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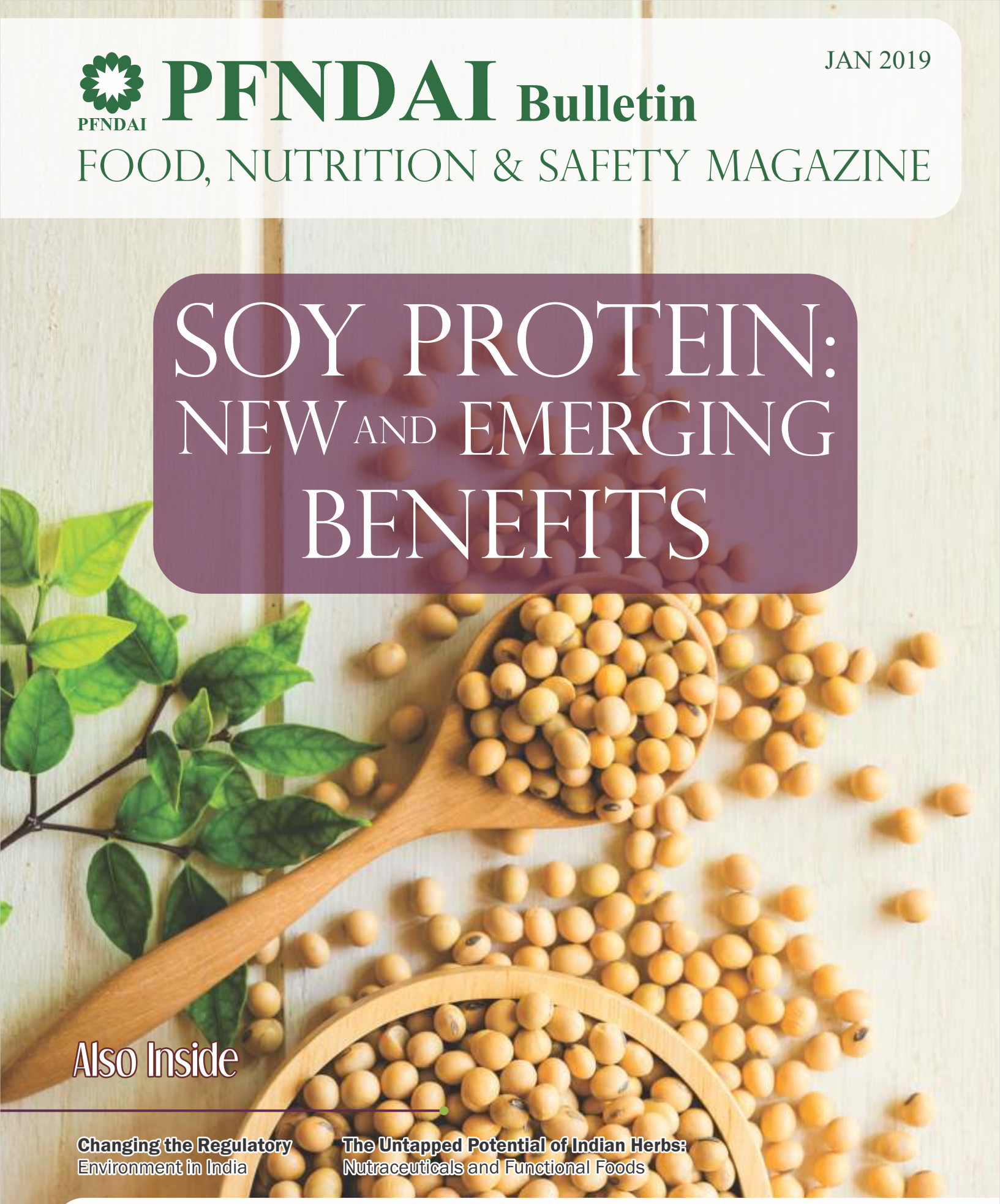
PFNDAI Bulletin

JAN 2019

FOOD, NUTRITION & SAFETY MAGAZINE

SOY PROTEIN: NEW AND EMERGING BENEFITS



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EDITORIAL

In this age of electronics and social media people communicate less by talking and listening to each other but way of many cool means of communication. First it was simple texting, then it became WhatsApp and today there is a horde of new age communicators to keep in touch with other and hundreds of others via various social media apps such as Facebook, LinkedIn, Instagram, Twitter and many others.

We also found that printing hard copies of PFNDAI Bulletin and sending by courier or post is not just expensive but also people do not have time to carry them and read while travelling or waiting for something. They have their smart phones which can not only see their mails and handle all kinds of tasks but also keep in touch with friends via all above and more.

We started sending the Bulletin by email so they can download their copies and read any place even where there may not be enough light. This also started another thought train. Why not join them in their social environment and be with them in their own format.

We started LinkedIn and Facebook pages to give not only some of the information and articles which were published in the Bulletin (for the benefit of those who do not get our magazine) but also a variety of news items of our different activities such as meetings, seminars, workshops, student related activities like Nutrition Awareness Activity and Scholarship programs etc.
Of course, we do have our website (www.pfndai.org) which is seen by our faithful members and wellwishers but there are many who are more prone to scan activities on social media. This has been a success and we at times receive a huge viewership when a popular item is posted.

This has led us to start our new activity namely the blog. Today's young people are attracted to blogs as they are interesting and give information in small and easy to grasp information about food science and nutrition. Science at times can be dreary so if it has to reach people in a manner to be effective it has to be attractive and short. So we started the blog named Nutrition Meets Food Science (https://nutritionmeetsfoodscience.com) wherein we try to give some useful and interesting information about various aspects of food including Nutrition, Science & Technology such as processing, and Regulation. We may add as and when we feel the needs to have more topics.

Please join us and help us make this more useful and interesting so you can get information about food science and nutrition from experts. We also intend to give some of the recipes from our award winning students of Nutrition Awareness Competitions. There are many more things we can add to this and we invite your suggestions. Thanks for all the support we got for a variety of our activities and looking for the same here as well. With season's greetings,

Prof. Jagadish S. Pai,
Executive Director,
PFNDAI

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SOY PROTEIN: NEW AND EMERGING BENEFITS

By
Indranil Chatterjee,
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South Asia & Southeast Asia,
DuPont Nutrition & Health

Research Shows Benefits of Soy Protein on Liver & Kidney Health and the Gut Microbiome.

Soy protein has been the focus of hundreds of clinical studies, demonstrating benefits related to cardiometabolic health, weight management, and muscle growth, maintenance and recovery. Research investment is now shifting to explore newer areas, including the potential effect of soy protein consumption on glucose management, muscle, liver and kidney health, as well as optimizing gut microbiome diversity.

Soy Protein Helps Support a Healthy Liver

The increasing prevalence of obesity and other metabolic syndrome diseases, such as diabetes, has given rise to the incidence of non-alcoholic fatty liver disease (NAFLD), which is predicted to be the next global epidemic impacting millions of people. If left untreated, NAFLD can progress from hepatic steatosis (too much fat in the liver), to fibrosis and cirrhosis. It is also a risk factor for heart disease.

Existing scientific literature supports the benefits of soy protein consumption on promoting liver health. A study published in Obesity found that obese rats fed Soy Protein Isolate showed a 20 percent reduction in triglycerides and overall fat accumulation in the liver.[1] An earlier study published in Hormone and Metabolic Research observed a 40 percent decrease in the liver weight of obese rats, after feeding them soy protein compared to casein or whey protein, due to the significant decrease in liver fat in the soy-fed rats.[2]

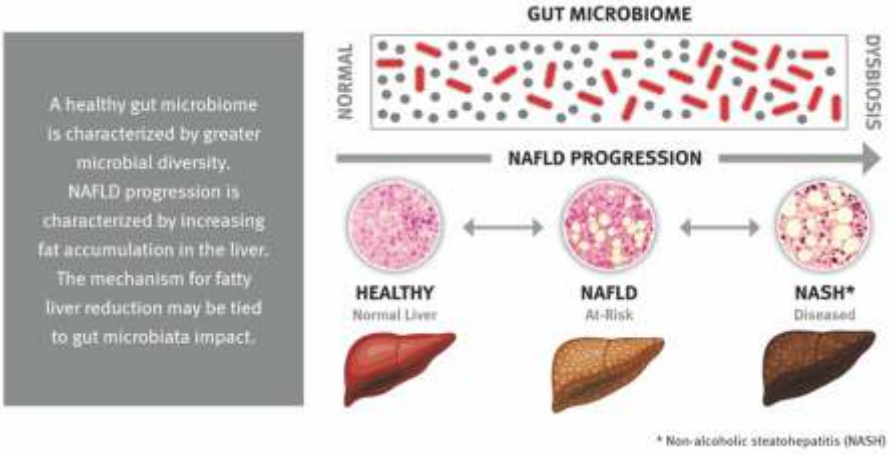
Soy protein has shown beneficial effects on hepatic lipid metabolism and prevention of hepatic steatosis. Recent research published in the Journal of Nutritional Biochemistry tested a diet containing Soy Protein Isolate compared to a dairy protein-based diet, examining the effect on liver function andthe development of fatty liver in Otsuka Long-Evans Tokushima Fatty (OLETF) obese rats. The rats were put on the same caloric diets, with 21 percent of calories from either milk protein isolate, soy protein isolate, or a 50:50 blend of milk and soy proteinfor four months.
The researchers found that soy protein isolate significantly reduced fat mass and percent body fat by ~10 percent compared with the milk and soy protein blend, but did not differ significantly from the milk protein isolate diet.
Examination of the liver tissue samples revealed the rats fed the soy protein diet had a significant decrease in hepatic steatosis and liver triglycerides compared to the other diets.[3]

