DELMUL/2013/66374 FT GURUKUL'S C.M.E

ज्ञानं वर्धति आत्मबलम्

C.M.E

UKI

A Quarterly Magazine For Medicine Reorientation

KNOWLEDGE BUILDS CONFIDENCE

Volume 10 Issue 2 January, February, March 2023 www.ddvgurukul.in



Editor's Desk



Dear Doctor,

As you know 2023 is the international year of **Millets** so is this special issue comprising with writeups on our ancient and traditional agricultural crops '**Kritann**' by the ayurvedic experts.

The leading one is with therapeutic effect on **Cancer** seconded by recent overall developments & growth of **A.Y.U.S.H.** (ayurved), clinical importance of **Dhanya**; agricultural & medicinal utility of **Millets**; diet for rising **Life Style** diseases.

Present day necessity of **Scanning** by various technological advances and preventive precautions for **Liver Diseases** as well as common prevalence of **Diabetes Mellitus** & **Erectile Dysfunction** among young are some of the diseases as shared by learned super specialists in this issue.

Thanks.

With Regards

Dr. Dinesh Vasishth Ph.D (Internal Medicine, Ayurveda), M.B.A *Dr. Shruti* Co-Editor

Next issue will be on Mandagani (Despepsia)

Contents

a....



Chintan!		2
A Scientific Review On Role Of Trina Dhanya (Millets) In Cancer Prevention And Management	Dr. Sathyanarayana B	3
Atithi (Vartalaap)	Dr. D. C. Katoch	9
Dhanya- An Ayurvedic Perspective	Dr. Mahantesh B Rudharapuri	13
Usage Of Trina Dhanya (Millets) In Contemporary Life Style	Dr. Ravi Gogia	16
मोटे अनाज और उनका महत्त्व : एक आयुर्वेदिक दृष्टिकोण	डॉ. राजीव पुंडीर	19
Significance of PET-CT In Clinical Practice	Dr. Sagar Tyagi	22
Diabetes and Erectile Dysfunction	Prof. Anoop Misra, Dr. Ritesh Gupta	27

Gurukul's C.M.E.

Quarterly Magazine Circulation

A.Y.U.S.H Departments Ministry, C.C.R.A.S/ R.A.V/ C.C.I.M/ A.I.A, Govt. Ayurvedic Colleges, B.A.M.S, M.D. Physicians (Ay). in Delhi N.C.R I.C.M.R/ National Medical Library/C.S.I.R /W.H.O

KINDLY SHARE ARTICLES FOR UPDATE & UPGRADE OF B.A.M.S/M.D (Ay.) FRATERNITY

Doctors

Better ! Share Bytes Of Medical Knowledge On Whatsapp

Important

* Views & Expressions In The Articles Are Entirely Of Authors.

* For Next Publication, You Are Requested To Send Articles On Research, Clinical Study Or Expertise With Your Photograph, Before **31st July**, **2023**

At gurukulscme@gmail.com www.ddvgurukul.in

Gurukul's C.M.E, A Quarterly Magazine is printed at Param Offsetters, A-9, Okhla Industrial Area, Phase-I, New Delhi-110020 & Published from: 326, Sant Nagar, East of Kailash, New Delhi-110065. Mobile: **08800675116 Designed By :** V . V. Photo Design Prints, Mob .: 9811080157, **Owner, Publisher, Printer & Editor :** Dinesh Vasishth



Chintan! ARTIFICIAL INTELLIGENCE & AYURVED

Dear Doctor,

These days a new terminology 'Artificial Intelligence' is being used in computor science catching the attention of experts from various fields in their applications for data collection based analysis. Although created by human mind but for least human error.

Artificial Intelligence was created by American computer scholar, **JohnMeCarthy** in year 1955 while in India it was done by **D.Raja Gopal Reddy**.

Let's think over having Chintan

1. How this upcoming technology can augment the growth of ayurved & its practioners in scientific manner.

2. This will give way to expansion and acceptence nationally & internationally.

3. *How come ancient healthcare can be proved ethically & clinically from macro level to micro level.*

4. As ayurvedic managment & treatment is based in **Tridosh**, **Dosh-Dushya Samoorchan**, **Asht Vidh pariksha**, **Ahaar etc.** how these can be postulated in datas?

5. When human mind can create 'Artificial Intelligence' then why not an ayurvedic physician can create so with sense of **ayurvedic intelligence**.

6. Can many a 'Apps' regarding Tridosh, Prakriti be invented !

7. Is it possible to programme the ayurvedic **philosphy**, **principles**, **protocols** as tools of artificial intelligence !

8. When our *experiential* medical science will transcend and grow into *experimental* science based on modern research and clinical parameters.

9. Concluding that ayurved should equally grow according to present as well as future needs.



Hon. Member Editorial Board Dr. Sathyanarayana B Principal and Medical Superintendent Muniyal Institute of Ayurveda Medical Sciences Manipal

A SCIENTIFIC REVIEW ON ROLE OF TRINA DHANYA (MILLETS) IN CANCER PREVENTION AND MANAGEMENT

Introduction:

Noncommunicable chronic diseases (NCCDs) like cancer are the leading causes of morbidity and mortality globally. The mismatch between present day diets and ancestral genome is suggested to contribute to the NCCDs burden. According to cancer registry program India, Cancer incidence is continuing to increase in India. The estimated number of incident cases of cancer in India for the year 2022 was found to be 14,61,427 (crude rate:100.4 per 100,000). In India, one in nine people are likely to develop cancer in his/ her lifetime. Lung and breast cancers were the leading sites of cancer in males and females, respectively.

Cancer and lifestyle:

There is an aberrant gene expression due to epigenetic changes in all cancer types. So, an intuitive and holistic approach to cancer therapy would be to use these bioactive dietary compounds as a means of not only neutralizing epigenomic aberrations as cancer treatment, but also as cancer prevention. Only 5–10% of all cancer cases can be attributed to genetic defects, whereas the remaining 90–95% have their roots in the environment and lifestyle. The lifestyle factors include cigarette smoking, diet (fried foods, red meat), alcohol, sun exposure, environmental pollutants, infections, stress, obesity, and physical inactivity.

Diet and cancer:

The link between diet and cancer is revealed by

the large variation in rates of specific cancers in various countries and by the observed changes in the incidence of cancer in migrating. In 1981, Doll and Peto estimated that approximately 30-35% of cancer deaths in the USA were linked to diet. The extent to which diet contributes to cancer deaths varies a great deal, according to the type of cancer. For example, diet is linked to cancer deaths in as many as 70% of colorectal cancer cases. Most carcinogens that are ingested, such as nitrates, nitrosamines, pesticides, and dioxins, come from food or food additives or from cooking. Increased modernization and a Westernized diet and lifestyle have been associated with an increased prevalence of overweight people in many developing countries. Diet, obesity, and metabolic syndrome are very much linked to various cancers and may account for as much as 30-35% of cancer deaths, indicating that a reasonably good fraction of cancer deaths can be prevented by modifying the diet. Extensive research has revealed that a diet consisting of fruits, vegetables, spices, and grains has the potential to prevent cancer.

Millets in Ayurveda:

In Ayurvedic text millets have been referred by the name as Kudhanyaor **Kshudra Dhanya and Trina Dhanya. Kshudra Danya is a group of small seeded cereals used as human food since ages.** They are popular by the name millets. As Millets are packed with nutrients, they have numerous health benefits. Ayurveda has a distinguished

explanation of Kshudra Danya (millets) with their specific qualities and effects, based on which their indications and contraindications can be elicited.

Millets have many nutraceutical properties that are helpful to prevent many health problems such as lowering blood pressure, risk of heart disease, prevention of cancer and cardiovascular diseases, decreasing tumour cases etc. Millets are known to be rich in phenolic acids, tannins, and phytate that act as "antinutrients" However; these antinutrients reduce the risk for colon and breast cancer in animals. It is demonstrated that millet phenolics may be effective in the prevention of cancer initiation and progression in vitro.

Types of millet:

• MAJOR MILLETS • MINOR MILLETS

Major millets:

a) Pearl millet b) Finger millet

c) Sorghum millet (Great millet)

Minor millets:

- a) Foxtail millet b) Proso millet
- c) Barnyard millet d) Kodo millet
- e) Adlay millet f) Little millet
- g) Brown top millet

Pearl millet (Pennisetum glaucum L.R.BR-**Bajra**) in cancer: Peral millet is known as Nali, Nalika or Sajjaka in Ayurveda. It has **Madhura Rasa**, Ruksha, **Laghu Guna, Katu Vipaka and Ushna Veerya.** It ia **Vatapittakara and Shlesmahara**. It also acts as **Balya** (Strength promoting), **Durjara** (Difficult for digestion) **Pumstvahara** (Antaphrodisiac), **Vilekhana** (Scarifying), and **Baddhanisyanda** (Dries up and accumulates the fluid tissues of the body).

As millets are known to reduce the risk of cancer, it is expected that pearl millet will have the same effect potentially due to its high content in magnesium and phylate compound. The total phenolics in the form of gallotannins present are about 4.08 mg/1g. All the phenolic acids present in pearl millets identified as p-hydroxy benzoic acid (antibacterial, anti-sickling, immunosuppressant, cancer preventive and fungistat), ferulic acid (analgesic, antiallergic, anti-inflammatory, hepatoprotective and antihepatotoxic, immunostimulant, antiallergic, arteriodilator and acts against cancer in the skin), p-coumaric liver and colon, acid (antibacterial, antiseptic, antitumour, antioxidant and fungicidal), vanillic acid (anthelmintic, anti-fatigue, ant-inflammatory, antileukemic, antiseptic and anti-sickling) and syringic acid (antioxidant, anti-peroxidant and are known to have distinct anti-radicular) pharmacological properties.

