Journal of Ayurveda & Holistic Medicine

www.jahm.co.in

eISSN-2321-1563

REVIEW ARTICLE **OPEN ACCESS**

COMPREHENSIVE KNOWLEDGE ABOUT THE USAGE OF TRINA DHANYA IN CONTEMPORARY LIFESTYLE W.S.R TO MILLETS

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ABSTRACT:

Ayurveda, the science of life gives prime importance to the concept of three pillars of life (Traya upasthamba) which includes Ahara, Nidra and Brahmacharya. Consumption of pathya ahara (Wholesome diet) nourishes the body, mind and soul. The focal aim of Ayurveda is to preserve health by consuming nutritious and wholesome food. In the present era, the changing lifestyle leads to diseases such as Diabetes, obesity, hypertension, thyroid, cancer, dyslipidemia, CVD etc. So, it is essential to keep an eye in the consumption of proper nutrition on a regular basis. Among the nutritious food crops, dhanya vargas such as trina dhanya plays a key role in maintaining proper nutritional profile as it serves as good source of proteins, micronutrients, phytochemicals and high dietary fiber. In ayurveda classics, Acharya Vaghbhata mentions the group of millets as Trina dhanya varga, in Susrutha samhitha as Kudhanya varga, in Bhava Prakasha Nigantu as Kshudradhanya varga. Madhoolika, priyangu, Kodrava, Syamaka, Yava, uddhalaka are some of them. India celebrated 2018 as "The Year Of Millets" and the Food And Agricultural Organization has declared 2023 as the "International Year Of Millets" with the aim to create awareness and to increase the production of millets. Recognising the enormous potential of Millets they were rebranded as Nutri-cereals. Millets includes Pearl millet, Sorghum, Finger millet, Kodo millet, Foxtail millet, little millet, proso millet etc. They are the nutri-cereals which includes 7-12% proteins, 2 - 5% fat, 65-75% carbohydrates, and 15 - 20% dietary fibre and are rich in antioxidants. Group of millets can be called as miracle millets as it has significant role in preventing type 2 diabetes due to its lower Glycemic Index when compared to wheat and rice. It is proved to be effective in reducing blood pressure, reduces the risk of gastrointestinal diseases including colon cancer.

Key words: Millets, Trina dhanya, Lifestyle diseases, Nutritional benefits

INTRODUCTION

According to WHO, the non-communicable diseases kill 41 million people each year, equivalent to 74% of all deaths globally. Among them cardiovascular diseases account for most NCD deaths (17.9 million) annually, Cancers (9.3 million), Chronic respiratory diseases (4.1 million), and diabetes (2.0 million) [1] In the present era, there is a lot of changes in the dietary patterns when compared to past decades. It may occur based on the availability of food, prices of food, based on income, geographical area etc. These transitional changes in dietary patterns and our fast changing lifestyle impacts on health in a negative way. When compared to past decades the prevalence of non communicable diseases like cardiovascular diseases, cancer, obesity, diabetes, thyroid issues are tremendously increasing. The concept of fast food eating is first popularised in United States which has been changed into the largest food industry today [2] Junk food includes many types of fast food, processed foods, and premade snack foods. Present generations are is more depended on fast food consumption and out- of home eating behaviour. It contributes to the main risk factor for lower diet quality, higher calorie and fat intake and lower micronutrients density of diet [3]. Frequent consumption of lesser nutritious diet leads to overweight and abdominal fat gain, impaired insulin and glucose homeostasis, lipid and lipoprotein disorders, induction of systemic inflammation and oxidative stress [4]. Millets are shown to be gluten free grains hence, can be used for celiac disease patients. Consumption of millets lowers blood glucose response and glycosylated haemoglobin thus, rendering glycemic index, which helps in reducing the risk of diabetic mellitus. Due to the presence of phenolic compounds present in millet grains it removes the free radicals, which reduces oxidative stress. It has anti-cancer properties like millet extracts have anti-prolific effects on cancer cell line. Inhibit DNA damage and induce the production of phase-2 detoxifying enzymes. Due to the prevention of the oxidation of low-density lipoproteins millets reduces the occurrence of hypertension [5].