Mechanism for Fatty Liver Reduction May Be Tied to Gut Microbiota Impact

This previous-mentioned study looked further into the potential mechanisms of the role of soy protein in attenuating hepatic

steatosis.[3] The researchers evaluated whether the source of dietary protein could induce changes in the fecal microbiome, which are associated with improvements in hepatic steatosis. Analysis of fecal bacteria of the OLETF rats showed the soy protein diet significantly increased Lactobacillus and decreased Blautia and Lachnospiraceae, suggesting decreases in fecal secondary bile acids in the soy protein fed rats. The investigators concluded that the link between soy protein and improved liver lipid metabolism may be due to differences in fatty acid and bile acid metabolism and signaling linked to the gut microbiota. **(Fig 1)**

FIGURE 1: Research Links Gut Microbiome and Liver Health



Soy Protein Offers Potential in Increasing Microbial Diversity

The gut microbiome has a major role in human health, leading some to call it the "last undiscovered organ." There are as many microbial cells as human cells in the human body, with microbes accounting for 99 percent of the body's genetic information. The human microbiome is made up of trillions of bacteria – some beneficial (like bifidobacteria and lactobacilli), and some less so (for example, firmicutes, which are implicated in promoting obesity). Eating a diet high in prebiotic fiber, including fruits, vegetables, whole grains and plant proteins, in addition to adding probiotic-providing foods, has been shown to contribute to the development of a healthy, diversified microbiome.

The Effect of Soy Protein-Containing Diets on Gut Microbial Diversity

While the heart health benefits of soy protein are well established, emerging research shows soy protein can further support cardiometabolic health by modifying the composition of the microbiome and increasing gut microbial diversity, consistent with a healthy liver and cardiometabolic profile. A study published in the Journal of Nutrition put hamsters on a typical Western human diet with 22 percent of protein either from milk protein isolate, soy protein concentrate, partially hydrolyzed soy protein isolate or intact soy protein isolate.[4]

The researchers examined the effect of the diet on cardiometabolic measures, microbiota composition and expression of genes in the liver involved in fat metabolism. The gut microbiota from the soy-fed groups were more similar to each other and showed significant differences in abundance of several key microbial families compared to those in the milk-fed group. In addition, significant reductions in the concentrations of total and low-density lipoprotein (LDL) cholesterol and triglycerides were observed with consumption of soy protein compared to milk protein diets. There was also significantly higher hepatic gene expression in the soy-fed groups compared to the milk-fed diet.

These findings support existing evidence that increased microbial diversity in the gut microbiome is a marker of cardiometabolic health, whereas individuals with lower diversity have a higher incidence of dyslipidemia, adiposity, weight gain, insulin resistance, and inflammation.

Soy Protein Preferred Over Animal Protein for Chronic Kidney Disease

As obesity, high blood pressure and diabetes continue to escalate in the global population, chronic kidney disease has also arisen as a significant public health problem. Diet plays an important role in managing the progression of this condition. While low protein diets are recommended for chronic kidney disease, an adequate amount is needed to support overall health. Emerging research is shedding light on how the type of protein may be as important as the quantity.

A paper in the World Journal of Nephrology reviewed the role of soy protein in renal function and protective properties.[6] The analysis found that consumption of soy protein can have a positive impact on some of the physiological risk factors related to kidney disease, such as improving lipid profiles, reducing blood pressure and blood glucose levels. Additionally, soy intake was found to reduce oxidative stress and inflammation in patients with chronic kidney disease. Long-term soy protein consumption slowed the deterioration of glomerular filtration rate and significantly improved proteinuria in diabetic and non-diabetic patients with kidney disease.[5]

While there is a clear relationship of the cellular and molecular targets of soy protein in maintaining renal function.

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*Source: The Times of India, July 2017

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between soy and kidney health, further studies are needed for a better understanding of the cellular and molecular targets of soy protein in maintaining renal function.

The Importance of High-Quality Protein for Muscle Maintenance in Aging

As people age, it is important to maintain muscle mass and prevent muscle loss (sarcopenia). Unfortunately, it is typical in the elderly for muscle breakdown to occur at a greater rate than muscle growth, contributing to anabolic resistance and the development of sarcopenia or age-related muscle loss.It is recognized that high-quality protein, needed for muscle growth, is particularly crucial in the aging population to preserve muscle health.

A preclinical study investigated whether high-quality sources of protein differ in their ability to maintain or stimulate muscle growth and function in 50 adult Sprague-Dawley rats acclimated to "Western" diets differing only in protein source.[8] Two different dairy sources of protein (milk protein isolate and whey protein isolate) and three differently processed soy protein products (soy protein isolate, soy protein concentrate and a novel, enzyme-treated soy protein isolate) were evaluated for effects on muscle morphology, size and function. Compared with the rats fed milk protein, those that received either the whey protein or soy protein concentrate had improved muscle function and displayed a greater maximum rate of contraction using the in vivo measure of muscle performance. The level of benefit from soy protein was equivalent to those afforded by whey protein supplementation and independent of changes in muscle mass or fiber cross-sectional area.

Another recent study looked at whether a 30-gram protein blend supplement, containing 25 percent soy protein, 25 percent whey protein and 50 percent casein, given after resistance exercise in older men (average age was 65-years-old) could generate elevated amino acid availability and lean muscle tissue growth, compared to whey protein alone. The effect of adding either source of high-quality protein one hour following high-intensity resistance exercise was studied in older men, ages 55 to 75. The soy-dairy protein blend resulted in an increase in the delivery of amino acids, muscle protein synthesis and mTORC1 signalling (which plays an essential role in regulating muscle protein synthesis)as compared to whey protein alone in older adults.[7]

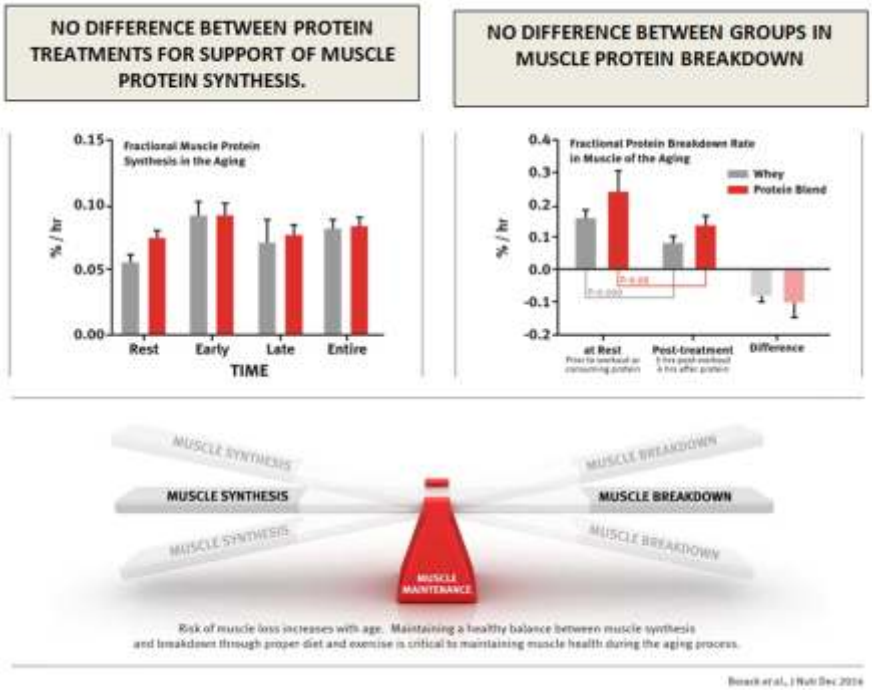
Following a fatiguing leg extension exercise session, the soy-whey-casein protein blend and whey protein provided a similar increase in blood amino acid concentrations four hours after consumption. At two hours after protein supplementation, the muscle protein fractional synthetic rate (FSR) was slightly elevated, although it was not significantly different between the two groups. Both groups reduced fractional muscle breakdown at four hours after supplementation (46 percent for whey and 42 percent for soy-dairy blend), leading the researchers to conclude that protein supplementation, whether a single protein isolate or a protein blend, can enhance lean muscle growth in older men after resistance training exercise. **(Fig 2)**

Soy Protein and Insulin Response

Healthy older adults may need higher levels of protein to support needs, due to changes in metabolism that occur during aging, such as anabolic resistance. The intake of high-quality dietary protein intake has been linked to the maintenance of lean tissue. However, higher intakes could also be insulinogenic.

The World Health Organization estimates that 8.5 percent of the world's adult population has diabetes. Lifestyle management, including dietary intervention,

FIGURE 2: Protein Supplementation Attenuates the Increase in Muscle Breakdown Commonly Observed



to prevent the incidence of metabolic syndrome and diabetes has been shown to be more effective than drug treatment alone. These are often the first line of treatment for the health consequences associated with metabolic syndrome, such as fatty liver, since lifestyle and dietary factors are major contributors to the onset of this condition. For example, managing plasma glucose through diet is a recommendation of the American Gastroenterological Association.

The acute effect of consumption of different sources and amounts of protein on glucose homeostasis was tested in healthy normal-weight Indians, a relevant population group, since they are at higher risk of developing metabolic syndrome and diabetes. In addition, this population tends to practice habitually low intake of high-quality protein.[8] This study suggests that different protein types (soy vs. whey) and dosesmay elicit different insulinogenic responses. This field of study may yield recommendations of preferred protein sources for those at greater risk for developing diabetes. As a source of high-quality protein that is low in fat, saturated fat and cholesterol-free, soy protein can improve dietary patterns that could impact the development of Type 2 diabetes and metabolic syndrome.[8]

How is this Emerging Research Connected?