Nartaki (Eleusine coracana - Finger millet) in cancer: According to Ayurveda, finger millet possesses Tikta-Madhura -Kahaya Rasa), Sheeta veerya, Snigdha Guna. It acts as **Balya** (promotes strength) **Vrishya** (aphrodisiac).

Finger millet (FM, Eleusine coracana (L) Gaertn; also known as "Ragi" in Kannada language) is one of the widely used millets especially in south India and parts of Africa. FM is consumed in various forms that include porridge, mudde (ball), dosa (a pan cake), idly (a savory rice cake) and biscuits/ cookies. FM is also used in the form of malted drink known as "malted ragi or ragi malt". FM is a rich source of dietary fiber, tannins, phenolic compounds, and calcium. Prior studies have shown health beneficial properties such as anti-diabetic and anti-inflammatory effects of FM, and ascribed those properties to the presence of dietary fiber and phenolic compounds. But very minimal information is available pertaining to the effect of FM phenolic compounds on cell lines representing carcinomas of colon and rectum; and breast. Hence, we have studied the effect of FM phenolic compounds on colorectal carcinoma and breast cancer cell lines. In summary, results of the study demonstrated the strength of finger millet free- and bound phenolic

compounds for exhibiting antioxidant property, and the potential to modulate the proliferative potential of breast and colorectal cancer cells. Phenolic acids from finger millet (Eleusine coracana) and pearl millet (Pennisetum glaucum) wereisolated as fractions in an organic solvent and their anticancer and antimicrobial properties were evaluated. Antimicrobial properties were studied using Kirby Bauer well diffusion technique and the polyphenols of millet showed antimicrobial activity on Escherichia coli, Staphylococcus aureus, Proteusmirabilis, Pseudomonas aeruginosa, Serratia marcescens, Klebsiella pneumoniae. Shigella dysenteriae, Enterococcus sp. and Salmonella sp. GC-MS analysis was done to confirm the compounds present in theextract. The cytotoxicity assay was done to screen for the anticancer activity against HepG2 hepaticcancer cell lines. Further, in silico studies were performed using AutoDock 4.0 to validate theantimicrobial results obtained. From the observation, it could be inferred that millet polyphenols ofmillets could be used as a natural source of antimicrobials and antioxidants, especially for minimizing therisk of diseases arising from oxidative deterioration and also cytotoxic effects.

Yavanala (Sorghum millet) in cancer:

According to Ayurveda, **Yavanala** is **Avrishya** (Antaphrodisiac), **Ruchya** (enhances taste perception), **Trishnaghna** (pacifies excessive thirst) **Kledaghna** (pacifies excessive moisture content).

Sorghum bicolor supplement is particularly rich in 3-deoxyanthocyanins, such as luteolinidin and apigeninidin, and appears to induce apoptosis and inhibit cell proliferation in cancer cells through the stimulation of various apoptosis promoter genes and the downregulation of certain apoptosis inhibitor genes.Sorghum is widely known for its anticarcinogenic properties. Polyphenols and tannins present in sorghum have anti-mutagenic and anticarcinogenic characteristics and can work against human melanoma cells (Grimmer et al. 1992; Arya and Bisht 2022).Sorghum intake was associated with a lower incidence of oesophageal cancer in China and other areas of the world (Rensburg 1981).

Kangu/Priyangu (Setaria italica - Foxtail millet) in cancer:

According to Ayurveda, Kangu is Guru (heavy for digestion), Sangrahi (absorbs excessive fluids and helps for normal formation of faeces and enhances digestion), Brumhana (nourishes the body tissues), Shoshana (dries up excessive moisture), Bhagnasandhanakrit (fracture healing), Durjara (difficult for digestion) and Vrishya (aphrodisiac)'

Phenolic extract of foxtail millet was found to strongly inhibit the proliferation of MDA-MB-231 breast cancer cells. In a study conducted at China, commonly consumed foxtail millet varieties Jingu28 and Jingu34 were compared in terms of phytochemical composition, antioxidant property, and antiproliferative activity. The cellular antioxidant activity (CAA) was evaluated based on HepG2 cell cultivation. Antiproliferative properties against HepG2 and MDA cell were assayed by methylene blue assay. Total phenolic content (TPC) was 78.79 and 114.22 mg gallic acid equiv/100 g DW in Jingu28 and Jingu34. Both varieties contained ferulic acid, chlorogenic acid, caffeic acid and p-coumaric acid, syringic acid. Xanthophylls and zeaxanthin were also detected. Peroxyl radical scavenging capacity of the foxtail millet were 228.13 (Jingu28) and 355.03 (Jingu34) µmol of vitamin C equiv/100 g, respectively. CAA values of the foxtail millet varieties ranged from 1.52 to 8.97 µmol quercetin equiv/100 g DW. The proliferation of MDA and HepG2 cancer cells were significantly inhibited in a dose-dependent manner after exposure to Jingu28 and Jingu34 extractions.

Cheenaka (Panicum miliaceum - Proso millet) and Shyamaka (Echinochloa frumentacea - Barnyard millet) in cancer

According to Ayurveda, **Cheenaka** (Proso millet) is Guru (heavy for digestion), **Durjara** (difficult for digestion), Brumhana (nourishes the body tissues)

Bhagnasandhanakara (promotes fracture healing).

According to Ayurveda, Shyamaka is Sangrahi (absorbs excessive fluids and helps for normal formation of faeces and enhances digestion) Dhatu shoshaka (dries up the body tissues).

In a study by Ramadoss DP et.al., they hypothesized that the active compound extracted from Proso and Barnyard millets inhibits cell proliferation and apoptosis induction in colon cancer cell line. The bioactive compounds from these millets were purified by supercritical fluid extraction and their structure was elucidated using spectroscopic methods. Extracted bioactive components from these millets were similar in chemical structure to the phenolic aldehyde-Vanillin [4-Hydroxy-3methoxybenzaldehyde]. Cell proliferative effect was assessed by MTT assay using HT-29 cell line. Compound 1 significantly inhibited the proliferation of HT-29 cells when treated with concentrations of 250 µg/ml and 1,000 µg/ml for 48 h, while compound 2 moderately inhibited the proliferation of the HT-29 cell line at the same concentration and time period. Cytotoxic activity of extracted compounds by the release of lactate dehydrogenase confirms that these compounds were not toxic to the cells at 250 µg/ml of compounds 1 and 2. In addition, flow cytometry results show a significant cell arrest in the G0/G1 phase and increase in the apoptotic cells in sub G0 phase, in a dose-dependent manner when compared with the control. The conclusion of this study suggests that the anticancer property of these millets is mediated through the presence of vanillin.

The phytochemical content, antioxidant activity and antiproliferative properties of three diverse varieties of proso millet are reported. The free phenolic content ranged from 27.48 (Gumi 20) to 151.14 (Mi2504-6) mg gallic acid equiv/100 g DW. The bound phenolic content ranged from 55.95 (Gumi20) to 305.81 (Mi2504-6) mg gallic acid equiv/100 g DW. The percentage contribution of bound phenolic to the total phenolic content of genotype samples analyzed ranged between 62.08% and 67.05%. Ferulic acid and chlorogenic acid are the predominant phenolic acid found in bound fraction. Caffeic acid and p-coumaric acid were also detected. Syringic acid was detected only in the free fraction. The antioxidant activity was assessed using the hydrophilic peroxyl radical scavenging capacity (PSC) assay. The PSC antioxidant activity of the free fraction ranged from 57.68 (Mi2504-6) to 147.32 (Gumi20) µmol of vitamin C equiv/100 g DW. The PSC antioxidant activity of the bound fraction ranged from 95.38 (Mizao 52) to 136.48 (Gumi 20) µmol of vitamin C equiv/100 g DW. The cellular antioxidant activity (CAA) of the extract was assessed using the HepG2 model. CAA value ranged from 2.51 to 6.10 µmol equiv quercetin/100 g DW. Antiproliferative activities were also studied in vitro against MDA human breast cancer and HepG2 human liver cancer cells. Results exhibited a differential and possible selective antiproliferative property of the proso millet. These results may be used to direct the consumption of proso millet with improved health properties.

