

Millets: Pros and Cons and Their Importance in Daily Diet

Today's world is a world of trends. If something is trending, everyone will start following that. Trends are not actually something that is new. Things that are already known but are less practiced, when marketed and spread by stating their extraordinary benefits, become a trend! Just like organic food or Yoga!

A similar trend is going on nowadays. The trend of Millet rich Diet. One can easily find hashtag on social media- #IYM2023. "UN declared year 2023 as International Year of Millets following the proposal by India." an article in The Hindu quotes. For an Ayurveda Practitioner, it was obvious that patients start to ask about the millets, whether they should be included in diet, what are the recipes of millets and what not!.. So at least a basic study about millets, their pros and cons, their importance in daily diet etc. should be done in ayurvedic point of view. Let's explore about it under these points-

- What is Ahara? What are the types of Ahara? What is the effect of ahara on maintenance of health.
- Are Millets explained in Ayurveda? Types of Ahara Vargas, What is Kudhanya? Overview of Kudhanya Varg.
- Kudhanya varga as a whole
- Individual discussion about some Kudhanyas w.r.t their gun-karma, effect on dosh-dhatu-mal, textual references etc.
- Current understanding about Kudhanyas and their Global use since historic period.
- Discussion to find the answers to-
 - Are Millets Good or Bad?
 - Are millets useful in daily diet?
 - Are millets really Superfood as claimed in modern dietetics?
 - If beneficial, what are the rules to correctly use millets as food?
 - Are there any short- or long-term harms due to over/mis-use of millets?

What is Ahara?

The word Ahara is derived from – आ + ह् (आहरणे). The root 'ह्' means 'To Take'^[1]. When it is combined with prefix आ, it means the Food. (उपसर्गयोगात् भोजने-वाचस्पत्यम्). So as a conclusion, by the word Ahara, we mean the material that we consume or simply the food.

The types of Ahara-

When we start thinking about types of food, there is Roti, Rice, Sabji, Kheer, Pickles, Chatani, etc. The list doesn't end here. Each of these has many sub-types. There is no end to the list when we start thinking about the types of Ahara. Ayurvedic texts grossly divide Ahara into two categories-

आहारो वक्तव्यः। स च द्विविधः द्रवोऽद्रवश्च। अ ह सू ५/१ हेमाद्रीटीका

Drava Ahara	Adrava Ahara
<ul style="list-style-type: none">• Toya-varga• Kshira-varga• Ikshu-varga• Taila-varga• Madya-varga	<ul style="list-style-type: none">• Shooka-Dhanya varga• Shimbi-Dhanya-varga• Pakvanna-varga• Mamsa-varga• Shak-varga• Phala-varga• Aushadha-varga

Table-1- Classification of Ahara according to Ashtang Hriday

Effects of Ahara-

Food is one of the basic needs of a human to live. Ayurveda has beautifully explained the effects of ahara-

प्राणाः प्राणभृतामन्नमन्नं लोकोऽभिधावति।

वर्णः प्रसादः सौस्वर्यं जीवितं प्रतिभा सुखम्॥

तुष्टिः पुष्टिर्बलं मेधा सर्वमन्ने प्रतिष्ठितम्।- च सू २७/३४९-३५०

Food for humans is nothing but Prana. That is why every human being runs towards food. Varna (Complexion), Prasada (Glow), Sausvaryya (a good voice), Jivita (liveliness), Pratibha(intellect), Sukham (Happiness), Tushti (Satisfaction/Satiety), Pushti (Nourishment), Bala (Strength), Medha (Wisdom) all these are the effects of Ahara.

It is clear from above sutra that ahar has a multi-dimensional effect on our life. It is said that-

आहारसम्भवं वस्तु रोगाश्चाहारसम्भवाः।- च सू २८/४५

Ahara results into Healthy Body as well as body with Disease. It depends upon what type of ahara is consumed. Hence, we have to be very cautious while selecting our ahara.

Are millets explained in Ayurveda?

Before commenting anything about the Millets, it is important to answer this question. Millets is the modern-day word for grains obtained from grass. Ayurveda has explained various types of grains and their qualities. One of them is कुधान्य वर्ग also known as तृणधान्य वर्ग. This class of grains includes millets.