Liver, kidney and gut health are all impacted by diet quality. Poor diets and sedentary lifestyles can lead to obesity and diabetes, which in turn, increase the risk of cardiovascular disease, non-alcoholic fatty liver disease and chronic kidney disease. Diet quality also impacts our gut bacteria. A poor diet can decrease the microbial diversity of the gut microbiome, increasing the incidence of dyslipidemia, adiposity, weight gain, insulin resistance, and inflammation.

A common denominator in all of these risk factors is the positive role soy protein can play in supporting both well-established areas of research such as weight management, cardiovascular health, improved blood lipid levels and insulin sensitivity, as well as the emerging areas of research highlighted in this article.

Adding lean, high-quality plant proteins, such as soy, to the diet can support overall health and wellness, particularly in managing metabolic syndrome (high blood pressure, high blood sugar, unhealthy cholesterol levels and excess fat in the abdomen), a risk factor in the development of cardiovascular disease and diabetes. The development of cardiovascular disease and diabetes, can, in turn, increase the risk of developing chronic kidney disease and non-alcoholic fatty liver disease.

References

1: Zhou, D. Fat Accumulation in the Liver of Obese Rats is Alleviated by Soy Protein Isolate through β-catenin signaling Obesity (Silver Spring). 2014 Jan; 22(1): 151–158.

2: Cain, J. Soy protein isolate modified metabolic phenotype and hepatic Wnt signaling in obese Zucker rats Horm Metab Res. 2011 Oct;43(11):774-81.

3: Panasevich, M.R. Soy compared with milk protein in a Western diet changes fecal microbiota anddecreases hepatic steatosis in obese OLETF rats.Journal of Nutritional Biochemistry 46 (2017) 125–136.

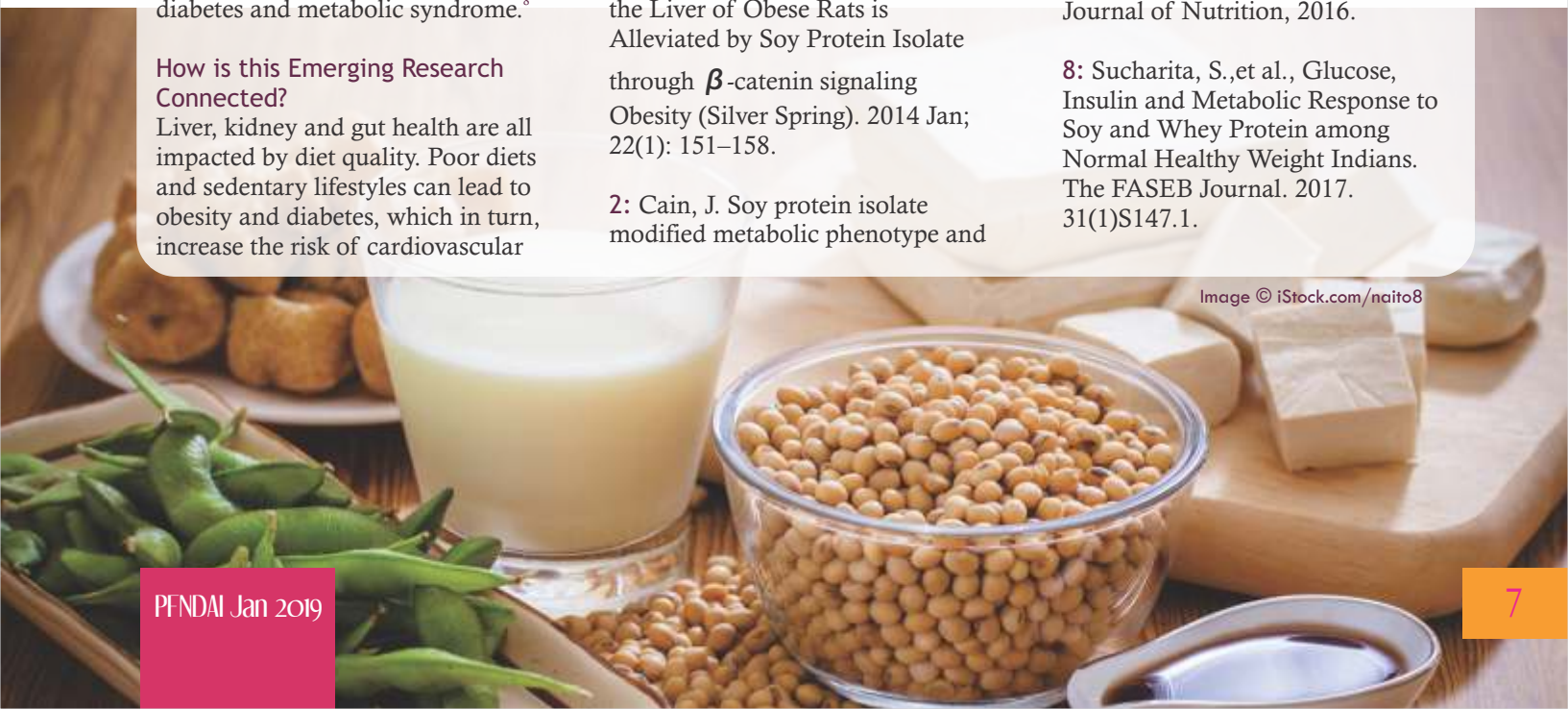
4: Butteiger D.N., et al. Soy Protein Compared with Milk Protein in a Western Diet Increases Gut Microbial Diversity and Reduces Serum Lipids in Golden Syrian Hamsters J Nutr. 2016 Apr;146(4):697-705.

5: McGraw, N.J., et al., Soy-based renoprotection. World J Nephrol. 2016 May 6;5(3):233-57. doi: 10.5527/wjn.v5.i3.233. https://www.ncbi.nlm.nih.gov/pubmed/27152261

6: Khairallah, R.J., et al. Chronic dietary supplementation with soy protein improves muscle function in rats. 2017, in press.

7: Borack, M.S., et al., Soy-Dairy Protein Blend or Whey Protein Isolate Ingestion Induces Similar Postexercise Muscle Mechanistic Target of Rapamycin Complex 1 Signaling and Protein Synthesis Responses in Older Men. The Journal of Nutrition, 2016.

8: Sucharita, S.,et al., Glucose, Insulin and Metabolic Response to Soy and Whey Protein among Normal Healthy Weight Indians. The FASEB Journal. 2017. 31(1)S147.1.



CHANGING THE REGULATORY ENVIRONMENT IN INDIA

By
Dr. JI Lewis,
Food Regulatory Consultant & Vice Chairman, Regulatory Affairs Committee, PFNDAI

Image © iStock.com/eskaylim

Food laws rest on two distinct frameworks; food adulteration (PFA) and the other, risk based (science) food safety.

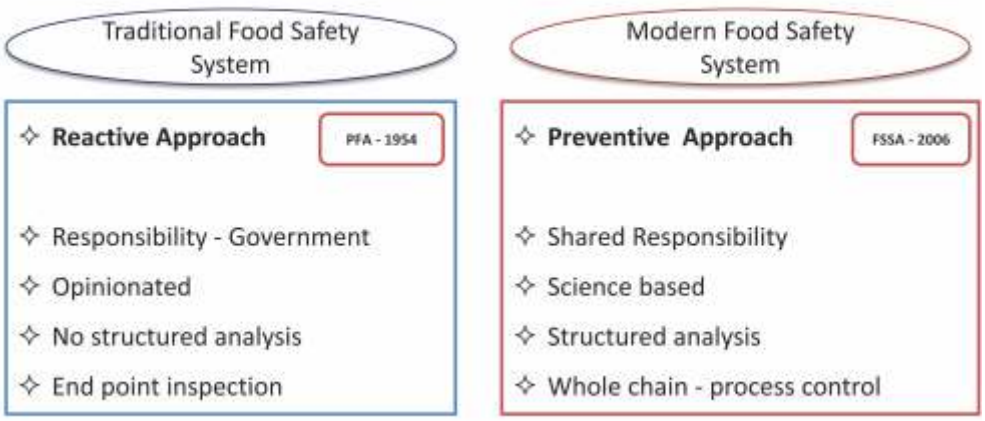
The PFA is essentially reactive in nature, routinely activated throughinspecting and testing for product failure and finally to prosecutions; they fall short in design for protecting the consumer. A food law intended for consumer protection must be predictive; for this, it needs a mechanism to prevent unsafe foods from being sold or consumed. It may be far easier to repeallaws than to replace them, especially when frameworks are being changed **(Fig.1)**. Usually governments are reluctant make dramatic changes in institutional frameworks; amendments to the old compensate for lacunae and the institution moves on - so why the change?
Did it foresee the irrelevance or insufficiency of the existing law in pursuing a higher social purpose for its citizens? Replacing the labyrinth of conflicting and complex lawmaking structures, was apparent and begging for attention. But it (government) endeavored to go beyond merely replacing the monolithic PFA and its 'eco-system'. It desired a modern science based framework.

If the Act's mandate is to be fulfilled, five decades of deeply embedded thought and behaviour **(Fig. 2)** has to be replaced with new thinking. The mandate is for reform; not relief. Reform is about replacing an ineffective system; relief is finding reasons for its continuance.
For transformational change, the Act provides several " tools and mechanisms"; organizational structures, functional roles, job descriptions, outputs required (sections 13,14,15, 18), systems support (section 16) and decision-making procedures (section 18), to be followed. Interestingly it even mandates training of regulatory safety officers and food business operators. These are significant changes in the new regulatory eco-system.