Koradusha/ Kodrava (Paspalum scrobiculatum - Kodo millet) in cancer:

According to Ayurveda, Kodo millet possesses Madhura-Tikta rasa (sweet-bitter in taste), Guru (heavy for digestion), Param Graahi (absorbs excessive fluids and helps for normal formation of faeces and enhances digestion), Vishahara (antipoisonous), Avrishya (Antaphrodisiac) Pathya in Vrana (best diet in wounds and ulcers)

The antinutrients phenolic acids, phytates, and tannins found in Kodo Millets have been shown to help **reduce the risk of colon and breast cancer.** The phenolics in Kodo millet are effective in preventing cancer development and progression in vitro. Disrupting agents, in particular, prevent cancer from starting by preventing cellular target molecules, such as DNA, from interacting. In a study, phenolic extracts from Kodo millet inhibited the growth of human colon adenocarcinoma cells HT-29 in a time and dose-dependent manner

(Chandrasekara and Shahidi 2011).Kodo millets contain linoleic acid, which has anti-tumor properties. Sorghum is widely known for its anticarcinogenic properties. Polyphenols and tannins present in sorghum have anti-mutagenic and anticarcinogenic characteristics and can work against human melanoma cells as well as advantageous melanogenic activity (Grimmer et al. 1992; Arya and Bisht 2022).Regulating the digestive system can help with nutrition retention and reduce the chance of more serious gastrointestinal issues like gastric ulcers or colon cancer. Fiber content in Kodo millets aids in the elimination of diseases such as constipation, excessive steam, bloating, and cramps (Arya and Bisht 2022). The antinutrients phenolic acids, phytates, and tannins found in Kodo Millets have been shown to help reduce the risk of colon and breast cancer. The phenolics in Kodo millet are effective in preventing cancer development and progression in vitro.Disrupting agents, in particular, prevent cancer from starting by preventing cellular target molecules, such as DNA, from interacting. In a study, phenolic extracts from Kodo millet inhibited the growth of human colon adenocarcinoma cells HT-29 in a time and dose-dependent manner (Chandrasekara and Shahidi 2011).

GAVEDHUKA (ADLAY MILLET/JOB'S TEARS) Coix lacryma-jobi

According Ayurveda, Gavedhuka is Katu, Karshyakara, Kaphapittahar, Vatakara, Ruksha and processes properties similar to that of Shyamaka.

Adlay millet in cancer:

In a study the effects of different extracts of adlay seed were examined on the growth of human lung cancer cells in vitro and in vivo. The data showed that a methanolic extract, but not a water extract, of adlay seed exerted an antiproliferative effect on A549 lung cancer cells by inducing cell cycle arrest and apoptosis. It was also found that tumor growth in vivo was inhibited by the methanolic extract in a dose-dependent manner. The chemopreventive effect of adlay seed on the tobacco-specific carcinogen 4-(methylnitrosamino)-1-(3-pyridyl)-1butanone (NNK)-induced lung tumorigenesis in A/J mice was also investigated. Groups of mice were pre-fed with different diets, followed by feeding with NNK-containing drinking water for 8 months.

The results indicated that feeding with diet containing 30% of powdered adlay seed reduced the number of surface lung tumors by approximately 50%.

• Taken together, these results indicate that the components of adlay seed exert an anticancer effect in vitro and in vivo and may be useful for the prevention of lung tumorigenesis.

• According to a study Adlay bran extract has antiproliferative activities against human breast cancer cell lines and this effect is partially related to the presence of lactams and spiroenone.

• Little millet in cancer:Little millets provide a significant amount of bioactive nutraceutical components such as phenols, carotenoids and tocopherols that play an important role in health, aging, cancer and metabolic disease

• Brown Top Millet in cancer: Brown Top Millet contains good amount of minerals especially magnesium and phosphorous. It is gluten free and an excellent choice for people suffering from celiac disease (Saleh et al., 2013). Brown top millet being rich in secondary metabolites (phytochemicals) can help to reduce the risk for gastric ulcers and colon cancer.

• Brown top Millet is rich in plant lignans which protect against breast and other hormone-dependent cancers as well as heart disease

Discussion:

Most of the developing countries have already started working in the field of improvement of edible potential of millet grains. Millet oil could be a good source of linoleic acid and tocopherols. Millet is an alkaline forming grain that is gluten-

free. Millets are also rich sources of phytochemicals and micronutrients, play many roles in the body immune system. Millets have nutraceutical properties in the form of antioxidants which prevent deterioration of human health such as lowering blood pressure, risk of heart disease, prevention of cancer and cardiovascular diseases, diabetes, decreasing tumor cases etc. Other health benefits are increasing the time span of gastric emptying, provides roughage to gastro intestine. Millet is an alkaline forming food. Alkaline based diet is often recommended to achieve optimal health. In developing country, cereal-based foods have low bioavailability of minerals like iron, zinc initiate critical problem for infants and young children. Food processing techniques are used to enhance nutritional quality, improve the digestibility and bioavailability of food nutrients with reducing antinutrients.

Conclusion:Role of millets in cancer prevention is well established especially in colon and breast cancers. Millets have been used as food as well as therapeutic diet in Ayurveda since samhita kala. The one of the best therapeutic indications of these grains is as Pathya in various diseases. Modern sophisticated sedentary lifestyle is giving rise to epidemic of non-communicable diseases and Millets are best to be used in these Santarpanajanya Vikara (Diseases due to over nourishment) and Kapha-Pitta Doshaja Vikara (Diseases due to Kapha and Pitta). Millets can be used as a preventive diet in healthy and therapeutic diet in diseased. But they should be avoided or cautiously used in Vataja Vyadhi (Diseases due to vitiated Vata). Assessing Agni (Digestive capacity) of an individual before advising Millets is very much necessary.

REFERENCES:

1. https://www.indiatoday.in/lifestyle/health/story/ cancer-is-more-of-a-lifestyle-disease-today-drshyam-aggarwal-oncologist-1161532-2018-02-04

2. Anand P, Kunnumakkara AB, Sundaram C, Harikumar KB, Tharakan ST, Lai OS, Sung B, Aggarwal BB. Cancer is a preventable disease that requires major lifestyle changes. Pharm Res. 2008 Sep;25(9):2097-116.

3. Willett WC. Diet, nutrition, and avoidable cancer. Environ Health Perspect. 1995 Nov;103 Suppl 8(Suppl 8):165-70. doi: 10.1289/ehp.95103s8165. PMID: 8741778; PMCID: PMC1518978.

4. Pooja Hassan G, Unnikrishnan PM, Sankanagoud Patil. An eyeshot on Kshudra Dhanya in Ayurveda. J Ayurveda Integr Med Sci 2021;4:118- 124

5. Anoma Chandrasekara, Fereidoon Shahidi, Antiproliferative potential and DNA scission inhibitory activity of phenolics from whole millet grains, Journal of Functional Foods, Volume 3, Issue 3, 2011, Pages 159-170

6. Bora P, Ragaee S, Marcone M. Characterisation of several types of millets as functional food ingredients. International journal of food sciences and nutrition. 2019 Aug 18;70(6):714-24.

7. Pei J, Umapathy VR, Vengadassalapathy S, Hussain SFJ, Rajagopal P, Jayaraman S, Veeraraghavan VP, Palanisamy CP, Gopinath K. A Review of the Potential Consequences of Pearl Millet (Pennisetum glaucum) for Diabetes Mellitus and Other Biomedical Applications. Nutrients. 2022 Jul 18;14(14):2932. doi: 10.3390/nu14142932. PMID: 35889889; PMCID: PMC9322144.

8. Nidhi Singh, Meenu G, Anamika Sekhar and Jayanthi Abraham, Evaluation of antimicrobial and anticancer properties of finger millet (Eleusine coracana) and pearl millet (Pennisetum glaucum) extracts The Pharma Innovation Journal 2015; 3 (11): 82-86

Atithi





Q 1. Now a days you are serving as Ayurvedic specialist in CGHS at New Delhi,May I know how long is it !

Answer: I started working in CGHS since February, 1993 and posted to Ministry of AYUSH in May, 2000. Now I am repatriated back to CGHS as Senior Chief Medical Officer (SAG) since February, 2021 to complete my stint of Central Government Service by the end of January, 2024.

Q 2. On basis of MD (Ay) studies & subject do you advise treating all patients in general or like allopathic counterpart specialists e.g cardiologist, nephrologist, dermatologist etc.

Answer : I diagnose and treat patients on the basis of Ayurvedic theories, principles and concepts and make use of contemporary diagnostic tools and investigation to derive underlying causative i.e. dosh-dusya sammoorchchna or morbidity All kinds of patients in general come samprapti. to me for Ayurvedic treatment, but I prefer to take care particularly of chronic cases afflicted with non-communicable diseases or lifestyle diseases including Diabetes mellitus, Arthritis, Allergic disorders, Neurological disorders, Autoimmune diseases, Hypertension, Coronary Artery Disease & its various manifestations, infertility & PCOD, degenerative and other metabolic disorders.

Q 3. Any simultaneous research or clinical trials are conducted at CGHS centres dispensaries or hospitals; kindly react.

Dr. D C Katoch MD (Ay.) Sr. Physician; C.G.H.S, New Delhi Former Advisor A.Y.U.S.H. (Ay.) Government of India

Answer: Research studies and clinical trials by and large are not conducted in CGHS centres & hospitals. Whereas R&D studies and clinical trials related to Ayurvedic medicines are undertaken by Central Council for Research in Ayurvedic Sciences (CCRAS), postgraduate institutions and various scientific centres in government and private sector including industrial institutions. Extramural research projects are funded by various Central Government Departments including Ministry of AYUSH.

Q.4. Dr would you please share your under graduation as well as post graduation studies with our esteemed readers.

Answer: I was first batch student of B.A.M.S admitted to Dayanand Ayurvedic College, Jalandhar (Punjab) in 1976 and graduated out in March 1983 after completing internship. After almost five years of service as Lecturer in that very college I took study leave for undergoing M.D. (Ayurveda) course in Kayachikitsa specialty at National Institute of Ayurveda, Jaipur from 1987 to 1990. Subsequently, I acquired additional qualifications of my interest like M.A. (Sankrit), Diploma in IPR and Patents, WHO Diploma in Health and Human Rights and Postgraduate Diploma in Disaster Preparedness and Rehabilitation.

