

NUTRILICIOUS

Diabetes and well being...

SPOTLIGHT

- Symposium Recap
- Research Breakthroughs
- Delicious Nutri Products
- Functional Foods for better Diabetes Control



THE EDITORIAL DESK

Dear Nutrilicious Readers,

As we observe World Diabetes Day, it's an important reminder of the global impact of diabetes on millions of lives. With recent advancements in research, diabetes management, and prevention, there's growing hope for better health outcomes for those living with the condition. In this special edition of **Nutrilicious- Diabetes and Wellness ...** we have focused on research updates, healthy eating, and lifestyle choices can help manage and even prevent diabetes.

We've also featured on diabetic-friendly recipes, crafted to nourish the body while helping maintain stable blood sugar levels. These recipes are not only nutritious but also delicious, proving that eating well with diabetes can be both satisfying and beneficial.

This edition aims to empower you with knowledge and tools to make informed decisions about your health. Whether you're managing diabetes or seeking to prevent it, we hope these resources will support your wellness journey.

Together, we can create a world where diabetes is better understood and more effectively managed.

Let's join hands in raising awareness and sharing knowledge...

Stay healthy, stay informed!!!

CHIEF EDITOR

Dr. Archana Prabhat

STUDENT EDITOR

Ms. Rutika R. Kuckian

CO- EDITOR

Ms. Karthika Devi S.

World Diabetes Day

World Diabetes Day (WDD), observed annually on November 14, is a global initiative to raise awareness about diabetes and its growing impact on global health. It focuses on specific aspects of diabetes care, prevention, and awareness. Themes in recent years have included issues like access to care, diabetes education, and healthy diets, among others.

Established in 1991 by the International Diabetes Federation (IDF) and the World Health Organization (WHO), the day highlights the importance of diabetes prevention, early diagnosis, and effective management.

The choice of November 14 for World Diabetes Day is significant as it marks the birthday of Dr. Frederick Banting, one of the Canadian scientists who discovered insulin in 1921 along with Charles Best. The discovery of insulin revolutionized the treatment of diabetes and saved millions of lives.

Through World Diabetes Day, the global community continues to mobilize efforts to tackle diabetes, improve the quality of life for people living with the disease, and reduce the future burden of this growing health crisis.

*International Symposium on
Integrative Approaches to Nutrition Therapy in Wellness and Illness*

NOTICEABLE EVENTS



Stay strong, stay in control.

Novel Research Insights...

DIABETES MANAGEMENT AND THE ROLE OF FIBER

Diabetes management requires a multifaceted approach, and dietary changes play a crucial role in regulating blood sugar levels. Fiber-rich foods have emerged as a valuable component of a diabetic diet due to their potential benefits. Fiber helps promote satiety, leading to weight management and reduced inflammation. Furthermore, fiber feeds beneficial gut bacteria, supporting a healthy gut microbiome. This can enhance immune function, reduce oxidative stress, and even improve cardiovascular health. Soluble fiber, found in foods like oats, barley, fruits, and vegetables, slows down carbohydrate digestion and absorption, reducing postprandial glucose spikes. This helps regulate blood sugar levels and improves insulin sensitivity. Additionally, fiber-rich foods tend to have a lower glycemic index, which further contributes to better glucose control. Studies have consistently shown that high-fiber diets are associated with improved glycemic control, reduced medication usage, and lower risk of diabetes-related complications.

Key fiber-rich foods include whole grains, legumes, fruits (especially berries, apples, and citrus fruits), vegetables (such as broccoli, and leafy greens), nuts, and seeds. Incorporating these foods into a balanced diet can have a significant impact on diabetes management.

Source: Reynolds et al. (2019). *Journal of Clinical Endocrinology and Metabolism*. | Arsha P | 2nd M.Sc FSN

HYPOGLYCEMIC AND HEPATOPROTECTIVE ACTIVITY OF FERMENTED FRUIT JUICE OF MORINDA CITRIFOLIA (NONI)

The study investigated the hypoglycemic and hepatoprotective effects of *Morinda citrifolia* (noni) fermented fruit juice in diabetes-induced rats. Four groups of six rats each were created: control, diabetic untreated, diabetic treated with *M. citrifolia* juice, and diabetic treated with glibenclamide (a standard hypoglycemic drug). Diabetes was induced using Streptozotocin at 50 mg/kg.