Change required: Organization structure

Implementing the Act goes beyond arranging hierarchical structures on an organizational chart; more attention is to be given to their competencies. The model can only function by deploying personnel with relevant role based skills. The FSSAI shares the same regulatory model as the Codex or EU (Fig 3); virtually mirroring operating structures and procedural mandates. Every visiting Indian delegate to the Codex would know this. The question now is whether Scientific Panels and Committee are functioning as per role? It is not merely about appointing a few hundred scientists; it is about whether the tools specified for risk assessment (method) are being followed. The change lies in the method applied to science.

Fig.1



FAO WHO: Food Safety Risk Analysis: Characterization of Food Safety Systems: Part I: Framework Manual

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Fig 2. Fundamentals of the change ....

Trait	Adulteration	Food Risk
Way of thinking	Prosecution	Public safety and health
Way of work	Standards setting	Process setting (FSMS)
Way of behaviour	Enforcement - failure	Enablement - risk reduction
Way of measure	Outputs- Prosecutions	Outcomes - safety and health

A method – if transparent- demonstrates for all to see how scientists in the Panels/Committee in a comprehensive step-wise manner assess risk arising from an unsafe substance (hazard). Virtually unpublished for the past seven years are scientific opinions in spite of being a mandate of the Act. The PFA, in comparison was more transparent in sharing agenda and minutes of the Sub-Committees and the Central Committee on food standards (CCFS) .

Other important inclusions in the Act are duties imposed under Section 16; a few may be mentioned; e.g. food category system for allocation of food additives; total diet study to determine human exposure to additives, contaminants and residues through food consumption, risk based inspections, data support systems etc.

Modern food laws rely on data support systems; an illustrative example is of enforcement. Delhi FDA (GNCT) collects and collates market failures (test reports) in an electronic database; apparently, it is the only enforcement agency to do so - since 2011. If adopted by FDA's in the country and – with minor add-ons – a national map of food failures by State, food sector, product type and the failing standard would be available on a monthly basis. A risk-based approach would then prioritize oversight, activate target-based inspections and reduce failures on an annual basis plan. Data collation may not be perfect, but it provides enough for good inspection decisions. For example, inspections could become routine tasks; analysis over a 50-month compared with and a 12-month slice indicates this is the case **(Fig 3)**.

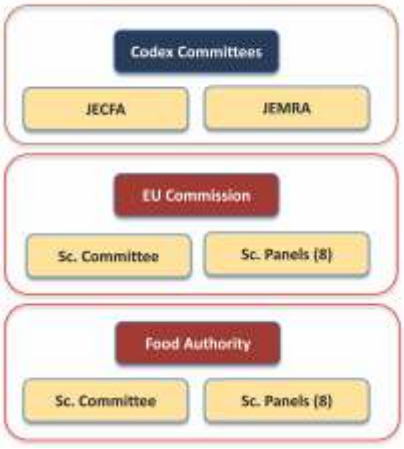
A category wise trend analysis could identify non-compliant categories (e.g. dairy, etc.), the non-compliantproduct (e.g. liquid milk) and the repetitive failing standard(e.g. solids no fat - SNF). If the same trend occurs nation-wide, this would then trigger off an "area of concern"(AOC). An AOC requires a comprehensive review of the standard, measurement reproducibility, FBO enrolment (understanding why compliance is low) targeted inspections or surveillance with designed focus. Assigning time and resources to resolving a perennial failure is the best way for removing the failure itself.

Change required: 360 degree training

FBO's are primarily responsible for placing safe foods on the market, which means that the food supply chain (comprising multiple FBO's) must pass on safe foods up the chain from raw agricultural produce to the marketed product.

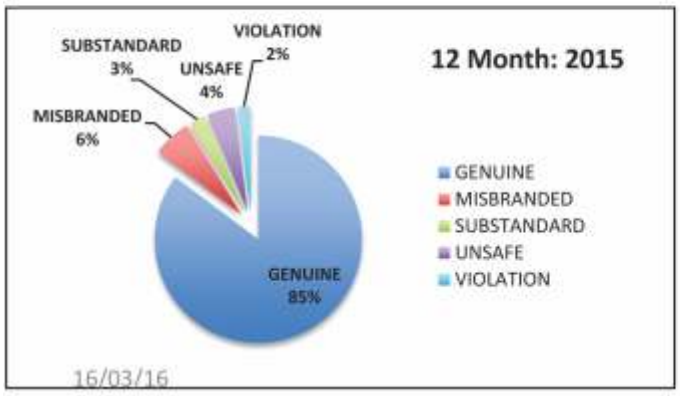
Interestingly, a duty is imposed on the FSSAI under section 16, to provide "training programs in food safety and standards" for persons whether as food business operators or employees or otherwise. Similarly Commissioners of Food Safety of the State must train its personnel on a wider scale for different segments of the food chain. Obviously the objective of the two trainings is to bring about consistency in interpretation and compliance requirements between the FSO and the FBO; the two programs cannot be at diverse intents.

Fig 3. Structure and Function



- **Separation of Expertise**
  - Science (risk assessment)
  - Rulemaking (risk management)
- **Procedures underpin decision making**

Fig. 4: Trends in Product Failures




FROM 5/8/2011 TO 15/3/2016

Sl No.	Food Category	Total No. Of Sample Taken	Result Declared	Result Awaited	Genuine	Misbranded	Substandard	Unsafe	Violation
1	Beverages (Other than Dairy and Fruits & Vegetable based)	155	155	0	147	4	1	3	0
2	Cereal and Cereal Products	665	665	0	600	34	11	19	1
3	Dairy Products and Analogues	1491	1491	0	1349	10	130	2	0
4	Fats, Oils and Fat Emulsions	930	929	1	898	12	17	1	1
5	Fish and Fish Products	2	2	0	2	0	0	0	0
6	Fruits and Vegetable Products	347	347	0	316	14	10	6	1
7	Irradiation of Food	3	3	0	3	0	0	0	0
8	Meat and Meat Products	3	3	0	3	0	0	0	0
9	Non Standard	2658	2658	0	2227	129	27	216	59
10	Other Food Products and Ingredients	34	34	0	25	5	1	3	0
11	Salt, Spices,Condiments and related Products	976	976	0	920	20	15	12	1
12	Sweetening Agents Including Honey	65	65	0	55	4	1	5	0
13	Sweets and Confectionery	78	78	0	61	9	2	2	4
GRAND TOTAL		7407	7406	1	6614	283	225	269	67

FROM 1/1/2015 TO 31/12/2015

Sl No.	Food Category	Total No. Of Sample Taken	Result Declared	Result Awaited	Genuine	Misbranded	Substandard	Unsafe	Violation
1	Beverages (Other than Dairy and Fruits & Vegetable based)	32	32	0	30	2	0	0	0
2	Cereal and Cereal Products	157	157	0	133	15	2	7	0
3	Dairy Products and Analogues	291	291	0	271	1	19	0	0
4	Fats, Oils and Fat Emulsions	151	150	1	139	4	6	0	1
5	Fruits and Vegetable Products	62	62	0	58	0	1	2	1
6	Irradiation of Food	1	1	0	1	0	0	0	0
7	Meat and Meat Products	2	2	0	2	0	0	0	0
8	Non Standard	760	760	0	601	65	6	57	31
9	Other Food Products and Ingredients	7	7	0	3	3	1	1	0
10	Salt, Spices,Condiments and related Products	192	192	0	174	10	1	3	0
11	Sweetening Agents Including Honey	12	12	0	8	1	0	3	0
12	Sweets and Confectionery	13	13	0	11	1	1	0	0
GRAND TOTAL		1680	1679	1	1431	101	41	77	33

FSSAI's has conceived a well-structured program, the Food Safety Training and Certification (FOSTAC). However, well-intentioned initiatives fall into activity traps with participation merely for the sake of certification; and true purpose is lost. Training should be measured by its contribution to the ultimate reduction in non-compliances through better understanding of regulatory obligations. Under the new mandate both the regulator and the regulated share equal responsibility for food safety; the latter in assuring placement of safe food on the market and the former's obligation to enable broad compliance. FOSTAC is an excellent initiative, under mandate of the Act; it should be nurtured to its true potential.

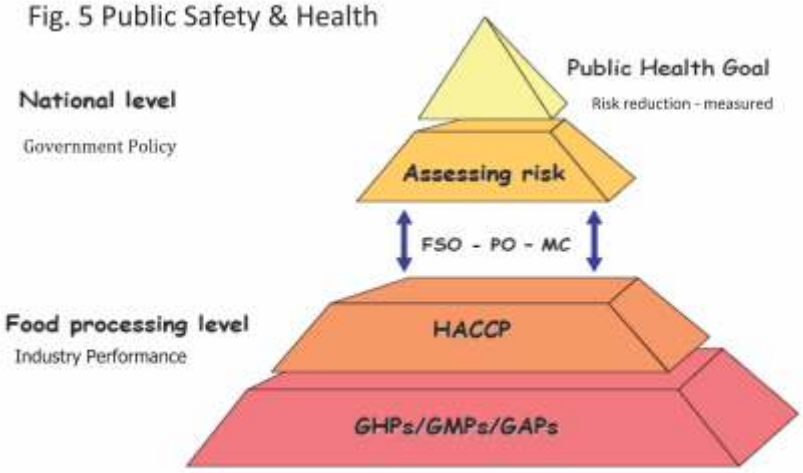
Change required: Engagement quality

Regulated industry deserves better listening by the regulator while preparing a notice of an impending regulation. A reading of section 18(d) of the Act specifically says so: "open and transparent public consultation, directly or through representative bodies including all levels of panchayats, during the preparation, evaluation and revision of regulations". . Perhaps there is some amount of diffidence and trust deficit to be overcome for better engagement. Engagement needs certain formality, firstly, the affected sector (artisan) should be heard for an understanding of the concerns and unrelated multitudinal sector representations limited; secondly issue-comment deliberations must be supported by 'relevant science", "established evidence", and pertinent to the specific issue; thirdly whether the input is accepted or rejected a well-reasoned response should be given. Transparent public consultation can only strengthen the rulemaking process if it is done at the beginning rather than after public notice. Walking back a gazette draft is never easy. How to engage during rulemaking may be a case for training.