Q 5. In which subject you mastered your P G & with what thesis ! Kindly share.

9

Answer: My postgraduate research work was on Ischemic Heart Disease done at National Institute of Ayurveda and SMS Medical College hospitals , Jaipur. In this study effects of two classical Ayurvedic formulations - Hartakyadi Churna and Hridvarnav Ras were evaluated in IHD patients in comparison to conventional allopathic medicines on the basis of clinical, bio-chemical and electrocardiographic parameters. Scientific paper based on study findings was accepted for presentation in the annual conference of American College of Cardiology, Bethesda, USA. Over the last 40 years I have been using Haritakyadi Churna for the treatment of IHD manifestations and dyslipidemia with positive clinical outcomes.

Q 6. It's learnt that you did exceedingly well in studies, did you opt teaching as career !

Answer: Since I topped the merit list of BAMS final examination in 1982-83, college authorities directly appointed me as Lecturer-Nidan Chikitsa and after two years upgraded as Deputy Medical Superintendent of the college hospital in view of my professional commitment and clinical expertise. Opting teaching as career was obvious as my parents and sisters were also teachers at that point of time. However, later I opted to diversify my professional pursuits and entered into Central Government Service as Ayurvedic physician in February, 1993, appointed as Assistant Adviser- Deputy Adviser-Joint Adviser- Adviser (Avurveda) in Ministry of AYUSH from May 2000 to January, 2021 and in between worked in WHO for three years from April, 2008 to April, 2011. Before repatriation to CGHS in February, 2021, I was entrusted additional responsibility of Director-**Pharmacopoiea** Commission for Indian Medicine & Homeopathy and Director - Pharmacopoea Laboratory of Indian Medicine.

Q.7. Which subject you taught, where and how long ?

Answer: As Ayurveda teacher in Dayanand

January, February, March 2023

Ayurvedic College, Jalandhar for about 10 years, initially I used to provide theoretical teaching and practical training related to Nidan, Kayachikitsa and Sharir to BAMS and Upvaid students but later after post graduation I confined to the teaching of Kayachikitsa including Panchakarma only.

Q 8. It's a pride to introduce magazine readers that u served as advisor in AYUSH govt of India,May I know how long !

Answer: I served in the Ministry of AYUSH as Assistant Adviser from May, 2000 to February, 2002; as Deputy Adviser from February, 2002 to February, 2007; as Joint Adviser from February, 2007 to February, 2013 and thereafter as Adviser and Senior Administrative Grade CMO from February 2013 till date.

Q.9. In what capacity you served as well as your fields (area);of working.

Answer: I have worked as teacher, clinician, policy maker, planner, technical adviser, administrator, drug controller for Ayurveda matters in particular and for Ayush systems and traditional medicine in general.

Q 10.What had been the aims & objectives assigned during your tenure, Kindly share.

Answer: During my tenure. I was given varied assignments and responsibilities of handling AYUSH matters including data compilation & analysis, policy formulation and planning, proposal making for new projects/institutions/ schemes/five-year plans, examination of proposals received under respective schemes for providing financial support to AYUSH activities, providing technical assistance and advice, coordination with central and state departments & institutions, implementation and monitoring of various schemes, amendment of rules & regulations for education, practice and drugs of Indian Medicine (Avurveda,

Siddha and Unani), standardization & quality control of AYUSH, research & development, promotion & strengthening of AYUSH services and infrastructure, international cooperation & collaboration as well as disposal of public grievances and RTI matters.

Q 11. It's well known that AYUSH (Ayurved) has touched new horizons today please throw some light.

Answer: Indian Systems of Medicine & Homeopathy i.e Ayush systems have grown and developed over the years with constant policy support from Government of India. Initially, in the post-independence era the policies for Ayush were tolerant but later inclusive and integrated policies facilitated development of educational & health service institutions, research councils, central regulatory bodies, National Institutes; and framework for standardization and quality control of Ayush. Since November, 2014 with the establishment of Ministry of AYUSH exclusive policies and strategic interventions have been evolved and implemented emphasizing overall growth, infrastructural strengthening, promotion and performance of Ayush sector to meet healthcare needs of the people and augment Ayush-based health coverage and outreach within and outside the country.

Q12. What had been the major policies or protocols of present governments centre as well as state ,pl brief a few.

Answer: Over the years Ayush sector has seen tremendous horizontal and vertical expansion at central and state levels with the help of perpetual policies , focused strategies & interventions and implementation of specific outcome-oriented schemes and programs. As a result of implementing Ayush-development related strategies in the areas of (i) health services, ii) human resource development, iii) standardization & quality control, iv) research & development, v) Information-Education -Communication vi) Mainstreaming and Integration, vii) sustainable development of medicinal plants, and viii) International Cooperation & Collaboration today we have a well-developed ecosystem for Ayush comprising of a large network of educational institutions; institutionally gualified manpower; health centres & hospitals; premier secondary and tertiary care institutions; research centres; regulatory mechanism for education, practice and drugs at central and state level; accreditation & certification systems, physical and functional integration of Ayush functionaries, intensive health coverage of the people, health insurance policies, WHO-GMP certification of Ayurvedic industry and products; and international prevalence & promotion of Ayush, particularly Ayurveda and Yoga.

Q 13. How these are helping domestically & globally Ayurved and it's practitioners !

Answer: With the aforesaid initiatives of the Government production, distribution, placement. skill development & capacity building and service nature of Ayurvedic practitioners have grown and diversified to a large extent. Ayurvedic graduates and postgraduates are now opting to work in different fields like general clinical practice, specialized clinical practice, teaching-training- professional skill development, Central or State Government service, research & development in government and private institutions, , testing and analysis of drugs, manufacturing of Ayurvedic drugs and food supplements/health foods; development of standards, regulation-quality control, assessment for accreditation & certification of institutions/ products/personnel. innovative interventions applications/methodologies and including health counseling and prakriti parikshan-based lifestyle guidance, scientific writing-publicationjournalism, public health education and research, sale & marketing, management & administration and various entrepreneurial activities domestically and internationally.

Q 14. As it's true a common BAMS graduate is a herbal botanist, pharmacy manufacturing expert, complete physician and by virtue of P G or PhD a research or clinical trial expert so how these programmes will benefit as career avenus by present government policies! please throw some light.

Answer: Government policies and initiatives have brought out immense career avenues and opportunities for graduates and postgraduates of Ayurvedia but it all depends upon individual's qualifications, experience, skills, professional acumen & capacity, interest- inclination- preference etc to get into are career pathway, endeavor or pursuit of his or her choice **Q 15.** Concluding our healthy and highly informative discussion, what is your suggestion to budding BAMS graduates & MD (Ay.) scholers.

Answer: My message to the Ayurveda graduates and postgraduate scholars is first know your capacity, acumen and interest determining what you want to pursue and achieve in life. Accordingly harness the opted career pathway or avenue sincerely with focused approach, dedication and passion. Always keep yourself updated and aware of emerging trends, developments, current affairs of Ayurveda sector.



Government of India is promoting **Green Hydrogen Policy** to reduce (33-35)% **Carbon Emission** by year 2030.





Hon. Member Editorial Board Dr. Mahantesh B Rudharapuri HOD Dept. RSBK Shri Shiva Yageshwar Rural Ayurvedic Medical Colleg, Belagavi, Karnatak Mr.Jayesh Nikam 3rd Year BAMS,

Dhanya- An Ayurvedic Perspective

Introduction :

Ayurveda is a science of life. It is mainly based on the **Trisutra**, **Hetu**, **Linga** and **Aushadhi**. Among these Aushadhi plays a major role in the treatment. Dravya is of Two types. Viz- **Aoushadi dravya** and **Ahara dravya**. Even dravya is classified in to Sthavara and Jagama dravya.

Sthavara includes Shukha and Shimbi dhanya like Shali, jawar, godhuma, Masha, Mudga, etc. Dhanya – dhane poshane saduhu, which means the one which nourishes the body.

SHUKA DHANYA VARGA(GROUP OF CORNS WITH SPIKES)

RICE -

रक्तो महान् सकलमस्तूर्णकः शकुनाहृतः सारामुखो दीर्घशुको रोध्नशूकः सुगन्धिकः पुण्ड्रः पाण्डुः पुण्डरीकः प्रमोदो गौरसारिवौ काञ्चनो महिषः शूको दूषकः कुसुमाण्डकः लाङ्गला लोहवालाख्याः कर्दमाः शीतभीरुकाः पतङ्गास्तपनीयाश्च ये चान्ये शालयः शुभाः

Types of rice – Rakta (red), mahan (big sized rice), kalama, turnaka, shakunahruta, saaramukha, deerghashuka (having long sharp spike at the ends), sugandhika (having good smell), rodhrashuka, pundra, pandu, pundarika, Pramoda, Gaura (white rice), Sariva, Kanchana (golden colored rice), mahisha, Shuka, Dushaka, Kusumandaka, Langala, Lohavala, Kardama, Sheetabheeruka, Patanga, stapaneeya (bright red)- these varieties of rice are good for consumption.

