

**YAVA (BARLEY-HORDEUM VULGARE) - A FOOD AND PANACEA**\*<sup>1</sup>Dr. Harshitha K. J. and <sup>2</sup>Dr. Gurubasavaraj Yalagachin<sup>1</sup>Second Year Post- Graduate Scholar, Department of Swasthavritta, Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan- 573201, Karnataka.<sup>2</sup>Assistant Professor, Department of Swasthavritta, Sri Dharmasthala Manjunatheshwara College of Ayurveda & Hospital, Hassan- 573201, Karnataka.**\*Corresponding Author: Dr. Harshitha K. J.**

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**ABSTRACT**

A well planned diet and proper dietary practices plays a major role in promotion of health. *Yava* is in practice since ancient period due to its rich nutritional entities and various therapeutic benefits. This paper reviews the identity of *Yava*, its uses, nutritional elements, pharmacological actions, its therapeutic approach as a diet (Pathya), scientific evidences that can re-establish *Yava* as a food in both healthy and ill. Hence *Yava*(Barley) can be an Ahara Dravya used in protective, promotive and curative perspective of our health.

**KEYWORDS:** *Yava, Pathya, scientific evidences.***INTRODUCTION****“Sarvam Anya Parityajya Shariram Anupalayeth”<sup>[1]</sup>**

The protection and promotion of Shareera (physical and mental body) has been a prime motto of Ayurveda. The means for the same are Ahara, vihara, Achara and Vichara. The Human body, said to be the Annamaya Shareera is the resultant of nurturing by Ahara.<sup>[2]</sup> Hence, appropriate understanding and application of the concept of food as Pathya (therapeutic diet) plays a major role in the accomplishment of objective of Ayurveda. *Yava* is one such ancient cereal emphasized in various classical texts, as therapeutic food in both illness and wellness condition. Recent scientific studies conducted on *Yava* have proved its significance as Pathya (therapeutic diet) and have established its panacea features in various ailments.

**YAVA (BARLEY- HORDEUM VULGARE)**

*Yava* is a well known ancient cereal crop belonging to Poaceae family. It makes upto 12% of total cereal production and owns the fourth position after wheat, rice and maize.<sup>[3]</sup> It is used in a wide range in Indian system of medicine (Ayurveda) and described under Shukadhanya Varga.<sup>[4]</sup> The cereal description is available since times of Vedas and Puranas (Upanishads, Shatapata brahmana), Atharvaveda, Agnipurana. The usage of *Yava* both as Pathya & Oushadha is established in ancient texts and modern research experiments.

**Pharmacodynamics of *Yava* as per Ayurveda<sup>[5,6]</sup>**

**Rasa** (Taste): Madhura(sweet), Tikta(bitter), Kashaya(astringent) **Rasa Guna** (attributes): Laghu(light), Ruksha(dry), Pichila(slimy), Mridu(soft), Sara(flows easily) **Virya**: (potency): Sheeta(cold) **Vipaka**: (end product): Katu(pungent) **Doshaghnata**(effect on Doshas): Kaphapittahara, Vatahara **Mala prabhava**: Bahupurishakara, Mutradoshahara **Karma**(effects on body): Lekhana(scraping effect), Medohara(eliminates excess fat accumulated in the body), Vrishya (acts as an aphrodisiac), Balya, Sthairyakaraka(improves strength), Varnya(increases complexion), Swarya(helps to gain good voice), Agni/Agnideepana(increases appetite and metabolism), Kasa-Shwasa Pinasahara(remedy for cough, breathlessness and rhinitis), Kantarogahara(eliminates throat infections), Trishnahara(indicated in dehydration), Twakrogahara(eliminates skin infections, diseases), Vrane Pathyam(a therapeutic diet wounds), Urustambahara(relieves stiffness over thigh regions), Pramehagna(Controls and prevents Diabetes Mellitus).<sup>[6]</sup>

**Composition of *Yava***

The composition and properties of barley vary with the cultivator and various environmental factors. Barley consists of starch, sugars, fats, proteins, vitamins and minerals and soluble dietary fibre as a major component. It also contains polyphenols, caffeic acid, p-coumeric acid, ferulic acid and flavonoides.<sup>[7]</sup> Percentage of nutrients present in 100gm of raw *Yava* is illustrated below.<sup>[6]</sup>

Carbohydrates	78%	Vitamins	Niacin and vit B <sub>6</sub> as major component
Proteins	10%	Minerals	Manganese 63% Phosphorous 32%
Fats	1%	Energy	352kcal