So, to answer the question, YES millets are explained in ayurveda under the name कुधान्य. For the sake of the study some major millets are taken into consideration.^[2]

Types of Ahara Varga

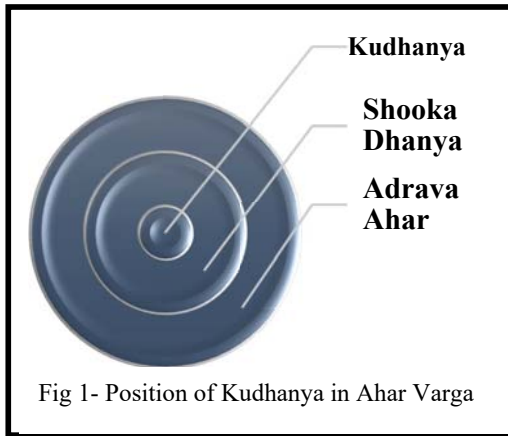


Fig 1- Position of Kudhanya in Ahar Varga

As stated above, the gross division of ahara is Drava and Adrava. Further Adrava Ahara is divided into multiple classes, out of which Shali Dhanya varga is to be studied. While describing Shali Dhanya Varg, one section in Samhitas explain about Kudhanya varga.

What is Kudhanya?

Let us see what the word Kudhanya means- कुधान्यम्- कुत्सितं धान्यम्। - (वाचस्पत्यम्)

The word Kudhanya has a prefix कु which means deficiency, littleness (Monier-Williams).

Hence the meaning of the word कुधान्य is *A grain that is deficient in something.*

In other words, it can be said that Kudhanya are grains that are not the primary or preferred choice of grains in Ahara.

Overview of Kudhanya Varga-

Brihat trayee i.e Charaka Samhita, Sushrut Samhita, and Ashtang Hriday/Sangraha explain these Kudhanyas in brief. The Kudhanyas listed under the section, differ in each Samhita.

Further Nighantus have included or excluded some grains from the list, explaining some in

detail. As a result, one can read varied descriptions of the Kudhanyas. Table no 2 summarises the Kudhanyas included under the title-

Charaka	Sushruta	Vagbhata	BhavPrakash	Raj Nighantu
कोरदूष	कोरदूष	कोद्रव	कोद्रव	कोद्रव
श्यामाक	श्यामाक	श्यामाक	श्यामाक	श्यामाक
हस्तिश्यामाक	मधूलिका	हस्तिश्यामाक	कुसुम्भबीज	रागी
तोयश्यामाक	शान्तनु	तोयश्यामाक		
नीवार	नीवार	नीवार	नीवार	नीवार
तोयपर्णी	तोयपर्णी	तोयपर्णी		
गवेधुक	गवेधुक	गवेधुक	गवेधुक	
प्रशान्तिका	कुरुविन्द	प्रशान्तिका		
प्रियङ्गुक	प्रियङ्गु	कङ्गु	कङ्गु	कङ्गुणी
मुकुन्द	मुकुन्दक	मुकुन्दर		
झिण्टी	कुरुविन्द	मधूलिका		
गर्मटी	सर	गदी		
वरुक	बरुक	वरुक	चारुक	
वरक	वरक	वरक		वरक
शिविर	उद्दालक	शिशिर		
उत्कट	वेणुयव	उत्कट	वंशयव	
जूर्णाह		जूर्णाह	यावनाल	

Table no 2 Kudhanya in Various Texts

This table can only show glimpse of Kudhanya Varga across various ancient texts. Many other texts have different grains included under the Varga. Many of these Drava are not even identified today.

As the topic of this study is Millets, in subsequent sections, only the major millets^[2], as specified in the book The Story of Millets by Indian Institute of Millets Research, Hyderabad, are taken into consideration and their equivalent Dravya from Samhita or Nighantu is discussed.

Kudhanya Varga as a whole-

Explaining Gun-Karma of a group is not an uncommon method used by ancient acharyas.

This is more evident in the chapters of Annapan Vidhi in Charaka, Sushruta, Vagbhata as well as in Nighantus. The same method is adopted while explaining about Gun-Karma of Kudhanya Varga-

कफपित्तहरा रूक्षाः कषायमधुरा हिमाः। वातला बद्धविण्मूत्रा लघवो लेखनात्मकाः॥ (अ सं सू ७/९)

क्षुद्रधान्यमनुष्णं स्यात् कषायं लघु लेखनम्। मधुरं कटुकं पाके रूक्षं च क्लेदशोषकम्॥

वातकृत् बद्धविट्कं च पित्तरक्तकफापहम्॥- (भा प्र धान्यवर्गः)

तृणधान्यं लघ्वनुष्णं कटुपाकं कषायकम्। लेखनं मधुरं रूक्षम् अतृष्यं क्लेदशोषणम्॥

पित्तहृत् वातलं बद्धमलं रक्तकफापहम्॥- (कैय्यदेव निघण्टु धान्यवर्ग)

Rasa	Madhur, Kashay
Vipaka	Katu
Virya	Shita / Anushna
Guna	Ruksha, Laghu
Karma	Lekhana
Action on Dosh	Vata-vardhan, Kapha-Pitta-nashan
Action on Dhatu	Rakta- Shaman Shukra- Avrushya Kleda- Shoshana
Action on Mala	Mutra-Purisha- Malavibandha

Table 3 Kudhanya Varga Guna-Karma

This table gives the general and overall idea about what Kudhanyas are! Now lets see in detail about some of them.