QUALITIES OF RICE – WHICH ONE IS BEST

स्वादुपाकरसाः स्निग्धा वृष्या बद्धाल्पवर्चसः कषायानुरसाः पथ्या लघवो मूत्रला हिमाः

Svadu rasa – sweet taste, Swadu paka – sweet taste conversion after digestion, Snigdha – unctuous, Vrushya – natural aphrodisiac Baddhalpavarchasaha – causes mild constipation, causes lesser volume of faeces, Kashaya anurasa – mild astringent taste, Pathya – suitable for daily consumption, Laghu – light to digest, Mutrala – diuretic, increases urine volume, Hima – coolant

SHASHTIKA SHALI – PADDY WHICH MATURES IN 60 DAYS -

स्निग्धो ग्राहि लघुः स्वादुस्त्रिदोषघ्नः स्थिरो हिमः षष्टिको व्रीहिषु श्रेष्ठो गौरश्चासितगौरतः

Shastika shali is best among all paddy. It is

a) Snigdha - unctuous, oily

b) **Grahi** – absorbent, useful in mal-absorption syndrome and diarrhea

- c) Laghu (light to digest)
- d) Svadu sweet
- e) Tridoshaghna balances all the three Doshas
- f) Sthira brings in stability
- g) Hima -coolant

YAVA- (BARLEY) BENEFITS

रूक्षः शीतो गुरुः स्वादुः सरो विट्वातकृत् यवः वृष्यः स्थैर्यकरो मूत्रमेदः पित्तकफान् जयेत् पीनसश्वासकासोरुस्तम्भकण्ठत्वगामयान्

Yava (Barley) is

- 1. Rooksha (dry)
- 2. Sheeta cold

3. Guru (Heavy to digest)

4. Svadu – Madhura (sweet)

5. Sara - promotes bowel movements

6. Vit-vata krut – it increases the bulk of faeces and causes flatus

7. Vrushya - natural aphrodisiac

8. Stairyakrut – increases body stability

Useful in Mutrameda – urinary disorder, Pitta – Kapha imbalance disorders, Peenasa – running nose, rhinitis, Shwasa – Asthma, COPD, wheezing, breathing difficulty, Kasa – cough, cold, Urusthamba – thigh stiffness, Kantaroga – diseases of throat, Twakroga – skin diseases

GODHUMA – WHEAT BENEFITS –

वृष्यः शीतो गुरुः स्निग्धो जीवनो वातपित्तहा सन्धानकारी मधुरो गोधूमः स्थैर्यकृत् सरः पथ्या नन्दीमुखी शीता कषायमधुरा लघुः

Wheat is 1. Vrushya – natural aphrodisiac

2.Sheeta – cold,

3.Guru (Heavy to digest)

4. Snigdha – unctuous, oily

5. Jivaniya - enlivening

6. Vatapittaha – balances Vata and Pitta

7.Sandhanakari - heals fractures and wounds

8. Madhura (sweet)

9. Sthairyakrut - increases body stability

- 10.Sara promotes bowel movements
- 11.Pathya can be had on daily basis

SHIMBIDHANYA VARGA (GROUP OF LEGUMES AND PULSES):-

अथ शिम्बीधान्यवर्गः

मुद्गाढकी मसूरादि शिम्बीधान्यं विबन्धकृत कषायं स्वादु सङ्ग्राही कटुपाकं हिमं लघु मेदः श्लेष्मास्रपित्तेषु हितं लेपोपसेकयोः

Mudga (green gram) , adhaki (toor dal), masura(lentil) and other varieties belong to the group called shimbidhanya (those having pods/ legumes).

1. Vibandhakrut – They cause constipation,

2. Kashaya, Swadu - astringent sweet in taste,

3. Grahi – absorbent,

- 4. Katu vipaka pungent after digestion,
- 5. Sheeta cold in potency,
- 6. Laghu easily digestible,
- 7. mitigate fat, kapha, asra (blood) and pitta,

8.suited for use as external application and bathing the body parts etc.

वरो अत्र मुद्गो अल्पचलः, कलायस्त्वतिवातलः

राजमाषो अनिलकरो रूक्षो बहुशकृद्गुरुः

Among them, mudga (green gram) is best, it causes mild increase of chala (vata).

kalaya (round pea)- causes vata and dryness, produces more faeces and is hard to digest

Rajamasha (big sized black gram)- increases Vata, it is dry, heavy to digest and increases bulk of faeces.

HORSE GRAM BENEFITS -

उष्णाः कुलत्थाः पाके अम्लाः शुक्राश्मश्वासपीनसान कासार्शः कफवातांश्च घ्नन्ति पित्तस्रदाः परम

Kulttha (horse gram) is Ushna – hot in potency, **Amlapaka** – sour at the end of digestion, cleanses semen, useful in urinary stones, **Shwasa** – Asthma, COPD, wheezing, breathing difficulty, Peenasa – running nose, rhinitis, **Kasa** – cough, cold, Kapha – Vata diseases

But it increases bleeding disorders and is not recommended in such conditions, like menorrhagia.

NISHPAVA (FLAT BEAN)

निष्पावो वातपित्तास स्तन्यमूत्रकरो गुरुः सरो विदाही दृक्शुक्रकफशोषविषापहः

aggravates vata, pitta, bleeding disorders, it increases breast milk production and promotes urine formation. It is Guru (Heavy to digest), Sara – promotes bowel movements, Vidahi – increases burning sensation, It is not good for eyes and semen quality. It decreases Kapha, inflammation and is useful in poisoning.

MASHA – BLACK GRAM BENEFITS:

माषः स्निग्धो बलश्लेश्म मलपित्तकरः सरः गुरुष्णो अनिलहा स्वादुः शुक्रवृद्धि विरेककृत

Black gram is Snigdha – unctuous, Balya – increases strength, increases kapha and Pitta, Malakara – increases bulk of faeces, Sara – laxative, Guru – not easily digestible, Ushna – hot in potency.

Vatahara – mitigate Vata, Madhura – sweet in taste, shukra vruddhikara, Virekakrut – increases semen and promotes ejaculation strength.

SESAME SEED (Til) BENEFITS:

उष्णस्त्वच्यो हिमः स्पर्श केश्यो बल्यस्तिलो गुरुः अल्पमूत्रः कटुः पाके मेधा अग्निकफपित्तकृत्

Tila (sesamum) is Ushna – hot in potency, Tvachya – good for the skin, Sheetasparsha – cold on touch, Keshya – good for hairs, Balya – strengthening, Guru – hard to digest, Alpamutra – produces little quantity of urine, Katu paka – pungent at the end of digestion, Medhakrut – increases intelligence, Agnikrut – increases digestive function, and increases kapha and pitta.

SEEDS OF UMA (LINSEED)

स्निग्धोमा स्वादुतिक्तोष्णा कफपित्तकरी गुरुः दृक्शुक्रहृत्कटुः पाके, तद्वत् बीजं कुसुमभजम्

Snigdha unctuous, Madhura Tikta – sweet – bitter in taste, **Ushna** – hot in potency, increases kapha and pitta, hard to digest, not good for vision and semen, pungent at the end of digestion. Similar are the seeds of kusumbha.

Reference

1) Astanga Hridaya Sutra sthana, Annaswarupa vignana.

2) Introduction to Ayurveda

3) Internet Sources.



मन्दाग्नि सभी रोगों का मूल कारण है। अतः पाचक अग्नि (समग्नि) स्वास्थय के लिए हितकर है।



Hon. Member Editorial Board Dr. Ravi Gogia M.D. (Ay.) Kayachikitsa M.C.D's .L.R. Ay.Panchkarma Hosp., Rajouri Garden, New Delhi -27 9818537919, 45532124, ravigogia72@yahoo.com

USAGE OF TRINA DHANYA (MILLETS) IN CONTEMPORARY LIFE STYLE

ABSTRACT :- In 2018, the union Agriculture ministry declared millets as nutri cereals & same year was observed as National year of millets. UN General assembly adopted India sponsored resolution to mark 2023 as International year of millets. The sheer affordability of millets also tags them as "poor man's food grain". Start ups will be mobilized for export promotion of the ready to Eat (RTE) & ready to serve (RTS) categories. India is the largest producer of millets in the world(41% of global production). India top millet producing states are Rajasthan, U.P. Maharashtra, Karnataka, Gujarat & M.P. Share of export of millets is nearby 1% of total millet production. Millet exporting countries are U.A.E., Nepal, Saudi Arabia, Libya etc.

Introduction :-

Millets are coarse grains , alkaline in nature, powerhouse of nutrition, gluten free, low glycemic index, consumed in Indian subcontinent for over 5000 years, having high nutritional value than rice & wheat and rich in proteins, vitamins, minerals, and fibres. Unlike other Cereals, millets require little water and ground fertility. They are climate smart crops , grow in 70-100 days as compared to long growing period 120-150 days for paddy & wheat. In general , yields of millets are lower than rice but in rain fed condition, they are more resilient. It can create income for farmers & health for communities. Inclusion of millet based packed food in international , national & state level feeding

program can help to overcome existing nutritional deficiencies of calcium & Iron in developing countries.

Millets are divided into two broad categories:

1. Naked grains

Naked grains, devoid of any husk, e.g. Ragi, Jowar, and Bajra which don't require processing after their harvest. They can be consumed right after cleaning.

2. Husked grains

Foxtail millets, Little millets, and Kodo millets belong to this type, having indigestible seed coat, needs removal of husk before consumption.