### Therapeutic benefits of Yava as illustrated in various Ayurveda texts

Yava as Pathya

#### 1. In Swastha: (healthy individual)

\* *Yava* should be taken with wheat and milk.<sup>[11]</sup>

#### 2. Jwara

\* In Intermittent fever (Vishama Jwara) edible preparations of *Yava*, Ghrita and wine are advised.<sup>[10]</sup>

\* In Kaphaja Jwara *Dehusked Yava* should be fried and small pieces of it should be consumed.<sup>[9]</sup>

#### 3. Kapha predominant persons

\* Yavagu prepared from *Yava* boiled with Mahatpanchamula Dravyas.<sup>[9]</sup>

#### 4. Vibandha (Constipation)

\* *Yava* fried with ghee and processed with Pippali and Amalaki.<sup>[9]</sup>

#### 5. Raktapitta (bleeding disorders)

\* Food prepared from *Yava* and Kola together with Kulatha Yusha or Mamsa Rasa(meat soup) or Yavagu prepared is added with Saindhava is administered with yava, Kulatha, Mamsa (Yusha /Rasa) devoid of Sneha or the same Rasa added with Anna(rice) is administered.<sup>[12]</sup>

#### 6. Prameha (type2 Diabetes Mellitus)

\* *Yava* Mantha(flour mixed with water and churned),

\* Kashaya form(decoctions),

\* *Yava* Lehya(linctus),

\* *Yava* Odana (cooked Yava-without adding any unctuous articles),

\* Vatyā (*Yava* porridge),

\* *Yava* Saktu (roasted corn flour) and Apupa (pan cakes), all the above mixed with meat soup (animals of arid region) is indicated as Pathya Kaphaja Prameha:

\* Yava mixed with honey,

\* Yava soaked overnight in Triphala should be taken mixed with honey. This acts as refreshing diet (Tarpaka).<sup>[13]</sup>

#### 7. Shosha (Tuberculosis)

\* Soup of meat of goat added with Yava, Kulatha, Ginger, Dadima, Amalaka and ghee is advised as diet.<sup>[14]</sup>

\* Arka and Guduchi bhasma is added with 4 times of water and mixed well, its boiled till its reduced to half. Yava is soaked in this water overnight and then the flour prepared out of this yava is used in various food preparations.<sup>[15]</sup>

#### 8. Kshatakshina (phthisis)

\* Mantha prepared out of roasted *Yava* flour added with honey /ghee.<sup>[16]</sup>

#### 9. Arshas(piles)

\* Food prepared from Shashtika Shali, *Yava*, Godhuma, added with Ghee consumed along with either milk, soup of Nimbi or Patola.<sup>[17]</sup>

#### 10. Kushta(skin diseases)

\* Food prepared from old rice, Shastika, *Yava*, Godhuma with Mudga Yusha /Adhaki yusha or similar pulses, or along with Mandukaparnyadi Sidha Ghrita or with Sarshapa Taila.<sup>[18]</sup>

#### 11. Hikka- Shwasa- Kasa (respiratory ailments)

\* Preparations from old barley (*Purana Yava*), taken along with meat soups of domesticated animals or along with Masha Yusha.<sup>[19]</sup>

#### 12. Shvayathu (edema)

\* Old *Yava* boiled with decoction of Dashamoola added with very little salt and fats, taken in small quantities cures edema.<sup>[9]</sup>

\* Patients of Shotha should partake food prepared from *Yava* or Godhuma along with soup of Mudga, processed with Yavakshara, Pippali, Maricha, and Sringavera without salt and with little of Ghee or oil.<sup>[20]</sup>

**13. As a nutritional supplement:** Vidarikanda, Godhuma, *Yava*(1 part each), Sita (2 parts), Pippali(1/20<sup>th</sup> part) mixture of these(Karshyahara Yoga) taken with Ksheera, Ghrita, Madhu and Sharkara acts as Brihmana and Deepana and improved the general health in malnourished children.<sup>[21]</sup>

**14. In Nature Cure:** The supernatant portion of boiled barley water is used as diuretic and advised during fasting. (approximately 250 ml or 1 cup twice a day).