Some major Kudhanyas-

Millets are of various varieties and types. As stated earlier, in this study only the millets, which are considered as major millets are taken into consideration. Their identifications done by various dravyagun experts are accepted and details about those Dravyas according to ayurvedic texts are explained.^[3]

Millet	Equivalent Dravya
Sorghum Millet	जूर्णक / यावनाल
Pearl Millet	वज्रान्न (बाजरी)
Finger Millet	रागी (नाचणी)
Foxtail Millet	प्रियङ्गु / कड्गु
Kodo millet	कोद्रव
Barnyard millet	श्यामाक (वरई)
Proso millet	श्यामाकभेद (वरई)
Little millet	श्यामाकभेद (वरई)

Table 4 Major Millets and corresponding Kudhanya

Sorghum Millet-

Latin Name- *Sorghum bicolor*

Sanskrit Name- जूर्णक, जूर्णाह यावनाल

Vernacular Names- ज्वारी, जोवार इ

यावनालो हिमः स्वादुर्लोहितः क्षेष्मपित्तजित्। अवृष्यस्तुवरो रूक्षः क्लेदकृत्कथितो लघुः॥ भाप्र धान्यवर्ग

यावनालस्तु जूर्णाहो मधुरो रूक्षशीतलः। शुक्रघ्नस्तुवरः क्लेदनाशनो वातवर्धनः॥- प्रियनिघण्टु धान्यवर्ग

Other Nighatus like Raj-Nighantu Kaiyadev Nighantu also explain about Jurnaka/Yavanala.

Rasa- Madhur, Kashay **Vipaka-** NA **Virya-** Shita **Guna-** Ruksha, Laghu

Karma- Avrushya, Kled kara/ nashana.

Two things to be noted are –

- 1) No vipaka is mentioned. Hence it is Katu as per Samanya Guna of Kudhanya
- 2) All nighantus mention Kled Nashana gun except Bhav Prakash which says Kled-Krit.

While explaining **Chikitsa for Sthoola**, Charaka and Vagbhata both mention जूर्णाह. Also

जूर्णक is mentioned as one of the **Hetus for Udavarta**

Pearl Millet-

Latin Name- *Pennisetum glaucum*

Sanskrit Name- वज्रान्न

Vernacular Names- बाजरी, बाजरा इ

वज्रान्नं मधुरं रुक्षमुष्णं बल्यं सुदुर्जरम्। वातपित्तकरं पुंस्त्वहरं श्लेष्मविनाशनम्॥ प्रियनिघण्टु धान्यवर्ग

Rasa- Madhur **Vipaka-** NA **Virya-** Ushna **Guna-** Ruksha

Karma- Balya, Durjara, Pumstva-hara

Points to note are-

- 1) Vipaka not mentioned hence it is to be taken as Katu
- 2) It is Pitta-Kara, though kudhanya in general is Pitta-hara
- 3) Durjara is specific quality of Vajrann, which is different than other Kudhanyas.

Finger Millet-

Latin Name- *Eleusine coracana*

Sanskrit Name- रागी

Vernacular Names- नाचणी, रागी इ

रागी तु.....। तिक्तो मधुरकषायः शीतः पित्तासनाशनो बलदः॥- शाल्यादिवर्ग राजनिघण्टु

Rasa- Madhur, Tikta, Kashay **Vipaka-** NA **Virya-** Shita **Guna-** NA

Karma- Balya

Points to note are-

- 1) Vipaka and Guna are not mentioned. Hence can be taken similar to samanya Kudhanya
- 2) Tikata rasa is additional rasa than common rasa of Kudhanya

Foxtail Millet-

Latin Name- *Setaria italica*

Sanskrit Name- कङ्गु, प्रियङ्गु

Vernacular Names- कङ्गु, राळं इ

कङ्गुस्तु भग्नसन्धानवातकृत् बृंहणी गुरुः। रुक्षा श्लेष्महराऽतीव वाजिनां गुणकृत् भृशम्॥-भा प्र धान्य वर्ग

Rasa- NA **Vipaka-** NA **Virya-** NA **Guna-** Ruksha, Guru

Karma- Bhagna-sandhan-kara, Vajinam-Guna-krit

Points to note are-

- 1) No Rasa Virya Vipaka are mentioned. So samanya Rasa Virya Vipaka are applicable.