Millets having micronutrients such as iron, calcium, and phosphorus, difficult to digest & doesn't cause blood sugar spike . So introducing millets into your diet can help control diabetes . Millet production is good for health & environment. As they are primarily rain-fed crops, Consequently, they do not put pressure on our already diminishing water resources. Additionally, these grain crops do not attract pests and can grow perfectly well without pesticides.

Types of Millets :-

1. Foxtail Millet / kangni

Foxtail millet contains blood sugar balancing healthy carbohydrates. Its iron and calcium content helps strengthen immunity & help regulate your

blood cholesterol and increase HDL levels in our body.

2. Finger Millet/Ragi

It is healthier cereal substitute for rice and wheat, gluten-free and rich in protein, supposed to aid brain development in growing children & requires 50-100 cm rain for its harvest.

3. Pearl Millet/Bajra :- Grown as pure or mixed with cotton , jowar & ragi on poor light sandy soils, black & red soils with annual rain requirement of 40 -50 cm .

4. Buckwheat / kuttu

Its primary concern is to lose weight which makes for a healthy food option for diabetes, helps lower blood pressure, and improves cardiovascular health & fight against diseases such as gallstones, childhood asthma, and breast cancer.

5. Little Millet / kutki

Little millet is also an excellent option for lose weight. You can eat it as a rice replacement. It is an antioxidant, high in fibre and filled with numerous minerals such as potassium, zinc, iron, vitamin B and calcium.

6) Jowar (Sorgham) :- Main food crop grown in both kharif & rabi seasons in Southern states. It hardly needs irrigation.

Two Pseudo millets :-

- # Buck wheat (kuttu)
- # Amaranthus (Chaulai)

Nutritional facts of millets :-

Each 100 gram (g) of cooked millet contains :-

- 23.7 g of Carbohydrate
- 1.3 g of Dietary fibre
- 44 milligrams (mg) of Magnesium
- 0.161 mg of Copper
- 100 mg of Phosphorus
- 0.272 mg of Maganese

Possible health benefits :-

Helping the digestive system

Millet contains fibre, helps to regulate bowel movements, having prebiotics, which stimulate the growth of probiotics within the microbiome. This is important for gut health and the immune system in general. Being gluten free, helpful for patients with celiac disease or gluten intolerance.

Supporting the cardiovascular system :-

Millet contains magnesium, which helps to regulate heart rhythm, elevate levels of the protein adiponectin, which can protect cardiovascular tissues, contains vitamin B3 or niacin which helps in reducing high levels of cholesterol and triglycerides and effective in lowering oxidative stress.

Improving mood

Improve person's mood due to the high concentration of the amino acid, tryptophan which can reduce symptoms of depression and anxiety.

Reducing the risk of diabetes

It reduce the risk of developing type 2 diabetes, helps managing blood glucose levels in people with Diabetes & improve insulin sensitivity.

Managing obesity

It manage obesity and high cholesterol by reducing BMI.

Reducing oxidative stress

Being good source of antioxidants, reduce oxidative stress (responsible for arthritis, dementia & Diabetes), decrease the risk of Alzheimer's disease, suppress cancer cell growth & promote wound healing.

Potential downsides to health :-

Although millet having vital nutrients, contains compounds called antinutrients also which interfere with the body's ability to absorb nutrients. Pearl millet contains phytates & polyphenols which make

it harder for the body to absorb nutrients leading to goitre. Finger millet also has antinutritional factors that include tannins, protease inhibitors, oxalates, and phytate. Different processing techniques like roasting , germination, fermentation can reduce levels of antinutrients.

Material & Methods :-

Clinical Trial :-

No. of patients with glucose intolerance = 64

50 gm of foxtail millet, baked in bread per day given along with usual diet for 12 weeks.

After 6 weeks, Fasting blood sugar decreased by 5.7% on average. & PP blood sugar decreased by 9.9%

After 12 weeks, fasting & PP blood sugar decreased significantly.

Result :- Good hypoglycaemic effect due to high contents of protein in fibre of Foxtail. It decreases insulin resistance & inflammation and increases conc. of satiety hormone (Leptin).

Discussion:-

Sensory acceptability of pearl millet based cookies may be less or high. Presence of anti nutritional

factors like phytic acid, tannins & phenol limit the use of millet as food specially pearl millet biscuits are not suitable for infants. Processing methods like roasting, germination, soaking have reduced their anti nutritional contents. Better recipes need to be invented to get millets mainstream & make them part of everyday diet. Multigrain breakfast mixes should be promoted as alternatives to early morning energy drinks like boost or complain etc. All millets should be brought under MSP (Min. Support price)At present only jowar, bajra & ragi receive MSP support. Millets should be introduced under PM POSHAN Scheme (Mid day meal scheme).

Summary :-

Millets have become under radar by health enthusiast all over the world for its potential. Unlike wheat , Rice--- millet cultivation is sustainable & thrive in extreme conditions like drought & flooded area. They strengthen our immunity, keeping metabolic disorders in check , aids weight loss & keep us satiated for longer period. Existing limitations like antinutritional factors & low sensory acceptability can be overcome by scientific interventions & mixing them with other flours of high acceptabilities. Many ways can be included in our diet like porridge, cup cakes & other cuisines.



In India *C. K. D.* (Chronic Kidney Diseases) Are Increasing (20-30)% Annually

डॉ राजीव पुंडीर एम्डी (आयुर्वेद) साम्यता आयुर्वेदिक सेंटर फरीदाबाद

Hon. Member Editorial Board



मोटे अनाज और उनका महत्त्व : एक आयुर्वेदिक दृष्टिकोण

आजकल मोटे अनाज को खाने में शामिल करने को लेकर बहुत विचार विमर्श हो रहा है । प्रधान मंत्री नरेंद्र मोदी ने वर्ष २०२३ को मोटे अनाज के साल के रूप में अंतर्राष्ट्रीय स्तर पर मनाने का निर्णय लिया है जिसे संयुक्त राष्ट्र संघ ने भी अनुमोदित कर अपनी सहमती दे दी है । आयुर्वेद ने पहले ही इस विषय पर गंभीरता से विचार किया और लगभग सभी शास्त्रों में ' शूक ध् ान्य' अध्याय के अंतर्गत इनका वर्णन किया है ।

स्वस्थ रहने के लिए हमें अपने आहार के बारे में और अपनी प्रकृति के बारे में ज्ञान अवश्य ही होना चाहिए कि हमारी प्रकृति के अनुसार खाने की कौन सी वस्तु हमें लाभकारी है और किस वस्तु के खाने से हम बीमार पड़ सकते हैं । आधुनिक आ. हार विज्ञान की दृष्टि से ये महत्वपूर्ण है कि किस आहार में कितने और कौन से विटामिन हैं, कितना प्रोटीन है, कितना वसा है, कितने कैलिशयम आदि मिनरल्स हैं और उसकी कैलोरी वैल्यू क्या है । दूसरी ओर आयुर्वेद के अनुसार महत्वपूर्ण ये है किस खाद्य पदार्थ के गुण क्या हैं अर्थात कौन सा आहार शरीर में शीतलता उत्पन्न करता है और कौन सा उष्णता किस आहार के खाने से शरीर में रूक्षतापैदा होती है और किस से शरीर स्निग्ध होता है. या फिर कौन सा आहार लेखन अर्थात मोटापे को कम और कौन सा आहार हमें पृष्ट करके मोटा कर सकता है । क्योंकि सभी प्रकार के आहार किसी न किसी रूप में शरीर की पुनर्निर्माण की क्रिया, स्थिरता और सामर्थ्य को बनाए रखने में सहायक होते है अतः उन्हें हम सामान्यतः 'बल वर्धक' कहते हैं और जब उन्हें बल वर्धक की संज्ञा दी जाती है तो परोक्ष रूप से निश्चित है कि उनमें यथा संभव वसा, प्रोटीन, कार्बोहाइड्रेट, वि. टामिन्स और मिनरल्स तो होंगे ही । हमारा शरीर एक संतुलित और सम्पूर्ण आहार की अपेक्षा रखता है जिसमें मोटे अनाज अपनी महत्वपूर्ण भूमिका निभाते हैं इसीलिए आयुर्वेद में उनका समावेश किया गया है । हमारे आहार में सब्जियों के साथ या तो गेहूं से बनी हुई चपाती होती हैं या फिर चावल