Millets have been mentioned in some of the oldest *Yajurveda* texts, indicating that millet consumption was very common, pre-dating to the Indian Bronze Age (4,500BC) *Acharya Vaghbata* details about *Trina dhanyas* in *Ashtanga Hridaya Suthrasthana* 6th chapter *Annaswarupa Vijnaniya*. *Susrutha* included it in 46th chapter *Annapanavidhi Adyaya* as *Kudhanya varga*. In *Bhavaprakasha nigantu* millets has been explained as *Kshudradhanya* in *Purvakhanda (Dhanya Varga)*. India has

celebrated 2018 as "The Year Of Millets" and the Food And Agricultural Organization (FAO) has declared 2023 as the "International Year Of Millets" after recognising the nutritive value of millets.

MATERIALS AND METHODS

Samhithas like *Ashtanga Hridaya, Susrutha Samhitha, Bhavaprakasha Nigantu*

Supportive texts of contemporary science.

Reference from internet and journals

Classification of millets

Table 1: Millets in various Ayurveda classics

Major Millets	Sorghum, Pearl millet, Finger millet
Minor Millets	Foxtail, Kodo, Barnyard, Little, Proso
Pseudo Millets	Amaranth, Buckwheat

Table 2: Trina Dhanya In Classics and Researches done on Millets

Classics	*Vargas*
Ashtanga Hridaya [6] *(Trina Dhanya)*	*Kangu, Kodrava, Nivara, Syamaka, Priyangu, Yava, Godhuma, Nandimukhi*
Susrutha Samhitha [7] *(Kudhanya Varga)*	*Koradusaka, Syamaka, Nivara, Santanu, Varaka, Uddhalaka, Priyangu, Madhulika, Nandimukhi, Kuruvinda, Gavedhuka, Sara, Baruka, Todaparni, Mukundaka, Venuyava*
Bhavaprakasha [8] *(Kshudra dhanya)*	*Kangu, Cinaka, Syamaka, Kodrava, Caruka, Vamsa yava, Kusumbhabija, Gavedhuka, Nivara, Yavanala,*

1 *Madhulika* (Finger Millet)

Botanical Name: *Eleusine coracana*, Poaceae

In *Susrutha samhita Madhulika* has been explained. It is *madhura rasa, sita virya* and has *snigdha guna.* Due to madhura rasa it acts as Brhimana, Balakaraka and due to Sita potency it reduces the ailments related with raktha.

Finger millets has highest amount of calcium (344 mg%) and potassium (408%). It is rich with dietary fibres, minerals, and amino acids when compared to white rice. Studies indicates that finger millets lowers the blood glucose and cholesterol level along with anti-ulcerative and wound healing properties [9].

2 *Kodrava* (Kodo Millet)

B.N: *Paspalum scrobiculatum*, Poaceae

According to *Ashtanga Hridaya, Kodrava* is *Sita* in *potency, laghu guna,* have *lekhana* property, increase *vata*, pacifies *kapha* and *pitta*, constipative and have antitoxic property. Lower incidences of diabetes has been recorded in the population which consumes kodo millet. It contains phenolics such as alpha glucosidase by partly inhibiting the hydrolysis of complicated carb reduces the hyperglycemia. Kodo millet is rich with antioxidants which contributes to the prevention of metabolic syndrome [10] and reduces the risk of CVD. The presence of phenolics showed to be efficient in preventing cancer initiation [11].

3 *Kangu/Priyangu* (Foxtail millet)

B.N : *Setaria italic*, Poaceae

Acharya Vaghbata, Susrutha, Bhavamishra have quoted references about *Priyangu*. It heals fractures, have nourishing property, aggravates *vata* and pacifies *kapha.*

Foxtail millet grain is rich in protein (14–16%), crude fat (6–8%), and iron along with zinc and calcium (Muthamilarasan and Prasad 2015; Muthamilarasan et al. 2016a). Not only is the biological value of digestible protein higher than rice and wheat; seven of the eight essential amino acids, which cannot be synthesized by the human body, are higher in foxtail millet Foxtail millet grain is rich in protein (14–16%), crude fat (6–8%), and iron along with zinc and calcium (Muthamilarasan and Prasad 2015; Muthamilarasan et al. 2016a). Not only is the biological value of digestible protein higher than rice and wheat; seven of the eight essential amino acids, which cannot be synthesized by the human body, are higher in foxtail millet.