- 2) Guru Guna is mentioned.
- 3) Bhagna Sandhan and Bruhan are specific Karmas. Action on Vaji(Horse) is grossly mentioned as Gunakrit Bhrusham (Highly beneficial to horse)

Kodo Millet-

Latin Name- *Paspalum scrobiculatum*

Sanskrit Name- कोद्रव, कोरदूष

Vernacular Names- कोद्रु इ

कोद्रवो मधुरस्तिको व्रणिनां पथ्यकारकः। कफपित्तहरो रूक्षो मोहकृत् वातलो गुरुः॥- रा नि शाल्यादि

कोद्रवो वातलो ग्राही विषपित्तकफाञ्जयेत्। उद्दालस्तु भवेदुष्णो ग्राही वातकरो भृशम्॥ - भा प्र धान्य

Rasa- Madhura, Tikta **Vipaka-** NA **Virya-** Shita **Guna-** Ruksha, Guru

Karma- Vran-Pathya-kara, Moha-krit, Visha-nashan, Grahi

Points to note are-

- 1) No Vipaka is mentioned.
- 2) Pathya in Vrana and Mohakara and Visha-nashana and Grahi are different karmas.
- 3) Uddalaka is Wild variety of Kodrava (वनकोद्रव)

Barnyard Millet, Proso Millet. Little Millet -

These 3 types of millets can be taken as different types of same Dravya according to Ayurveda. Why? The vernacular names of all 3 millets are वरई. The textual name for Barnyard millet is श्यामाक. 3 types of Shyamak mentioned in the texts. So it can be true that these three millets are actually the types of Shyamak mentioned in the text. To confirm this point, Further study and Identification is needed.

Latin Name- Barnyard- *Echinochloa esculenta*

Proso- *Panicum milliaceum*

Little- *Panicum sumatrense*

Sanskrit Name- श्यामाक

Vernacular Names- वरई, चीना, भगर इ

श्यामाको मधुरः स्निग्धः कषायो लघुशीतलः। वातकृत् कफपित्तघ्नः सङ्ग्राही विषदोषनुत्॥- रा नि शाल्यादि

श्यामाकः शोषणो रूक्षो वातलः कफपित्तहृत्॥- भा प्र धान्य

Rasa- Madhura, Kashaya **Vipaka-** NA **Virya-** Shita **Guna-** Ruksha /Snigdha,Laghu

Karma- Sangrahi, Visha-nashan

Points to Note-

- 1) Vipaka not mentioned.
- 2) Bhav Prakash contradicts Rajnighantu by stating Ruksha Guna instead of Snigdha Guna.
- 3) Sangrahi and Visha-nashana are different karmas.

To summarise-

	जूर्णक	वज्रान्न	रागी	कङ्गु	कोद्रव	श्यामाक
Rasa	Madhur, Kashay	Madhur	Madhur Tikta Kashaya	--	Madhur Tikta	Madhura Kashaya
Vipaka	Katu	Katu	Katu	-	Katu	Katu
Virya	Shita	Ushn	Shita	-	Shita	Shita
Guna	Ruksha, Laghu	Ruksha	-	Ruksha, Guru	Ruksha, Guru	Snigdha/Ruksha, Laghu
Karma	-	Balya	Balya	Bhagna- Sandhan, Bruhana	Vran Pathya, Visha Nashan	Visha Nashan, Shoshana
Action on Dosha	Vata-kara Kapha- pitta-hara	Vata- pitta-kara Kapha- hara	Pitta-hara	Vata- kara, Kapha- hara	Vata-kara Kapha- pitta-hara	Vata-kara Kapha-pitta-hara
Action on Dhatu	Avrishya, Kleda- Nashan	Pumstva- Hara	Rakta- dosh-hara	-	-	-
Action on Mala	-	-	-	-	Grahi	Grahi

Table 5 Summary of Major Millets

Current understanding about Kudhanya and its Global use since historic period-

Though we find explanations about Major millets in Ayurveda texts, Agricultural science believes that most of these were originated in Asia and Africa and then spread over the world and reached India about 4000 years ago.^[4]

Millets, in view of Nutritional science, are considered as “Powerhouses of Nutrition” due to high content of carbohydrates, dietary fibres, phenolic compounds, various metals like iron zinc calcium and vitamins.^[5]

Millets are also considered beneficial against non- communicative diseases, Diabetes and some degenerative disorders.^[6]

Discussion

Are millets Good or Bad?