### Therapeutic benefits on various systems of human body<sup>[8]</sup>

* It prevents gallstones	* Prevents urinary tract infections
* Controls type 2 DM	* Protects against cancer
* Improves immunity	* Prevents asthma and other respiratory disorders
* Lowers cholesterol	* Beneficial in anaemia patients
* Aids in weight loss(anti obese)	* Prevents bone disorders
* Aids in digestion	* Works as toxin cleanser
* Indicated in calculi	

**The Following researches on Yava establish the scientific evidences of the properties and actions of Yava**

**Immunity (Bala):**<sup>[22]</sup> The study conducted on barley soluble dietary fibre influenced the host immune system and increased the resistance against invading pathogens

**Cholesterol lowering activity(Lekhana karma)**<sup>[24]</sup> A clinical study conducted on 21 hypercholesterolemic men (aged 30-59 yrs) showed significant fall in both plasma total cholesterol and in low density lipoprotein cholesterol, concluding that the barley dietary fibre is more effective than wheat dietary fibre in lowering the blood cholesterol.<sup>[25]</sup>

**Aids in weight loss; anti – Obese (Medohara, In Sthoulya):**<sup>[26]</sup> An In vitro and In vivo study showed that the oral administration of aqueous extract of hulled barley prevented weight gain in ovariectomised female rats, The Biochemical marker compounds- coumaric acid and ferulic acid confirmed the anti-adipogenic actions and the Inhibition of adipogenesis.<sup>[27]</sup>

**Aids in digestion and metabolism (Agnideepana):** Barley administration increased the gut hormones and improved appetite control in a clinical study carried out on 20 healthy individuals and regulation of metabolism was also noted.<sup>[28]</sup>

**In type 2 Diabetes Mellitus (Prameha):**<sup>[6]</sup> Barley and wheat were investigated as the natural alpha glucosidase inhibitors and having potent inhibitory activity using an animal study against alpha glucosidase, maltase enzymes. The rat  $\alpha$ -glucosidase, maltase, and sucrase inhibitory activities of barley were increased with an increase in the added tea catechin.<sup>[29]</sup>

**Antibacterial activity (Krimihara):**<sup>[30]</sup> An experimental study on antibacterial activity of barley showed the inhibition activity on 5 of the pathogenic bacteria (e.coli, s.typhi, s.aureus, serratia spp., klebsiella pneumonia). The presence of 4 phytochemical compounds of barley were responsible for the inhibitory effect.<sup>[31]</sup>

**On Cardiovascular System (Hridroga):** The biological activities of specialty barley extracts like antioxidative capacity, xanthin oxidase inhibition activity, angiotensin converting enzyme inhibition activity were established in an experimental study.<sup>[32]</sup>

**Anti oxidant property of barley (Amahara):**<sup>[33]</sup> An experimental study on the effect of traditional cooking, roasting and germination on the antioxidant capacity of Maxican barley showed that cooking and roasting barley extracts increase the total phenolic content. Germinated seeds subjected to roasting, cooking and unprocessed barley grains showed higher anti oxidant activity.<sup>[34]</sup>

**In jaundice (Kamala):** Barley was used as a phytotherapy and a randomized control trial on (70 term)

infants with jaundice was conducted showed significant decrease in indirect bilirubin and effective in preventing severe complications due to bilirubinemia. Hence barley as a complementary therapy to treat jaundice was proven.<sup>[35]</sup>

**Anti inflammatory action (Shothahara)**<sup>[36]</sup> An experimental study designed to explore the scientific mechanism of barley showed the likely mechanisms responsible for anti inflammatory and cardiovascular effects of *Hordeum vulgare*. *Hordeum vulgare* exhibited activities against human platelet agonists, inhibited both COX and LOX pathways.<sup>[37]</sup>

## DISCUSSION

In various research studies, spectrum of therapeutic and nutritional properties of Yava have been established. In leading life style disorders like obesity, Diabetes Mellitus, hyperthyroidism, Yava can be the cereal of choice. Usage and cultivation of Yava is slowly getting reduced in current era. There is a need to propagate the knowledge of Yava among cultivators and common public. Idea of age old, traditional methods of preparations using Yava are to be publicized among common people.

## CONCLUSION

The scientific evidences reestablish that Yava being an ancient cereal can be used on daily basis as regular food and helps in both Prevention of diseases and promotion of health. It is therapeutically beneficial in various clinical conditions and in apparently healthy individuals, Prakriti based Yava preparations can be advised. When compared to genetically modified wheat and other food crops, Yava acts as an ideal food and panacea.