The diabetic rats treated with *M. citrifolia* juice (2 ml/kg, twice daily for 20 days) and those treated with glibenclamide showed significantly reduced blood glucose levels (150 mg/dl and 125 mg/dl respectively) compared to untreated diabetic rats (360 mg/dl $P < .003$). Additionally, the body mass of the *M. citrifolia* group initially decreased but showed a recovery by day 20 ($P < .022$). Liver histology indicated less fatty degeneration in treated groups compared to untreated diabetic rats. This study supports the potential of *M. citrifolia* juice for its hypoglycemic and liver-protective properties.

Sources: Nayak S and et al., *Evidence-Based Complementary and Alternative Medicine Volume 2011* | Chinmayee J | 2nd M.Sc FSN

RISK FACTORS AND WELLNESS MEASURES ASSOCIATED WITH PREDIABETES AND NEWLY DIAGNOSED TYPE 2 DIABETES MELLITUS IN HISPANIC ADULTS

This study aimed to explore associations between clinical, lifestyle, and wellness factors and the prevalence of prediabetes and newly diagnosed type 2 diabetes (T2DM) in Hispanic adults. Using data from 3,299 Hispanic participants, researchers analyzed cardiometabolic risk factors (e.g., obesity, hypertension), lifestyle behaviors (e.g., diet, physical activity), and wellness measures (e.g., general health and social support) to identify determinants of prediabetes and new T2DM diagnosis. The study found that cardiometabolic risk factors were more strongly associated with T2DM than prediabetes, with obesity, family history of diabetes, and elevated blood pressure significantly increasing the likelihood of both conditions. Specifically, obesity defined by waist circumference posed a particularly high risk, with odds ratios of 2.26 for prediabetes and 7.84 for T2DM. While lifestyle factors such as diet and exercise generally showed no significant link to prediabetes, vegetable consumption was modestly protective and diet soft drink consumption was strongly associated. In terms of wellness, lower self-rated health correlated with increased risk of T2DM, while passive tobacco exposure surprisingly showed a lower odds association for both prediabetes and T2DM. The study concludes that modifiable cardiometabolic and wellness factors are key targets for primary prevention efforts.

Source: Sagar B. et al. *Metabolic syndrome and related disorders*, volume 19, Number 3, 2021 | Sandra Shibu | 2nd M.Sc FSN

SEAWEED: A NUTRITIOUS AND DIABETES-FRIENDLY SUPERFOOD

Traditionally consumed by coastal communities, especially in Asia, seaweed has gained global recognition due to its numerous health benefits. The increasing popularity of East-Asian diets has brought seaweed into the spotlight. **Low-Calorie Content:** Seaweed is beneficial for weight management due to its low calorie count. Its high fiber content helps increase satiety and reduce overall food intake by slowing down gastric clearance. Seaweed is rich in vitamins, minerals, and unsaturated fatty acids, contributing to overall health. Compounds such as polyphenols, carotenoids, and various polysaccharides in seaweed support human health. **Omega-6 polyunsaturated fatty acids (PUFAs)** in seaweed enhance insulin sensitivity, reducing the risk of type 2 diabetes (T2DM). **Blood Sugar Control:** Phenolic and non-phenolic compounds in seaweed help manage hyperglycemia, a key characteristic of T2DM. Seaweed's rich nutritional profile and health benefits make it a valuable addition to any diet, particularly for those managing diabetes.