Change required: Public health goals

Food safety is not about presence or exceedance of prescribed limits for chemical substances (metallic contaminants, residues, toxins etc.). More than 80% of food borne illnesses is due to microbial contamination. The traditional method of setting microbial limits for raw and/or finished products is outdated. Microbial limits are not product attributes - like moisture or solids non-fat - they are indicators of risks in processing and supply chain delivery. A food safety system (FSSA) based on preventing risks cannot work merely on standards setting. Realizing these shortcomings and lack of food safety assurance provided by traditional inspection and sampling/testing, new tools are to be installed under the all-encompassing FSMS (includes GAP, GMP, GHP and HACCP). FSMS must deliver to an objective; a public health goal **(Fig. 4)**.

Fig. 5 Public Safety & Health



FSO's and PO's are distinct levels of food borne hazards that cannot be exceeded (www.icmsf.org). The FSMS system of each and every FBO's in the particular product supply chain partners in the achievement of the public health goal.

Several countries declare public safety and health goals, as shown in **Fig. 6**.

The Act provides all the tools to transform the regulatory environment. Is there space in the work routines of stakeholders to contemplate and collaborate to accelerate the change we wanted?

Governments determine public goals and typically stated as "number of cases per 100,000 populations **(Fig. 5)**, being the "appropriate level of protection" (ALOP). To be meaningful at an operational level ALOP is translated into a "food safety objective" (FSO) so that FBO's in the supply chain know the parameters to be achieved for the ALOP.

However processors down the supply chain at each point (supply-receiver) sets limits, - performance level (PO) - to be achieved for the food to comply with the stated FSO.

Fig. 6 Food Safety Objective

Country	Food Safety Objective	Public Health Goal
UK	Campylobacter (broiler chicken)	50% test positive (reduction 5 year)
US	Reduction trans 5.8 < 1-2g/day	Could prevent 20,000 heart attacks
NZ	Campylobacter	50% - 160 to 80 per 100000 (reduce 5 year)

Image © iStock.com/Pixfly

THE UNTAPPED POTENTIAL OF INDIAN HERBS: NUTRACEUTICALS AND FUNCTIONAL FOODS

By
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Head-Phytochemistry-R&D
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India has 15 Agroclimatic zones with rich biodiversity of western ghats, western and eastern Himalayas and having 17,500 flowering plant species of total 45,000 flora remaining untapped potential of botanicals for developing nutraceuticals and functional foods. Out of these 17,500 species, 7500 species are known to be used in traditional systems of medicine including Ayurveda, Siddha, and Unani etc.

Approximately 5000 species of plants were systematically screened and documented for biological activities by the leading research institutes in India. There are about 950 medicinal plants in trade and thousands of medicinal plants are not explored for their potential benefits.

Approximately 65% of the new drugs are directly or indirectly inspired from the natural products. The huge cost and time consuming process of conventional drug discovery process has diverted its focus on natural products as short cut route for enhancing the success rate of new chemical entities as potential drug molecules. As a result we have Taxol, Vincristine, Vinblastine, and Artemisinin etc as successful drugs in the market. From the beginning, medicinal chemists and drug discovery professionals looked herbs as factories of molecules and did not understand the offering of herbs in depth and thereby missed the very important aspect of holistic approach and total spectrum of phytocompounds in herbs. This has resulted into the development of these natural drugs with adverse side effects and drug resistance and poor bioavailability etc.

With the increase in life expectancy and subsequent increase in life style diseases, nutraceuticals and functional foods have become necessity in the developed world and mostly in the urban areas of developing countries. The high cost of healthcare and follow up effects of recession in the developed world led the consumers towards nutraceuticals and dietary supplements to remain healthy and avoid treatment costs. It is expected that nutraceutical market would reach upto 5 trillion dollars by 2050 worldwide from the current market size of approximately 450 billion dollars.

Remember last time when you pick up few Tulasi leaves for your tea, a spoonful turmeric powder for your recipe, a piece of cinnamon for garam masala and bunch of neem leaves in the bath tub but we always see these herbs as a whole and herbs deliver wonderful benefits. In the perspective of modern science, it is always believed that purified compounds in the herb that deliver these benefits and only responsible for therapeutic activity. The Turmeric milk one of the best house hold remedy for cold and cough in the winters particularly is now popular as Golden milk and Turmeric latter in the western world. It deliver the benefits from the total spectrum of phytocompounds viz Curcumin, Curcuminoids, Turmerones and Polysaccharides in the Turmeric powder.

In general, herbs comprise hundreds of phytocompounds that not only possess biological activities but also show synergy, minimizing toxic effects, improving bioavailability and also as building blocks of the dosage form. Researchers should consider developing standardized extracts and semipurified fractions as options while developing herbal actives for functional foods and nutraceuticals. Herbal actives carry its own odor, taste and colour and so it is utmost important that formulator to consider these parameters before optimizing the formula.

So far it sounds good, but the most difficult part of herbal research is the identification of herbs correctly. There are many vernacular names for each herb at different places and thereby leading to unintentional adulteration. It is also observed that intentional adulteration and substitution leading to low quality and threatening the safety and efficacy of herbal products. With the advancement in the plant molecular biology, the DNA fingerprinting and barcoding would be the upcoming quality assessment of authenticity. Herbal extracts manufacturing companies should have three tier quality approach with Pharmacognosy, DNA barcoding and Chemical analysis to ensure the quality of herbal extracts.

Globally, there is growing concern by consumers on synthetic ingredients and preservatives leading to paradigm shift from conventional synthetic ingredients towards natural ingredients, organic foods, dietary supplements and beverages. Consumers are now moving towards nutraceuticals, functional foods and dietary supplements that are developed from natural, organic and non-GMO botanicals which are free from synthetic preservatives and excipients. These opportunities will positively push the herbal research boundaries into nutraceutical and functional foods and capitalize the huge potential of untapped medicinal herbs of India.

COMING EVENTS

India Food Forum
February 5-6, 2019
Renaissance Hotel, Mumbai
W: www.indiafoodforum.com

XIV Agricultural Science Congress
February 20-23, 2019
National Agricultural Science Complex, N Delhi
Expo at Mela Ground IARI, N Delhi
T: +91 11 4354 2737
E: asc2019delhi@gmail.com
Expo: ascindiaexpo@gmail.com
W: 14agricongress2019.in

Food Tech Pune 2019
February 23-24-25, 2019
HA Exhibition Ground
Pimpri, Pune
T: 011-2953 5593/5872
E: foodtechpune@gmail.com
W: www.foodtechpune.com

4th Intl Congress on Advances in Food Chem& Tech
February 25-26, 2019
J W Marriott Hotel Dubai, UAE
T: 4084292646
E: foodchemistry@pulsusevents.org

IIDE 2019
Indian International Dairy Expo
April 3-5, 2019
Bombay Exhibition Centre, Mumbai
T: +91 22 2871 5201
E: v.thosar@koelnmesse-india.com

3rd Intl Conference on Food & Nutritional Sci
April 15-17, 2019
Paris, France
E: contact@foodscienceconference.org

Nutraceuticals 2019
April 22-23, 2019
Osaka, Japan
E: nutraceuticals@annualmeetings.net

5th Intl Conf on Food & Beverages
April 22-23, 2019
Osaka, Japan
E: food@annualmeetings.net

Vitafoods Europe
A Brave New World in Nutrition & Food Safety
May 7-9, 2019
Palexpo, Geneva
E: info@informaexhibitions.com
W: www.vitafoods.eu.com

Frontiers in Food Safety & Nutrition
May 13-15, 2019
Brussels, Belgium
E: foodsafety1010@gmail.com

IFT Food Expo
June 2-5, 2019
New Orleans, USA
W: www.ift.org

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Country website : www.vista-osi-group.com
Global Website : www.osigroup.com

(ADVERTISEMENT AND CLAIMS) REGULATION, 2018

Comments: We asked some of our members to give comments on the recent regulation notified by FSSAI and some have given their comments. We are giving some which we have received. These are the members' views and not necessarily ours. Thanks.

Comments by
Mr. Kiran Desai,
Regulatory Manager- IFCN,
Reckitt Benckiser

1. Clarity in regulation-

Though the object of the regulation has not been mentioned it appears that the regulation aims to govern the claims associated with the food constituents, their properties and the potential benefits to the consumer. The regulation defines the various types of claims which can be made on the food and stipulates the conditions which need to be satisfied for making a particular claim.

2. Contradiction with Global regulations.

To a large extent the Advertising and Claims regulation has been harmonized with the Codex Guidelines [CAC/GL 23-1997]. In addition some of the regional/national standards have been adopted which could be relevant to the current practices in India e.g. Standards for MUFA, PUFA, Omega 3 fatty acids from European Commission. The Advertising and Claims regulationis in sync with Global regulations albeit with some inconsistencies. e.g. In Schedule I the conditions on a 'per serving' basis for Nutrition Claimshas been omitted, in the Schedule III the table is titled as Health Claims instead of Reduction of Disease Risk Claims which is referenced in regulation 7(3). Saving some inconsistencies which hopefully will get addressed, overall the regulation embraces the global best practices.