It is not possible to state whether All millets are good or All millets are bad. The principles of Ayurveda say –

योगमासां तु यो विद्याद्देशकालोपपादितम्। पुरुषं पुरुषं वीक्ष्य स ज्ञेयो भिषगुत्तमः॥- च सू १/१२३

The physician is considered best when he or she knows the proper usage of a drug(substance) by considering Place where that substance is generated as well as being consumed, The time when the substance is generated as well as being consumed, and the person who is consuming it.

Hence a particular type of millet can be beneficial to one person and at the same time, it can be harmful to another. Not only this but for the person for whom millets are beneficial, there can be a time or place when consuming millets can be harmful!

So the answer to this question will always be subjective after due consideration of place time and Purusha.

Place- Desha- It is clear from the points explained above, that millets are of Ruksha, Laghu Guna. So in Jangam desha(e.g Deccan plateau), their daily use will not be of any benefit. Instead, if they are used in Anupa desh(e.g Coastal areas) where Kleda is always in high quantity, they will be beneficial.

Time- Kala- During Rutus like Shishir Grishma etc, the ruksha guna of millets will be harmful. But in Rutus like Varsha, where kleda is predominant, they can be used.

Purusha- The Purusha should be understood by Dashavidha Pariksha. Primarily, Prakruti, Sarata, Satmya, and Samhanana of Purusha must be assessed. Vat-prakriti persons will only be harmed by consuming millet, whereas kapha-prakriti persons will get many benefits. Similarly, other factors must be assessed before considering addition of millets in the diet.

Are millets useful in daily diet?

There is an interesting reference in Sushrut Samhita Sutrasthan Hitahitiya Adhyaya Shlok no 5 where Sushruta explains सामान्यतः पथ्यतम Ahara. The list includes- Kangu, Nivar, Kodrav, Uddalak, Shyamak which are Kudhanyas. Based on this reference, we can say that Sushruta says that these Kudhanyas can be used in daily diet as they are not going to cause any Dosh Prakopa leading to any Vyadhi.

Here it should be kept in mind that-

मात्राशीस्यात्। मात्रा पुनरग्निबलाहारद्रव्यापेक्षिणी। अ सं सू ११/२

Even if Kudhanyas are mentioned as Pathya ahara for everyone, their Quantity in the diet should be decided properly based on Agni Bala and the properties of that Dravya.

Are millets superfoods as claimed by modern dietetics?

In Charak Samhita Atreya says-

सर्व एव भवन्तः सम्यग्गाहुः अन्यत्र एकान्तिकवचनात्॥ च सू १२

The same thing can be said about millets. Millets are surely one of the healthy foods, but not THE ONLY healthy food. So, considering them as a superfood may lead to the misconception that Millets can replace the other food materials like Rice, Wheat etc.

How Millets can be used properly?

Using millets in daily diet is not prohibited by ayurveda texts. Using them in the proper quantity and in the proper manner can result into maintenance of health.

All millets are Ruksha. Hence their use in Kapha kala i.e in the morning will help to reduce the Kapha. Similarly in Kapha Sanchay kala i.e Heamanta and Shishir may prove beneficial. (Is it the reason behind ritual of having Bajri Roti in Makar Sankranti?). Taking proper amount of sneha along with them will avoid the Vata-prakopa. In Kapha prakop kala i.e Vasant Rutu, use of millets is beneficial.

Millets like Vajranna, Ragi, Kangu are Balya or Bruhana. Hence these can be used in people who need bruhanas but have Mandagni. The principle for Santarpana in such cases is Laghu Santarpana, which can be achieved by use of these Millets. There is a common practice of using Ragi in children for bruhanas, in Garbhini as well as Sutika for dhatubala rakshana etc.

Millets like Kangu and Kodrava which are Bhagna-sandhan and Vran-Pathya respectively, can be used for diet in patients of fracture and wounds.

Can Over or Mis-use of millets prove harmful?

Yes, Millets or anything for that matter, when used inappropriately will result into harm. Samyak Yog of everything is reason for Health. So in case of millets, samyak yog must be followed.

Conclusion

International Year of Millets has brought light on the millets which are not routinely used in the diet now a days. Ayurveda also states that they can be used in daily diet in proper quantity. Various recipes of millets can be incorporated into the daily diet. But millets should not be used as an alternative to the materials like Rice Wheat etc, as being stated by modern dietetics. Using millets properly will ensure the Health for All !

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