Source: Yusrizam Sharifuddin Yao-Xian Chin, Phaik-Eem Lim and Siew-Moi Phang, *Journal of marine drugs*. | Siri Vasavi | 1st M.Sc FSN

PARAPROBIOTICS: A NEW PERSPECTIVE FOR FUNCTIONAL FOODS AND NUTRACEUTICALS

Paraprobiotics are non-viable microorganisms, such as bacteria or yeast, that do not reproduce but can still confer health benefits when consumed. Unlike probiotics, which are live beneficial bacteria, paraprobiotics are often used in supplements and functional foods to promote gut health and support immune function. Since Metchnikoff's early observations, probiotics have gained significant attention due to their potential in disease treatment, prevention, and health optimization. However, safety concerns have emerged regarding their use, especially in vulnerable populations, as high concentrations can lead to adverse effects such as infections and increased mortality rates.

Various methods for producing paraprobiotics are reviewed, including thermal, high-pressure, and ultrasound treatments, each impacting cell structure differently while maintaining health-promoting properties. Paraprobiotics retain beneficial properties, can modulate immune responses, and have the advantage of being stable, with a longer shelf life, making them suitable for a wider range of food products.

Source: Rosa Anna Siciliano, Anna Reale, *Institute of Food Science, National research council, Rome, Italy*.

Rutika Kuckian | 2nd M.Sc FSN

Balance your blood sugar, balance your life.

BEST OF DEPARTMENTAL SEMINARS

HYDROPONICS: THE FUTURE OF FARMING



As soil based agriculture is now facing various challenges such as urbanization, natural disaster, which is depleting the land fertility. Currently hydroponic cultivation is gaining popularity all over the world because of its efficient resources management and quality food production.

Nutrient medium: perlite, coconut coir, mineral wool, vermiculite, rice husk, gravel, oasis cubes. Several techniques of hydroponics are used for the production of different crop varieties like tomato, cucumber, pepper and leafy greens. The crops are of short duration than conventional growing; round the year production, minimal disease and pest incidence and weeding, spraying and watering can be eliminated.

Commercially NFT (nutrient film technique) has been used through the world for successful production of leafy as well as vegetables with 70 to 90% savings of water. For successful implementation of commercial hydroponic technology, it is important to develop low cost techniques which are easy to operate and maintain, requires less labor and lower over all setup and operational cost

Leading countries in hydroponic technology are Netherlands Australia France England Israel Canada and USA.

Malavika J | 1st M.Sc FSN

CANARIUM NUTS: NUTRITIOUS DELIGHTS AND THEIR DIVERSE USES

Canarium, a tropical tree genus, includes the Pili nut (*Canarium ovatum*), found in Southeast Asia, East Africa, and Indian Ocean islands. Though not native to India, Pili nuts are sold in local markets at ₹1,149/kg.

These nuts are high in antioxidants, such as polyphenols and flavonoids, which help reduce oxidative stress and lower the risk of chronic diseases. The monounsaturated and polyunsaturated fats aids in cholesterol reduction and cardiovascular health, while dietary fiber supports digestion and weight management. In addition, presence of protein, vitamins, and minerals, supports heart health, skin and hair regeneration, and provide sustained energy. Used in snacks, cooking oils, nut butters, and gluten-free baking.



Canarium nuts are also added to health products like energy bars. Their thick shells make them hard to harvest, adding to costs. However, precautions are needed, as the shells may cause skin irritation, and improper storage can lead to aflatoxin contamination.

Beyond culinary uses, Canarium nuts are also utilized in skincare, biofuels, compost, and natural dyes, supporting local economies in Southeast Asia. Their buttery texture makes them a versatile substitute for macadamia, almonds, and cashews, providing a nutritious addition to any diet. | **Maheshwari C. | 1st M.Sc FSN**

VITAMIN D AND ANTIOXIDANTS IN WHITE BUTTON MUSHROOMS



Mushroom belong to the fungi family and the lack of chlorophyll. These grow on dead and decaying organic material for the source of nutrition. It is commonly called as white button mushroom. They are very low in calories, good source of protein, vitamin D, fiber and selenium. It has various health benefits like reducing cholesterol levels, repair muscle tissue, and protect against oxidative damage, improve immunity and anti-inflammatory property. A significant public health concern is low vitamin D status, which is defined as a blood 25-hydroxyvitamin D (25OHD) concentration less than 50 nmol/l. This can be enhanced by consuming more of these mushrooms, which are high in ergosterol, which, when exposed to UV light, functions as a precursor to vitamin D. Numerous health advantages, such as immune system support and bone health, have been associated with ergosterol. Highly reactive chemicals known as free radicals have the ability to start chain reactions that further harm cells. When the body produces too many free radicals, oxidative stress results.