Foxtail millet is rich in protein, crude fat and iron along with zinc and calcium [12]. They contain seven out of eight essential amino acids which cannot be synthesized by human body[10]. When compared to rice, a grain of foxtail millet contains 2.5 times edible fibre which is extremely helpful for the health of intestine and stomach [13].

4 *Syamaka* (Barnyard millet)

B.N : *Panicum frumentaceum* , Poaceae

According to *Ashtanga hridaya, Syamaka* is having *sita virya, laghu guna*. It increases *vata* and pacifies *kapha* and *pitta*. *Acharya Susrutha*

opines that it relieves constipation and has the property to absorb water.

Barnyard millet stays superior to major and minor millets in terms of its nutritive value. The resistant starch in it has shown to lower blood glucose, serum cholesterol, and triglyceride levels [14]. Regular consumption of Barnyard meal proved to be effective in lowering the glycemic index of patients with type 2 diabetes [15]. This millet is an ideal food for the people with lifestyle diseases and for anaemic patients mainly to the women in developing countries [16]

5 *Yava* (Barley)

B.N *: Hordeum vulgare*, Poaceae

Acharya Vaghbata explains *Yava* is *ruksa* (dry), *Sita* (cool), *guru* (heavy) and *madhura* (sweet). It acts as laxative, generates faeces and *vata* (gas) in intestines, is *vrsya* (aphrodisiac) and increases stability. It controls diseases of urinary tract, corrects disorders of fat metabolism, *pitta* and *kapha dosas*.

Barley grass contain abundant nutrition including chlorophyll, superoxide dismutase, lutonarin, saponarin, vitamins, minerals, and eight essential amino acids [17]. its dietary fibre has a significant reduction in fasting blood sugar and blood glucose [18]. It is a good source of niacin, reducing LDL levels and increasing HDL levels. Barley contains Magnesium, a cofactor for many carbohydrate metabolism enzymes and high fibre content contributes for reducing blood glucose effect in Type 2 diabetes. It is having good diuretic activity and is useful in urinary tract infections [19].

Table 3: Some preparations with certain selected *Trina Dhanyas*

Madhulika	*Kodrava*	*Kangu*	*Syamaka*	*Yava*
Ragi laddu, biscuit, Coconut cookies, rotti, Dosa, Ragi rava upma, porridge, Apple ragi halwa, Ragi aloo paratha, Ragi semiya	Upma, Dosa, Khichdi, Pulao, Payasam, Pongal, Idli, Uttappam	Rotti, Poha, Cutlet, upma, pongal, idli, payasam, porridge, spring onion dosa, khichdi, upma	Cutlet, dosa, pulao, rotti, upma, pongal , uthappam, modaka, barnyard millet coconut halwa	Vegetable barley soup, sausage barley soup, chicken tomato barley soup

CONCLUSION

Millets can be considered as the "miracle grains of future" due to its high nutritional profile. The prevalence of lifestyle disorders are increasing day by day. But the people are not much aware about the prevailing pathetic conditions regarding their health due to the emergence of junks and living habits. Today we have less strenuous work and are consuming high caloric food when compared to previous generations. Research has shown that excess calories shorten lifespan, whereas moderate caloric restriction slows the aging process and protects the body and brain. It leads to the deadly non communicable diseases such as cardiovascular diseases, obesity, hypertension, stroke etc. Ayurveda classics has beautifully explained about most of the *trina dhanyas* which can be compared with millets along with its nutritional benefits. When we go deeper to the concept of lifestyle diseases and current dietary habits, it leads us to the millets which can be a permanent solutions for all these prevalent NCD's.

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CITE THIS ARTICLE AS

Athira K.G., Sowmya C. Nair. Comprehensive knowledge about the usage of *Trina Dhanya* in contemporary lifestyle w.s.r to millets. *J of Ayurveda and Hol Med (JAHM)*. 2023;11(4):50-56

Conflict of interest: None

Source of support: None