3. Are some areas not covered?

The enforcement mechanism ought to be predictable to protect the investments and the goodwill of products and brands built over the years.The regulation lays down the procedure for analysing misleading claims (regulation 14). However it does not define the objective process of evaluation of such claims. Robust evaluation process based on sound scientific principles would help ensure unbiased and consistent outcomes. The objective criteria & considerationsfor the systematic review of the scientific evidence needs to be defined for consistent outcomes. Based on this criteria the checklist & decision tree may be developed &notified.

4. Improvements over previous regulation

The new regulation stipulates conditions & provisions for making various types of claims which were missing in the previous regulation. It also list out the general principles to be observed by marketer while advertising and disseminating marketing communication meant for promotion and sale of the article.

5. Do they adequately allow benefits of ingredients or nutrients to be communicated.

The nutrition and health claims help FBO to communicate the benefits that the food or its ingredients can offer thus enhancing the value to the consumer. The regulation appears to be liberal on communication about ingredients & nutrient benefits. It provides uniform framework across different categories of foods for communication of key nutritional information.

6. Any restrictions.

One of the notable restriction mentioned in the regulation is the advertisements and claims in respect of food meant for infants need to comply with the Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act, 1992 (41 of 1992) Act).

7. Would you prefer any changes.

In regulation 11 the prior approval of reduction of disease risk claims has been insisted & in regulation 12 the procedure for approval of claims is provided (which appears to be the procedure for approval reduction of disease risk claims). Hence the scope of this procedure needs to be mentioned unequivocally in regulation 12. Besides this in Schedule I the conditions on a 'per serving' basis need to be introduced for Nutrition Claims consistent with Codex Guidelines, and in the Schedule III the title of the table needs to be changed to Reduction of Disease Risk Claims instead of Health Claims.

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Mumbai Pav Bhaji ka mazaa ab oats mein.

For creative representation only.

Ready in 3 minutes

[1]Research shows that diets high in fibre help in weight management. Oats are a high fibre wholegrain breakfast and hence a smarter option than refined cereals. Saffola encourages you to exercise regularly, follow a healthy lifestyle and consume a diet low in saturated fat, cholesterol and sodium to keep your body fit.

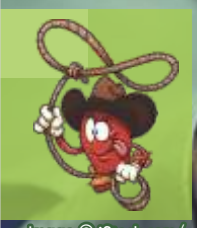

Image © iStock.com/ memoangeles

REGULATORY ROUND UP

By
Dr. N. Ramasubramanian,
VR Food Tech Private Limited
n.ram@vrfoodtech.com

Image © iStock.com/Warchi

Dear Readers

Please find below a few orders put out by FSSAI since our last round up.

I take this opportunity to reiterate the importance of draft regulation in the scheme of regulatory compliance. Draft regulation proposes either amendment of the existing or introduction of new standards. Draft regulation should be studied in detail to assess its impact on one's product and processes. It will trigger development, in case the draft introduces new ingredients and additives.

Product compliance must be addressed in case change is proposed in the limits of contaminants, MRLs, etc. The draft regulation also gives an opportunity for advocacy and suggesting changes to the regulatory body. It is important that suggestions are scientifically substantiated. The general tendency in the Industry is to ignore or not study the draft but run pillar to post once it is notified as the final regulation. Let us move from the fire fighting mode to management mode by taking draft regulation seriously.

FSSAI regularly publishes consolidated regulations which includes all the final notifications. One way keep yourself updated.

Readers are also encouraged to visit BIS sites and look for draft changes in food products which are under mandatory BIS certification.

FSSAI in its recent order dated 22 January 2019 notes that health supplements with gelatin capsule carry a vegetarian logo. The order advices the food business operators to use appropriate vegetarian/non vegetarian logo.

FSSAI permits rectification of certain labelling declarations in the imported alcoholic which are India specific. These changes are permitted to be carried out at the Customs bonded warehouse.

"I have chosen Enfagrow A+ to help my child's brain development. Have you?"

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Available at: Apollo, spencer's, MedPlus, Fortis Healthworld, amazon.in, firstcry, big basket, babyoye and at leading chemist stores.

^DHA PLUS is a blend of key brain building nutrients like DHA and other nutrients like Choline, Protein, Iron, Iodine, Zinc, Folic acid, Vitamin B12, Vitamin B6 & Thiamine. *Mead Johnson & Company claim based in part on data reported by Nielsen through its retail measurement service for the Children Nutrition Milk Formula category for the 12 month period ending December, 2015 for 28 markets. Copyright© 2016 The Nielsen Company. For details refer www.enfagrow.co.in **Terms & Conditions apply. Sample delivery at the discretion of Mead Johnson Nutrition.

RESEARCH IN HEALTH & NUTRITION

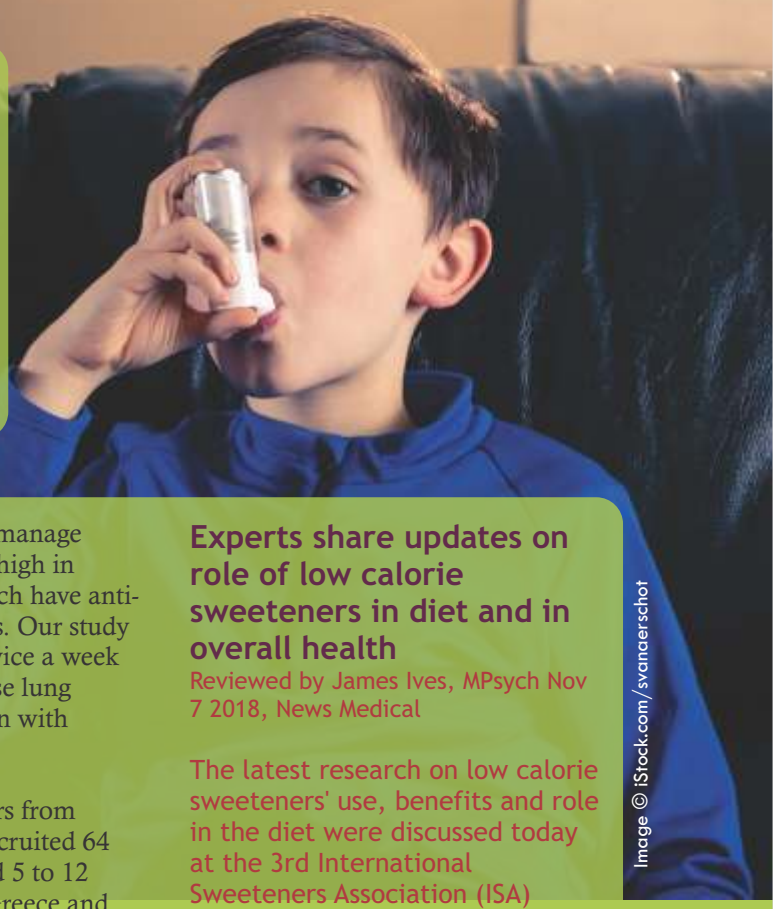

Image © iStock.com/svanaerschot

Trial shows fish-enriched diet may reduce childhood asthma symptoms

News Medical Nov 5 2018 By Sally Robertson, B.Sc.

A study led by La Trobe University has shown that eating fish such as sardines, salmon and trout twice a week can reduce asthma symptoms in children. The international clinical trial found that children who ate the fatty fish as part of a healthy Mediterranean diet had improved lung function after six months.

Lead researcher Maria Papamichael says the findings add to a growing body of evidence that following a healthy diet could serve as a way of combating childhood asthma symptons. Co-supervisor of the trial, Bircan Erbas says asthma is the most common respiratory disease in young people and a leading reason for hospitalisations and trips to emergency among children. Unfortunately, the rate of asthma worldwide remains high. It is imperative that we identify new therapies that we can use alongside conventional asthma medications." Bircan Erbas, Trial Co-supervisor.

Papamichael says scientists were already aware that a diet rich in fat, salt and sugar can enhance the progression of childhood asthma, but the current study now provides evidence that healthy eating could be used as therapy to help manage symptoms. Fatty fish is high in omega-3 fatty acids which have anti-inflammatory properties. Our study shows eating fish just twice a week can significantly decrease lung inflammation in children with asthma."

For the study, researchers from Australia and Greece recruited 64 asthmatic children (aged 5 to 12 years) from Athens in Greece and divided them into two groups. About one half were instructed to consume two meals a week containing at least 150 grams of fatty fish as part of the Greek Mediterranean diet and the remainder were asked to stick to their usual diet.

After six months, the researchers found that bronchial inflammation in the children who ate the fish-enriched diet had reduced by 14 units. Any reduction greater than 10 units is considered significant, according to international guidelines. Following a traditional Mediterranean diet that is high in plant-based foods and oily fish could be an easy, safe and effective way to reduce asthma symptoms in children." Catherine Itsiopoulos, Co-researcher

Experts share updates on role of low calorie sweeteners in diet and in overall health

Reviewed by James Ives, MPsych Nov 7 2018, News Medical

The latest research on low calorie sweeteners' use, benefits and role in the diet were discussed today at the 3rd International Sweeteners Association (ISA) Conference in London, themed "The science behind low calorie sweeteners: where evidence meets policy".

With the mission to inform on the most up-to-date nutritional and scientific information on low calorie sweeteners, the ISA invited 17 internationally renowned experts to share updates on the role of low calorie sweeteners in the diet and in overall health.