## REFERENCES

1. Agnivesha, charaka, dridabala. Charakasamhita, trikamji vaidya yadavji. Varanasi:chaukambha series publications;2011 shoshanidana adyaya, nidanasthana 6/7, p.220.
2. Annamaya-kosha-veda. <http://Veda.wikidot.com/annamaya-kosha> cited on 22 Aug 2017.
3. Jadhav SJ, Lutz SE, Ghorpade VM, Salunkhe DK. Barley: chemistry and value-added processing. Critical Reviews in Food Science, 1998 Feb 1; 38(2): 123-71.
4. Dash bhagwan, sharma ramkaran. Charaka samhita of agnivesha. Varanasi; chawkambha sanskrit series office, 2014; 1: 493-494.
5. Ayurvedic pharmacopoeia of india.new delhi:controller of publications civil lines, Part 1, 2009; 2(1): 175-179.
6. Kumari, Rajesh & Singh, Manju & Kotecha, Mita. Yava (*Hordeum Vulgare* Linn.): A Review. International Research Journal of Pharmacy, 2016; 7: 5-9. 10.7897/2230-8407.07319.

7. Friedrich wolfgang, galensa rudolf. Identification of a new glucoside from barley. European food research and technology, May 2002; 214(5): 388-399, [cied on 18 feb 2016].
8. Barley Cultivation Information Guide.agrifarming.in. url: www.agrifarming.in>barley cultivation, cited on 22.7.17.
9. Pandey, Anurag and Tiwari, Dr Mamta and Kushwah, Dr Rajeev and Singh, Rajeshwari and Jain, Rahul. Yava (Hordeum Vulgare Linn.) In Ayurvedic Literature and Its Dietic Approach (Pathya) In Various Diseases. international Journal of Ayurvedic and Herbal Medicine, 2013; 3(1): 037: 1052.
10. Sharma Anantaram, Sushrutha samhita, sushrutha vimarshini hindi vyakyana.varanasi;chawkamba surabharati prakashan, 2012; 3: uttaratantra,ch 39/266, 284.
11. Dash bhagwan, sharma ramkaran. Charaka samhita of agnivesha. Varanasi; chawkambha sanskrit series office, 2014; 5: 30/318. 210.
12. Sharma anantaram, Sushritha samhita sushrutha vimarshini hindi vyakyana.varanasi;chawkamba surabharati prakashan, 2012; 2: chikitsa stana 2/53, 182.
13. Dash bhagwan, sharma ramkaran. Charaka samhita of agnivesha. Varanasi; chawkambha sanskrit series office, 2014; 5th 3: chikitsa sthana 6/18, 19. p. 304.
14. Dash bhagwan, sharma ramkaran. Charaka samhita of agnivesha. Varanasi; chawkambha sanskrit series office, 2014; 3: chikitsa sthana 8/67. p. 380.
15. Sharma anantaram, Sushritha samhita sushrutha vimarshini hindi vyakyana.varanasi;chawkamba surabharati prakashan, 2012; 3: uttaratantra 41/33, p326.
16. Dash bhagwan, sharma ramkaran. Charaka samhita of agnivesha. Varanasi; chawkambha sanskrit series office, 2014; 3: chikitsa sthana 11/81. p. 478.
17. Sharma anantaram, Sushritha samhita sushrutha vimarshini hindi vyakyana.varanasi;chawkamba surabharati prakashan, 2012; 2: chikitsa stana 6/8, p 227.
18. Sharma anantaram, Sushritha samhita sushrutha vimarshini hindi vyakyana.varanasi;chawkamba surabharati prakashan, 2012; 2: chikitsa stana 9/5, p 250.
19. (cs. Page 176.vol 4) Dash bhagwan, sharma ramkaran. Charaka samhita of agnivesha. Varanasi; chawkambha sanskrit series office, 2014, 3: chikitsa sthana 18/76. p. 176.
20. Sharma anantaram, Sushritha samhita sushrutha vimarshini hindi vyakyana.varanasi;chawkamba surabharati prakashan, 2012; 2: chikitsa stana 23/12,p 352.
21. GR, Arun & Mallannavar, Vijayalaxmi & Uppinakudru, Shailaja & Viswaroopan, Deepthi & Kumar Bharati, Ashwin. Effect of Karshyahara yoga in the management of malnutrition in preschool children. International Journal of Research in Ayurveda and Pharmacy, 2017; 8: 40-45. 10.7897/2277-4343.08260.