जवार और बाजरे जैसे अनाज हमारे खाने में मक्का, जवार और बाजरे से भी विभिन्न लगभग नगण्य हो गए हैं जिनका यथोचित प्रकार की भोजन से सम्बंधित सामग्री तैयार ज्ञान और पुनः समावेश बहुत आवश्यक है की जा सकती है जिनको मधुमेह, मेदोरोग, । जहाँ गेहूं शरीर में शीतलता, मृद्ता,स्निग्ध संधि रोग, और गेहूं के कारण होने वाले ाता. और स्थिरता उत्पन्न करता है. वहीं अतिसार में एक उत्तम विकल्प के रूप में जवार या जौ का सेवन शरीर में रूक्षता, प्रयोग किया जाता है जो बहत लाभकारी शीतलता, और लघुता उत्पन्न करता है । है । यह रूक्षता और लघुता के कारण शरीर का आज के समय में रूस और यूक्रेन के युद्ध के भार बढने नहीं देता और कफ के कारण कारण कई देशों में खाद्य सामग्री, विशेषकर उत्पन्न होने वाले विकार जैसे खांसी जुकाम गेहूं की कमी के कारण एक संकट पैदा दूर होते हैं । अतः ये कफ प्रकृति के लोगों हो गया है ऐसे में मोटे अनाज की आप. के लिए लाभकारी है । इसी प्रकार से देखा ूर्ती से इस संकट से निपटा जा सकता है जाए तो जहाँ चावल मधुर और शीतल होने और भविष्य में यदि हम इनको अपने खाने के कारण वात वर्धक होते हैं और शरद ऋतू में समावेश करें तो गेहूं और चावल के में इसका सेवन वात प्रकति के लोगों के अति प्रयोग से उपजी निर्भरता समाप्त हो लिए हानिकारक हो सकता है वहीं बाजरा सकती है और हम आने वाली पीढीयों को उष्ण और रूक्ष होता है जो शरद ऋतू में खाद्य पदार्थों के बेहतर विकल्प देकर उनका विशेष रूप से लाभदायक है । हम देखते भविष्य और शारीरिक स्वास्थ्य सुरक्षित कर हैं कि जहाँ गेहूं और चावल से बहुत प्रकार सकते हैं।

होते हैं । लेकिन इसके अलावा मक्का, रागी, के भोज्य पदार्थ बनाए जाते हैं उसी प्रकार



Dosage (m.c.g.) formula for **Hypothyrodism** († T.S.H.) = Body Weight (kgm) x 2.6

In India Due To Breast Cancer 90,000 Lives Are Lost.





Dr. Sagar Tyagi Associate Consultant – Vascular & Interventional Radiology Max Super Speciality Hospital, Shalimar Bagh, Delhi

Significance of PET-CT In Clinical Practice

Medical imaging continues to evolve at a lightening speed and availability of metabolic functional imaging has greatly enhanced our understanding of various pathologic processes like cancers and their management. Integration of CT with PET amalgamates functional information of PET with the anatomic information provided by CT.

Detection of altered metabolism in biological tissues is the basis of PET imaging. In cancerous cells metabolic changes occur much before they undergo changes like dysplasia, metaplasia or anaplasiafollowed later by structural changes. PET detects the disease at the metabolic level while CT or MRI can detect the disease much later at the structural level.

Fluorodeoxyglucose (FDG) is the most commonly used PET tracer. FDG is intracellularly phosphorylated by hexokinase to FDG-6-phosphate which does not get metabolized further and accumulates in proportion to the glycolytic rate of the cells. Rate of glycolysis is higher in malignant cells, thus higher levels of GLUT proteins, therefore accumulate FDG-6-P to higher levels as compared to the normal tissues which is the basis of PET.

Over the years PET has emerged as an important molecular imaging technique with useful clinical applications in oncology, cardiology and neurology.

Cancer imaging with PET scan improves detection& characterization of lesion, staging of malignant

lesions and therapeutic response assessment. Also PET/CT fusion images are better in guiding biopsies as it providesbetter mapping of viable cancer than CT alone. Also it has shown importancein modulating the field and dose of radiation therapy.

PET has shown incredible results in diagnosing the etiology of dementia when compared to clinical criteria or MRI. In patients with epilepsy FDG-PET has been found useful in localizing the seizure focus aiding in its surgical management.

Although MRI and CT are the gold standard modalities for diagnosing stroke, there is a growing interest in assessing stroke patients with PET, to determine the role of therapeutic interventions.

FDG/perfusion-PET imaging can be used to assess myocardial viability by identify regions of myocardium that will improve with revascularization by comparing FDG uptake with regional blood flow.

Integrating high resolution PET scan with multiple detectorCT offers improved results for both modalities with quick diagnosis and therapeutic response. With availability of more specific tracers, PET and PET/CT will transform imaging techniques from non-specific methods to patient specific imaging based on molecular and genetic markers of the disease.

Combination of anatomical and functional imaging in the form of PET/CThas been a major evolution in

medical imaging. It has already become a powerful imaging tool and is the mainstay in oncologic imaging. However it is important to understand clinical applications, advantages and limitationsfor its optimal use. Accurate diagnosis, treatment

evaluation, surveillance and prognosticationwill ultimately be achieved by the optimal use of multimodality imaging systems and specific imaging agents.



Red Flags - For Any Cancer

When there is unexplained or unintentional body weight loss, reduced appetite, tiredness & daily fever.

Herbal Heritage

MESH SHRINGI

Hindi- Gudmar,	Sanskrit - Madhu Nashin	
Latin - Gymnema Sylvestre,	English - Herb That Decreases Sugar	
Brief Description - Hairy, Slender, Tube Like C	reeper Plant	
Leaves 1-2 feet Long, introverted oval like with hairy flowers.		
Flowers small, yellowish		
Pendulum like 4"-5" in size.		
Fruits Singular, Bhalla shaped 2"-3" width and	2"-4" lenght pointed.	
Seeds 3"-4" oval or rectangular brown coloured		
Grown mostly in konkan areas of western, south and northen india.		

Chemical Composition- Leaves contain resins, derivatives of gymnemic acids, quercitol, calcium oxalate, caronic acid. Alcoholic ex contains saponin.

Ayurvedic Features

Gun - Laghu, Ruksh Rass-Kashay, Tikt Veerya - Ushn, Vipaak Katu

Clinical Therapeutics

- 1. It is Kaph Vat nashak
- 2. Its appitiser, liver stimulant for despesia, constipation, piles, jaundic. (Aampachak Amalpitt,Arsh, Kamla).
- 3. Its cardiac tonic (Hridya).
- 4. Being Kaphagan for U.R.T.I. disorders.
- 5. Its Mootral for dysuria and stone removal, frequency urination.
- 6. Being Grabhashya Shodhak for Amenorrhea.
- 7. It is Madhu Nashak (Insulin secreting naturally for glycosuria, diabetes mellitus).
- 8. Used in Visham Jwar (Malaria, Pyrexia of unknown origin)
- 9. Its Mool kwath for patients of snake bite.

Recent Developments

The link between eating and exercise

When starting a new exercise regimen, it is vital to give your body the right fuel. You won't want to undo all your hard work by eating the wrong things.

Here are some tips for feeding your body for fitness:

Choosing a routine

What time of day you exercise will determine whether you eat before or after. Don't eat before a 6 am class, as you'll still be fuelled from dinner the night before.

If you train in the evening, eat a light snack an hour before — such as a banana or yoghurt. If you're having a main meal, eat no less than two hours before. The body prioritises digestion over most things, so you won't get the most out of your session if you're still full.

Whatyou eat after exercise is more important than what you eat before. Three key macronutrients you should always include — carbs, fats and proteins. Eat within a couple of hours of exercise to restore glycogen levels faster.



Hydrate

We drink at least two litres of water a day but that should rise to three when exercising. Drink water an hour before and hydrate during your exercise to replace lost fluids.

Plan ahead

If you're eating out, research the menu beforehand. This will avoid you being overwhelmed with choices and making unhealthy decisions. Learn what works for you and the healthier options you enjoy most.

- DAILY MIRROR

Plastics cause health issues

Plastics are responsible for wide-ranging health impacts, including cancers, lung disease and birth defects, according to an analysis of the health hazards of plastics across their entire life cycle. Led by the Boston College Global Observatory on Planetary Health in partnership with Australia's Minderoo Foundation and the Centre Scientifique de Monaco, the review found "current" patterns of plastic production, use and disposal are not sustainable and are responsible for significant harms to human health".

Ministry of AYUSH felicitates Padma awardees

Ministry of AYUSH organised a felicitation ceremony to honour Padma awardees of 2023, who have contributed to the field of AYUSH. Union Minister of AYUSH Sarbananda Sonowal honoured Kamlesh Patel (Padma Bhushan), President, Shri Ram Chandra Mission, Hyderabad. Dr Manoranjan Sahu (Padma Shri), eminent ayurveda practitioner and surgeon, and Dr Gopalsamy Veluchamy (Padma Shri), veteran siddha practitioner for their contribution to popularising ayush



systems. Sarbananda Sonowal congratulated the awardees and said that achievements are an inspiration to all and an unwavering commitment to excellence.