• Opening the conference with a keynote speech, Prof Adam Drewnowski, Director of the Center for Public Health Nutrition at the University of Washington, Seattle, USA, presented recent studies

Image © iStock.com/gilaxia

showing that low calorie sweeteners' use is related to a higher overall diet quality and can help people meet nutrition recommendations to reduce excess sugar intake.

• During a session on the role of low calorie sweeteners in weight management, current evidence was shown to support the intended benefits of low calorie sweeteners as being helpful in reducing excess calories from sugars and thus in weight loss. Presenting for the first time outcomes of network and pairwise meta-analyses of randomised controlled trials, which provide a better protection against bias, Dr John Sievenpiper, Associate Professor at the University of Toronto, Canada, concluded that low calorie sweeteners have the intended benefit and clarified that one shouldn't expect that low calorie sweeteners will cause weight loss by themselves, but can be useful if used to replace sugars leading to a reduction of energy intake over sufficient periods of time.
• A topical subject covered during the third session of the ISA conference was the role of low calorie sweeteners in diabetes management. The discussion evidenced that replacing sugar with low calorie sweeteners can also be a helpful strategy to aid glucose control in people with diabetes. Reviewing all available published data, Dr Hugo Laviada-Molina, a clinical endocrinologist and Professor at the Marist University of Mérida, Mexico, concluded that, "Evidence from human clinical trials confirm that low calorie sweeteners do not affect blood glucose levels and other indexes of glycaemia". Moreover, addressing the much-debated topic of low calorie sweeteners and gut microbiota, Prof Ian Rowland, Professor at Reading University, UK, concluded that, while frequently discussed in media, current evidence does not support that low calorie sweeteners have adverse effect on insulin sensitivity or on overall health via impact on gut microbiota.

Throughout the day, experts emphasised that the safety of approved low calorie sweeteners has been repeatedly confirmed by regulatory authorities around the world such as the Joint Food and Agriculture Organization (FAO)/ World Health Organization (WHO) Expert Committee on Food Additives (JECFA), the US Food and Drug Administration (FDA) and the European Food Safety Authority (EFSA). Dr Rebeca López-García, an experienced consultant toxicologist from Mexico, noted that "We can be confident about the safety of low calorie sweeteners currently approved for use in foods and beverages, as all sweeteners have undergone rigorous safety evaluations by food safety authorities prior to their approval for use, resulting in the assignment of an Acceptable Daily Intake (ADI)."

The conference ended with a lively panel discussion aiming at addressing the role of low calorie sweeteners in sugar reduction from a public health perspective. As summarised by the chair of the session, Prof Peter Rogers, Professor of Biological Psychology at the University of Bristol, UK, the panel speakers concluded that: "By replacing sugars, low calorie sweeteners can be a useful tool for food reformulation and a helpful way, among a pool of other strategies, for managing current issues of public health concern, notably sugar reduction and obesity". With this conclusion in mind, the ISA will continue to work, together with other stakeholders, to make sure that positive solutions will be find to the global challenges posed by non-communicable diseases.

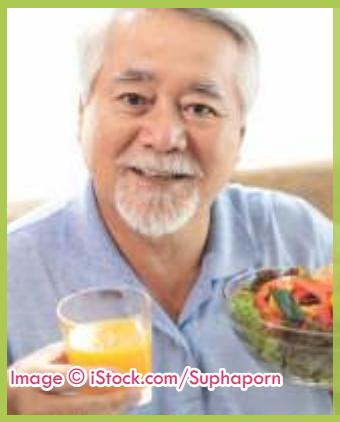
Image © iStock.com/Suphaporn

Orange juice, leafy greens and berries may be tied to decreased memory loss in men

Science Daily November 21, 2018

Eating leafy greens, dark orange and red vegetables and berry fruits, and drinking orange juice may be associated with a lower risk of memory loss over time in men, according to a study published in the November 21, 2018, online issue of Neurology®, the medical journal of the American Academy of Neurology.

"One of the most important factors in this study is that we were able to research and track such a large group of men over a 20-year period of time, allowing for very telling results," said study author Changzheng Yuan, ScD, of Harvard T.H. Chan School of Public Health in Boston. "Our studies provide further evidence dietary choices can be important to maintain your brain health."

The study looked at 27,842 men with an average age of 51 who were all health professionals. Participants filled out questionnaires about how many servings of fruits, vegetables and other foods they had each day at the beginning of the study and then every four years for 20 years. A serving of fruit is considered one cup of fruit or ½ cup of fruit juice. A serving of vegetables is considered one cup of raw vegetables or two cups of leafy greens.

Participants also took subjective tests of their thinking and memory skills at least four years before the end of the study, when they were an average age of 73. The test is designed to detect changes that people can notice in how well they are remembering things before those changes would be detected by objective cognitive tests. Changes in memory reported by the participants would be considered precursors to mild cognitive impairment. The six questions include "Do you have more trouble than usual remembering a short list of items, such as a shopping list?" and "Do you have more trouble than usual following a group conversation or a plot in a TV program due to your memory?"

A total of 55 percent of the participants had good thinking and memory skills, 38 percent had moderate skills, and 7 percent had poor thinking and memory skills. The participants were divided into five groups based on their fruit and vegetable consumption. For vegetables, the highest group ate about six servings per day, compared to about two servings for the lowest group. For fruits, the top group ate about three servings per day, compared to half a serving for the bottom group.

The men who consumed the most vegetables were 34 percent less likely to develop poor thinking skills than the men who consumed the least amount of vegetables. A total of 6.6 percent of men in the top group developed poor cognitive function, compared to 7.9 percent of men in the bottom group.

The men who drank orange juice every day were 47 percent less likely to develop poor thinking skills than the men who drank less than one serving per month. This association was mainly observed for regular consumption of orange juice among the oldest men. A total of 6.9 percent of men who drank orange juice every day developed poor cognitive function, compared to 8.4 percent of men who drank orange juice less than once a month. This difference in risk was adjusted for age but not adjusted for other factors related to reported changes in memory.

Image © iStock.com/tolgart

The men who ate the most fruit each day were less likely to develop poor thinking skills, but that association was weakened after researchers adjusted for other dietary factors that could affect the results, such as consumption of vegetables, fruit juice, refined grains, legumes and dairy products.

The researchers also found that people who ate larger amounts of fruits and vegetables 20 years earlier were less likely to develop thinking and memory problems, whether or not they kept eating larger amounts of fruits and vegetables about six years before the memory test. The study does not show that eating fruits and vegetables and drinking orange juice reduces memory loss; it only shows a relationship between them.

A limitation of the study was that participants' memory and thinking skills were not tested at the beginning of the study to see how they changed over the course of the study. However, because all participants completed professional training, they can be assumed to have started with relatively high cognitive function in early adult life. In addition, the study participants were all male health professionals such as dentists, optometrists, and veterinarians. Thus, the results may not apply to women and other groups of men.

Omega-3 fatty acids reduce the risk of premature birth

Science Daily November 15, 2018

A new Cochrane Review published today has found that increasing the intake of omega-3 long-chain polyunsaturated fatty acids (LCPUFA) during pregnancy reduces the risk of premature births.

Premature birth is the leading cause of death for children under 5 years old worldwide, accounting for close to one million deaths annually. Premature babies are at higher risk of a range of long-term conditions including visual impairment, developmental delay and learning difficulties.

“We know premature birth is a critical global health issue, with an estimated 15 million babies born too early each year," explains Associate Professor Philippa Middleton from Cochrane Pregnancy and Childbirth and the South Australian Health and Medical Research Institute (SAHMRI). "While the length of most pregnancies is between 38 and 42 weeks, premature babies are those born before the 37-week mark -- and the earlier a baby is born, the greater the risk of death or poor health.”

Associate Professor Middleton and a team of Cochrane researchers have been looking closely at long-chain omega-3 fats and their role in reducing the risk of premature births – particularly docosa-hexanoic acid (DHA) and eicosa-pentanoic acid (EPA) found in fatty fish and fish-oil supplements. They looked at 70 randomised trials and found that for pregnant women

increasing the daily intake of long chain omega-3s:

- lowers the risk of having a premature baby (less than 37 weeks) by 11% (from 134 per 1000 to 119 per 1000 births)
- lowers the risk of having an early premature baby (less than 34 weeks) by 42% (from 46 per 1000 to 27 per 1000 births)
- reduces the risk of having a small baby (less than 2500g) by 10%

"There are not many options for preventing premature birth, so these new findings are very important for pregnant women, babies and the health professionals who care for them," Associate Professor Middleton says. "We don't yet fully understand the causes of premature labour, so predicting and preventing early birth has always been a challenge. This is one of the reasons omega-3 supplementation in pregnancy is of such great interest to researchers around the world."

The Cochrane review published today was first undertaken back in 2006, and concluded there wasn't enough evidence to support the routine use of omega-3 fatty acid supplements during pregnancy. Over a decade on, this updated review concludes that there's high quality evidence for omega-3 supplementation being an effective strategy for preventing preterm birth.

"Many pregnant women in the UK are already taking omega-3 supplements by personal choice rather than as a result of advice from health professionals," says Associate Professor Middleton. "It's worth noting though that many supplements currently on the market don't contain the optimal dose or type of omega-3 for preventing premature birth. Our review found the optimum dose was a daily supplement containing between 500 and 1000 milligrams (mg) of long-chain omega-3 fats (containing at least 500mg of DHA) starting at 12 weeks of pregnancy."

"Ultimately, we hope this review will make a real contribution to the evidence base we need to reduce premature births, which continue to be one of the most pressing and intractable maternal and child health problems in every country around the world."

