended for people who have

Agnimandhya, Ajirna, Vatavyadhi, or Sukradosha. According to certain research, it does not favour thyroid problems. Also the people in *Anupa, Jangala and Sadharana* desa can make use of this after doing some samskara with suitable *Sahapana Anupana* which assists easy metabolism and absorption in body.

One of the benefits of millets is that they are gluten free. Glutens are proteins that contain glutenin and gliadin, which give dough elasticity. It can be found in grains such as wheat, barley, rye, and several other foods. Hence, in the current context, millets have a significant influence in competing with gluten-induced autoimmune ailments such as Celiac disease, dermatitis herpetiformis, and gluten ataxia. Wheat allergy and non-celiac gluten sensitivity are classified as allergic and non-autoimmune-allergic diseases, respectively. Aside from gluten-sensitive cereals, we can switch to a millet diet. Millets are high in macro and micronutrients, which aid in the prevention of many ailments that are on the rise in our culture. Hence, taking into account the age, we can include it in midday meal programmes and provide millets through public distribution system and can initiate several programmes which improve the utilisation of millets.

While considering the increased consumption of millets, we must also consider its production region. Millets cultivation is critical for the future since it helps to keep our planet cool. Climate change, water shortage, and global warming all have the potential for adversely affecting several farm products, leading to food scarcity. Millet is a blessing for this because of its ability to withstand climatic change, consume less water, and have a short growing season. As part of this, everyone should try to cultivate these crops along with others, and the government should promote cultivation by providing seed kits and public awareness programmes, which will eventually in the future pave the way for new startups to provide value-added products in the market, enabling them to conquer the world.

CONCLUSION

Millets have a great role in contemporary life style. Despite being one of the world's top millets producers, India's consumption of millets is quite low. This may be the result of limited knowledge about these grains. According to the WHO, non-communicable diseases like diabetes, cancer, heart disease, and autoimmune disorders account for 41 million annual deaths, or 74% of all mortality worldwide. 17 million individuals worldwide die suddenly from an NCD before they turn 70 each year; 86% of these untimely deaths take place in low- and middle-income nations as a result of inadequate nutrition. According to the WHO, 50.8

million people in India are diabetic.^[14] After analysing everything, it is now time to modify one's nutrition as well as physical and mental routines. The science known as ayurveda places great emphasis on these elements that contribute to a healthy society. This includes a group of foods called millets. People can utilise different *Trnadhanyas* (Millets) in a variety of recipes by properly understanding the indications and contraindications of each one, which will help them stay in good health and prevent developing major non-communicable diseases.

“Let food be your medicine and medicine be your food”. Hippocrates.

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