22. Pravin Masram, Suhas Chaudhary, Patel KS, Kori VK, Rajagopala S. A brief review on Ayurvedic concept of immunity and immunization. Ayurpharm Int J Ayur Alli Sci., 2014; 3(8): 230-240.
23. Volman JJ, Ramakers JD, Plat J. Dietary modulation of immune function by  $\beta$ -glucans. Physiology & behavior, 2008 May 23; 94(2): 276-84.
24. Vyas, Kruti Yagneshkumar et al. "Comparative Anti-Hyperlipidaemic Activity of *Navīna* (fresh) and *Purāna* (old) *Guggulu*." *Ancient Science of Life*, 2015; 35(2): 101–109. PMC. Web. 22 Aug. 2017.
25. McIntosh GH, Whyte J, McArthur R, Nestel PJ. Barley and wheat foods: influence on plasma cholesterol concentrations in hypercholesterolemic men. The American journal of clinical nutrition, 1991 May 1; 53(5): 1205-9.
26. Phytochemical, pharmacodynamic and pharmacotherapeuticactions of *dasanga guggulu*. an ayurvedic hypolipidemic formulation - a reviewjayasinghe jmgsl1\*, kulatunga rdh2, rathnapala dus3.
27. Seo CR, Yi B, Oh S, Kwon SM, Kim S, Song NJ, Cho JY, Park KM, Ahn JY, Hong JW, Kim MJ. Aqueous extracts of hulled barley containing coumaric acid and ferulic acid inhibit adipogenesis in vitro and obesity in vivo. Journal of Functional Foods, 2015 Jan 31; 12: 208-18.
28. Barley helps improve blood sugar levels and reduce appetite.,prof anne nilson, Feb 8 2016. url: www.lunduniversity.lu.se/.../watch-barley-helps-improve-blood-sugar-levels-and-reduce.cited on 25.7.17.
29. Zhou, B., Wang, FF. & Jang, HD. Enhanced antioxidant and antidiabetic activities of barley and wheat after soaking with tea catechin Food Sci Biotechnol, 2013; 22: 1753. doi:10.1007/s10068-013-0277-4.
30. Microbes and health environment.gs lavekar, alka babbar. Antimicrobial activities of some ayurvedic plant drugs: an appraisal of evidence based researches. url: https://books.google.co.in/books?isbn, 2006; cited on 1.8.2017.
31. Jebor AM, Al-Saadi A, Behjet RH, Al-Terehi M, Zaidan HK, Mohammed AK. Characterization and antimicrobial activity of barley grain (*Hordeum vulgare*) extract. International Journal of Current Microbiology and Applied Sciences, 2013; 2(8): 41-8.
32. Lee NY, Kim YK, Choi I, Cho SK, Hyun JN, Choi JS, Park KH, Kim KJ, Lee MJ. Biological activity of barley (*Hordeum vulgare* L.) and barley by-product extracts. Food Science and Biotechnology, 2010 Jun 1; 19(3): 785-91.
33. Kavita MB, Sandeep S, Baskaran V, Harshitha KJ (2017) Samskara (Processing) Changes the Quality of Food: An Analytical Study. Int J Complement Alt

Med, 7(4): 00232. DOI:  
10.15406/ijcam.2017.07.00232.

34. Lee NY, Kim YK, Choi ID, Cho SK, Kweon HJ, Lee KW, Hyun JN, Choi JS, Park KH, Kim KJ, Lee MJ. Antioxidant Activity and Biological Activity of Specialty Barley (*Hordeum vulgare* L.) Extracts. *Korean Journal of Crop Science*, 2010; 55(2): 159-64.
35. Panahandeh G, Khoshdel A, Sedehi M, Aliakbari A. Phytotherapy with *Hordeum Vulgare*: A Randomized Controlled Trial on Infants with Jaundice. *Journal of clinical and diagnostic research: JCDR*, 2017 Mar; 11(3): SC16.
36. Ballakur, vinaya. Inflammation In Ayurveda and Modern Medicine. *International Ayurvedic Medical Journal*, 2013; 1(4).
37. Gul S, Ahmed S, Kifli N, Uddin QT, Tahir NB, Hussain A, Jaafar HZ, Moga M, Zia-Ul-Haq M. Multiple pathways are responsible for Anti-inflammatory and Cardiovascular activities of *Hordeum vulgare* L. *Journal of translational medicine*, 2014 Nov 26; 12(1): 316.