Free radicals can be scavenged by these mushrooms. The largest phenolic content and antioxidant activity are found in the gills, which are also more abundant in antioxidant enzymes like catalase and glutathione peroxidase. Globally, the consumption of baked goods has increased. Protein enrichment can greatly improve the nutritional profile of certain baked goods, such as sponge cakes. This can be accomplished by adding button mushroom powder, which raises the cake's protein content without affecting its flavor, texture, or sensory qualities.

Harshitha, 2nd M.Sc FSN | Siri, 1st M.Sc FSN




Diabetes is a journey, not a destination.

GLYCEMIC GUARDIANS



Fenugreek

 Vit A,C
Magnesium, Copper,
Manganese

 Soluble Fiber  Absorption
Saponins  Insulin
Sensitivity



Bitter gourd

Vit C,B9
Potassium, Iron

 Pancreatic Function
 Insulin Sensitivity



**Moringa
Leaves**


Vit C,E, B6
Potassium, Calcium,
Iron

Antioxidant Properties
 Insulin Sensitivity




Amla


Vit A,C
Calcium, Iron, Phosphorus

 Increases body's
ability to use insulin



Chia Seeds

 Vit B1, B2, B3,
Omega3 FA
Phosphorus, Zinc

 Conversion of CHO
to Glucose



Curcumin

Vit C, B6
Manganese, Potassium

 Insulin Resistance
 Onset of Diabetic
complications



Cinnamon


Vit A, C, E, K,
Calcium, Manganese

 Insulin Sensitivity
 LDL



**Green leafy
vegetable**

Vit A,C, B9
Iron, Potassium

 Release sugar slowly
in blood stream,
Low Glycemic Index

Including these nutrient-rich delights in your diet supports diabetes management by providing essential vitamins, minerals, and antioxidants while helping to maintain stable blood sugar levels.

Manage your diabetes, don't let it manage you.

DEPARTMENTAL NUTRI PRODUCTS.

BAJRA COOKIES

•Energy	70kcal
•CHO	12g
•Protein	2g
•Fat	3g

THEY ARE RICH IN FIBER, SUPPORTING DIGESTION AND STABLE BLOOD SUGAR LEVELS. THEY PROVIDE IRON AND MAGNESIUM. GLUTEN-FREE AND NUTRITIOUS



FLAXSEED COOKIES



THESE ARE RICH IN OMEGA-3 FATTY ACIDS, HIGH IN FIBER, AND PACKED WITH ANTIOXIDANTS. AID DIGESTION, MAINTAIN STABLE BLOOD SUGAR LEVELS

•Energy	100 kcal
•CHO	12g
•Protein	1g
•fat	6g

BEETROOT HALWA

•Energy	90kcal
•CHO	15g
•Protein	2g
•Fat	1g

BEETROOT HALWA IS PACKED WITH ESSENTIAL NUTRIENTS LIKE IRON, PROTEIN ANTIOXIDANTS, SUPPORTING HEART, DIGESTION, AND IMMUNE HEALTH.



GREENGRAM COOKIES



THESE ARE A NUTRITIOUS SNACK, RICH IN PROTEIN, FIBER, AND ANTIOXIDANTS. THEY SUPPORT MUSCLE GROWTH, AID DIGESTION, AND HELP MAINTAIN OVERALL HEALTH.

•Energy	120kcal
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DEPARTMENTAL ACTIVITIES

International Symposium



Extension Activity



Nutritional Education Program



Nutri-Gate Workshop



Diet Camp



National Nutrition week celebration



World Food Day Celebration

Industrial Visit



Breast Feeding Awareness

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