Moving News

मखाना रखता है

वरात्रि का पावन पर्व शुरू हो चुका है। ऐसे में अगर आप पुरे दिन एनर्जी बनाए रखना चाहते हैं तो सुपरफूड मखाना आपके लिए हेल्दी स्नैक साबित हो सकता है। वैसे तो मखाना बेस्वाद होता है लेकिन कई मसालों के साथ इसका टेस्ट लाजवाब हो जाता है। आइए मखाना सेवन के और फायदे के बारे में जानते हैं।

मखाना में होते हैं ये पोषक तत्व : लोटस नटस यानी मखाना हाई फाइबर और लो कैलोरी से भरपुर हैं। इन्हें खाने पर आपको काफी देर तक भुख नहीं लगती। इसलिए व्रत के दिनों में इसे खाना सबसे अच्छा माना जाता है। यह हेल्दी कार्बोहाइड्रेट, विटामिन बी और जरूरी मिनरल्स का बेहतरीन स्त्रोत भी है। आप वृत में बेक करके या फिर भुनकर पोषक तत्वों से भरपूर इस स्नैक का सेवन कर सकते हैं।

वजन रखे कंट्रोल में : उपवास के दिनों के अलावा मखाना कई लोगों की डेली डाइट का भी हिस्सा है। अगर आप वजन कम करना चाहते हैं, तो यह बेहतर विकल्प साबित हो सकता है। क्योंकि यह काफी लंबे समय तक आपका पेट भरा रखेगा और आपको बार-बार भूख नहीं लगेगी। इसलिए आम दिनों में या व्रत के दिनों में जब भी आपको भूख लगे, तो मखाना खा लीजिए । भख भी शांत हो जाएगी और वजन भी घट जाएगा।

बीपी को रखे नियंत्रित : हाई ब्लड प्रेशर की समस्या से जझ रहे लोगों के लिए मखाना बहुत फायदेमंद है। खासतौर से इन लोगों को व्रत के दिनों में मखाने को अपनी डाइट में शामिल करना चाहिए। इसमें अच्छी मात्रा में मौजूद पोटेशियम और कम सोडियम हाई ब्लड प्रेशर से पीड़ित व्यक्ति को राहत पहुंचाता है।



इसका मतलब ये है कि मखाने का सेवन ब्लड प्रेशर को नियंत्रित करने में मदद कर सकता है।

दिल की बीमारियों से बचाए : मखाना में मैग्निशियम पर्याप्त मात्रा में होता है। कई रिसर्च में पाया गया है कि शरीर में मैग्नीशियम की कमी हृदय रोग का कारण बनती है। अपने शरीर की मैग्नीशियम की जरूरत को पूरा करने के लिए रोजाना एक मुठ्ठी मखाना खाना चाहिए। इसमें मौजूद सोडियम की कम मात्रा हृदय रोगों से पीडित लोगों के लिए इसे एक आदर्श विकल्प बनाती है।

डायबिटीज कंट्रोल करे : फास्टिंग फुड के तौर पर पॉपुलर मखाना डायबिटीज कटोल करने में मददगार है। सैचुरेटेड फैट, मैग्नीश्रियम, पोटेशियम की अच्छी मात्रा और कम ग्लाइकेमिक इंडेक्स के कारण डायबिटीज रोगियों को भी कमल के बीज यानी मखाना खाने की सलाह दी जाती है।

हङ्खियां मजबूत बनाए : मखाना कैल्शियम से भरपूर होता है, इसलिए यह हड्डियों के लिए सुपरफूड है। मखाने के नियमित सेवन से हड्डियां मजबूत होती हैं। यह किसी भी हड्डी या जोड़ों की समस्या से पीड़ित लोगों के लिए बहुत अच्छा भी है, क्योंकि इसके सेवन से शरीर में कैल्शियम की कमी नहीं होती।

सौंफ का पानी पीने के होते हैं

खाने में तड़का लगाना हो या फिर खाने का स्वाद बढाना हो, लगभग हर एक चीज में सौंफ का इस्तेमाल किया जाता है। लेकिन सौंफ कई तरह से आपको स्वास्थ्य लाभ देती है। सौंफ का पानी पीने से आपकी सेहत को कई लाभ हो सकते हैं।

🔳 पाचन संबंधी परेशानियों को दूर करने



के लिए आप सौंफ के पानी का सेवन कर सकते हैं। इसमें मौजूद एनेथोल, एस्ट्रैगोल. फेनचोन पाचन

र्वेटि तंत्र को मजबूत करता है जिससे कब्ज, अपच, गैस जैसी परेशानियां दूर हो सकती हैं।

🔳 रोज खाली पेंट सौंफ का पानी पीने से शरीर का वजन कम होता है। इसके सेवन से शरीर में मौजूद जमा गंदगी अच्छे से साफ होती है जो वजन कम करने में प्रभावी होती। 🔳 सौंफ का पानी पीने से स्किन ग्लो करती है। गौफ में सेलेनियम, जिंक,

खसखस बनाता है आपको ऊर्जावान

होता है। इसके अलावा सांस संबंधी समस्या में भी खसखस काफी काम का मसाला है।

🔳 अगर ठीक से नींद नहीं आती है, तो भी इस मसाले का प्रयोग आपके लिए लाभकारी होता है। 🔳 खसखस में फाइबर भी

काफी मात्रा में होता है। इसके अलावा यह बेहतर पाचन में भी मदद करता है और शरीर को ऊर्जा देने के लिए भी बहुत लाभदायक होता है।

भारतीय मसालों 🔳 खसखस के अंदर कैल्शियम के साथ फाइबर, प्रोटीन, आयरन, मैग्नीशियम, फॉस्फोरस, पोटैशियम, जिंक, कॉपर, सेलेनियम, विटामिन ई आदि कई सारे पोषक तत्व होते हैं, जो शरीर को हेल्दी रखने के लिए जरूरी हैं। 🔳 खसखस को दर्द निवारक मांना जाता है। इसमें ओपियम एल्कलॉइड्स होता है, जो सभी प्रकार के दर्द को दूर करने में महत्वपूर्ण भूमिका निभाता है। खासतौर से इसका प्रयोग मांसपेशियों के दर्द में किया जाता है। फायद भी हैं। 🔳 खसखस का तेल भी बाजार में उपलब्ध

में खसखस का प्रयोग भी काफी किया जाता है। जितना यह खाने में स्वाद को बढा देता है. उतने ही इसके सेहत के नजरिए से कई



Prof. Anoop Misra, Dr. Ritesh Gupta Additional Director, 2Executive Chairman, Fortis C-DOC, Centre of Excellence for Diabetes, Metabolic Diseases and Endocrinology 1. Fortis Hospital, Vasant Kunj, New Delhi, 2. B-16, Chirag Enclave, New Delhi Phones: • For appointments at all centres: 91-11-49101222 Fortis Hospital, Vasant Kunj: 91-11-4277-6222

Diabetes and Erectile Dysfunction

With the growing epidemic of diabetes, a huge burden of its complications has surfaced globally as well as in India. Most of these complications affect vital organs like heart, kidney, brain, eyes, nerves etc. and are the focus areas in terms of prevention and management. However, erectile dysfunction (ED) as a complication of diabetes often does not receive as much attention. Several factors like hesitation and embarrassment on part of either patient or physician, incorrect perception of ED being an age related 'normal' phenomenon and lack of understanding about the underlying serious disease are responsible for suboptimal identification and management of this disorder.

The prevalence of ED in diabetes has been variously reported to be between 20-85%, depending on the duration of diabetes, age of study population and the definition of ED. The prevalence of ED was reported to be 28% in diabetics and 10% in nondiabetics in Massachusetts Male Ageing Study. In a recent study from Italy, the prevalence of ED was 43% in 1503 men with newly detected T2DM (duration < 2 years). There is only one study from India (Bikaner, Rajasthan) in which the prevalence of ED was reported to be 78% in 50 patients with diabetes.

Evaluation of a diabetic patient with ED should include a careful history with psychological evaluation. International Index of Erectile Function (IIEF-5) is a useful tool to detect and grade ED. Physical examination should include assessment of secondary sexual characters, testicular size and any penile deformity or plaque. Most patients will need a hormonal evaluation with measurement of serum testosterone and prolactin. Dynamic Doppler study of penis after either intracavernosal alprostadil or oral sildenafil is needed occasionally.

There are two management goals in a patient with diabetes who presents with ED. The primary and immediate aim is to treat his disability. But what is equally important is to uncover an underlying disorder like hypogonadism or cardiovascular disease. It is now well recognized that ED is a marker of widespread endothelial dysfunction in several vascular beds and may precede the onset of coronary artery disease. The recent Joslin Medalists Study of longstanding (>50 years) type 1 diabetics reported a strong relationship between sexual dysfunction and cardiovascular disease. In a prospective study of more than 2000 patients with diabetes with no cardiovascular disease, those with erectile dysfunction had a significantly higher risk of an incident cardiovascular event. Therefore ED has emerged as a risk factor for coronary artery disease and its presence provides an opportunity for primary prevention. Any patient with diabetes with erectile dysfunction should have a cardiovascular risk assessment and those with very high cardiovascular risk may have a coronary evaluation by exercise testing or coronary calcium scoring.

A significant number of diabetic patients with

erectile dysfunction have hypogonadism or low serum testosterone levels. There is some evidence that treatment with testosterone in diabetic patients with hypogonadism improves insulin sensitivity and glycemic control, however robust and long term evidence is lacking. Nevertheless, there are other benefits to be derived from testosterone replacement like improvement in libido and sexual function, as well as in bone density, muscle strength and cognition. Endocrine Society recommends testing of serum testosterone levels in all patients with type 2 diabetes. Erectile dysfunction in diabetic patients can be treated as in nondiabetics. Usually, PDE-5 inhibitors are the first line agents in treatment. These drugs can be used safely in diabetes; however care should be taken about interaction with antihypertensive drugs and nitrates. These drugs are generally used on an as needed basis; however daily low dose tadalafil has been used with good success. In patients who fail to respond to PDE5 inhibtors, the options are intracavernosal injections of Alprostadil, intraurethral Alprostadil, vacuum device and penile prostheses.



Increase of abnormal **uric** acid **(Gout)** due to high **Purine** (Chemical from Protiens) & poor **Life Style** is associated with higher risk of **Hypertension**, **Metabolic - Syndrome & Chronic Kidney Disease**.



Book Post

If Undelivered please return to : 326, Sant Nagar, East Of Kailash New Delhi-110065