Eat your vegetables (and fish): Another reason why they may promote heart health

Fish and gut bacteria-produced compound both protect hypertensive rats from heart disease

Science Daily November 6, 2018

Elevated levels of trimethylamine N-oxide (TMAO) -- a compound linked with the consumption of fish, seafood and a primarily vegetarian diet -- may reduce hypertension-related heart disease symptoms.

New research in rats finds that low-dose treatment with TMAO reduced heart thickening (cardiac fibrosis) and markers of heart failure in an animal model of hypertension. The study is published ahead of print in the American Journal of Physiology -- Heart and Circulatory Physiology and was chosen as an APSselect article for November.

TMAO levels in the blood significantly increase after eating TMAO-rich food such as fish and vegetables. In addition, the liver produces TMAO from trimethylamine (TMA), a substance made by gut bacteria. The cause of high TMAO levels in the blood and the compound's effects on the heart and circulatory system are unclear, and earlier research has been contradictory. It was previously thought that TMAO blood plasma levels -- and heart disease risk -- rise after the consumption of red meat and eggs. However, "it seems that a fish-rich and vegetarian diet, which is beneficial or at least neutral for cardiovascular risk, is associated with a significantly higher plasma TMAO than red meat- and egg-rich diets, which are considered to increase the cardiovascular risk," researchers from the Medical University of Warsaw in Poland and the Polish Academy of Sciences wrote.

The researchers studied the effect of TMAO on rats that have a genetic tendency to develop high blood pressure (spontaneously hypertensive rats). One group of hypertensive rats was given low-dose TMAO supplements in their drinking water, and another group received plain water. They were compared to a control group of rats that does not have the same genetic predisposition and received plain water. The dosage of TMAO was designed to increase blood TMAO levels approximately four times higher than what the body normally produces. The rats were given TMAO therapy for either 12 weeks or 56 weeks and were assessed for heart and kidney damage and high blood pressure.

TMAO treatment did not affect the development of high blood pressure in any of the spontaneously hypertensive rats. However, condition of the animals given the compound was better than expected, even after more than a year of low-dose TMAO treatment. "A new finding of our study is that [a] four- to five-fold increase in plasma TMAO does not exert negative effects on the circulatory

system. In contrast, a low-dose TMAO treatment is associated with reduced cardiac fibrosis and [markers of] failing heart in spontaneously hypertensive rats," the researchers wrote.

"Our study provides new evidence for a potential beneficial effect of a moderate increase in plasma TMAO on pressure-overloaded heart," the research team wrote. The researchers acknowledge that further study is needed to assess the effect of TMAO and TMA on the circulatory system. However, an indirect conclusion from the study could underscore the heart-healthy benefits of following a Mediterranean-style diet rich in fish and vegetables.

Trial finds diet rich in fish helps fight asthma

Science Daily November 4, 2018

A clinical trial led by La Trobe University has shown eating fish such as salmon, trout and sardines as part of a healthy diet can reduce asthma symptoms in children.

The international study found children with asthma who followed a healthy Mediterranean diet enriched with fatty fish had improved lung function after six months. Lead researcher Maria Papamichael from La Trobe said the findings added to a growing body of evidence that a healthy diet could be a potential therapy for childhood asthma.

"We already know that a diet high in fat, sugar and salt can influence the development and progression of asthma in children and now we have evidence that it's also possible to manage asthma symptoms through healthy eating," Ms Papamichael said. "Fatty fish is high in omega-3 fatty acids which have anti-inflammatory properties. Our study shows eating fish just twice a week can significantly decrease lung inflammation in children with asthma." Co-researcher and Head of La Trobe's School of Allied Health, Professor Catherine Itsiopoulos, said the results were promising. "Following a traditional Mediterranean diet that is high in plant-based foods and oily fish could be an easy, safe and effective way to reduce asthma symptoms in children," Professor Itsiopoulos said.

Associate Professor Bircan Erbas, from La Trobe's School of Psychology and Public Health, is an expert in asthma and allergies, who co-supervised the trial. "Asthma is the most common respiratory disease in young people and one of the leading reasons for hospitalisations and trips to emergency for children," Associate Professor Erbas said. "Unfortunately, the rate of asthma worldwide remains high. It is imperative that we identify new therapies that we can use alongside conventional asthma medications."

The clinical trial involved 64 children from Athens in Greece, aged 5 to 12 who had mild asthma. Researchers from Australia and Greece divided the children into two groups and instructed around half to eat two meals of cooked fatty fish (of at least 150 grams) as part of the Greek Mediterranean diet every week for six months. The remaining children followed their normal diet. At the end of the trial, they found the group who ate fish had reduced their bronchial inflammation by 14 units. Above 10 units is significant under international guidelines.


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Coffee linked to Alzheimer's and Parkinson's prevention

07 Nov 2018 Nutrition Insight

Certain compounds found in coffee called phenylindanes may hinder two protein fragments responsible for Alzheimer's and Parkinson's from clumping, therefore potentially aiding in the prevention of these diseases, researchers have found.

The study was carried out by Dr. Donald Weaver, Co-Director of the Krembil Brain Institute with the help of biologist Yanfei Wang and Dr. Ross Mancini, a Fellow in Medicinal Chemistry, who tested three different types of coffee roasting – dark roast, light roast and decaffeinated dark roast.
Even though coffee consumption has been linked to a lesser risk in developing the two cognitive diseases, Dr. Weaver says they found that it is not due to caffeine. After more research, they discovered a group of compounds, phenylin-danes that are the result of roasting the coffee beans. They inhibit two protein fragments found in Alzheimer's and Parkinson's from clumping. The proteins, beta amyloid and tau, are both common in the two diseases and the surprising part of the discovery, says

-indanes are a dual-inhibitor." Of the three tested roasting methods, the dark roast was found to be richer in phenylindanes as the beans undergo more roasting, which boosts the compounds' production. Dr. Weaver believes that the fact that these compounds are found in coffee naturally is a great advantage, as "Mother Nature knows best."

"It's the first time anybody's investigated how phenylindanes interact with the proteins that are responsible for Alzheimer's and Parkinson's," says Dr. Mancini, a fellow in Medicinal Chemistry at the Krembil Brain Institute. Dr. Mancini adds that "given that the phenylindanes in coffee are known to be some of the more potent antioxidants found in foods and beverages, it is plausible that phenylindanes could have other beneficial health effects as well."

He believes that more research on phenylindanes is essential to "determine if phenylindanes can elicit other neuroprotective effects related to diseases such as dementia, cardiovascular stress, cancers." Therefore, Dr. Mancini notes that the consumption of dark roast should not be seen a preventative method against Alzheimer's and Parkinson's disease. "Further studies are needed to determine if phenylindanes are absorbed into the bloodstream and if they can enter the central nervous system and if phenylindanes affect the gut microbiome. Bottom line, there are many more questions than answers at this point, which is good for research," he says.

"What this study does is take the epidemiological evidence and try to refine it and to demonstrate that there are indeed components within coffee that are beneficial to ward off cognitive decline. It's interesting but are we suggesting that coffee is a cure? Absolutely not," Dr. Weaver concludes.

By Kristiana Lalou

College education on dietary supplements could reduce risky use among young adults

08 Nov 2018 Nutrition Insight


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Educating young adults on the proper use of dietary supplements enhances the probability that they will use them appropriately, a US study has found.

The college time-frame is key as many young adults establish lifelong habits at this stage, as well as being the target for certain dietary supplements via social media advertising. The researchers found that the top three reasons for supplement use by college students were overall health and wellness, increased energy and skin, hair and nails health, respectively.

The Binghamton University researchers conducted an anonymous online survey among 308 college students, comparing those enrolled in the Health and Wellness Studies minor at Binghamton University with those not enrolled in the minor. The survey included questions on perception of dietary supplements, use and knowledge. The survey's main purpose was to investigate whether education on dietary supplements helps curb dietary supplement abuse among college students.

Supplement abuse includes the use of supplements that are not a medical necessity and mixing different types of supplements that could have opposite effects, Lina Begdache, Assistant Professor, Decker School of Nursing, Binghamton University, tells NutritionInsight. Young adults are a target for certain dietary supplements through several social media platforms, and they're more likely to be influenced by such advertisements, the researchers note.

The supplements that are particularly advertised are for weight loss, muscle building and hair and skin health, Begdache explains. Analyzing the data, the researchers concluded that college students with proper education on dietary supplements often exhibit a more responsible, pattern of use than those without the education. This is significant, as misuse of dietary supplements has been linked to liver and kidney injuries.

"These findings suggest that college education on dietary supplements, during a stage when young adults establish lifelong habits, may potentially reduce risk of abuse," says Begdache. The researchers are currently looking at over-the-counter (OTC) weight loss pill use amongst college students. The interest is that these supplements are high in caffeine, which may increase stress in young adults. Begdache tells NutritionInsight that the researchers are currently analyzing the data and hope to see results in six to twelve months.

Supplement use among US adults remains high, and has even increased by 10 percent over the last decade, a consumer survey on dietary supplements commissioned by the Council for Responsible Nutrition (CRN) and Ipsos Public Affairs has found. The findings also showed that among users aged 18 to 35, usage was up eight percentage from 2017, taking the total number to 83 percent.

The 2018 survey found that supplement use is diversifying across categories. While vitamin/mineral supplements remain the most popular category among supplement users (98 percent), the overall use of herbals/botanicals also significantly increased in the past five years. However, the supplement industry has been thwarted by instances of potentially harmful active pharmaceuticals being identified in US OTC dietary supplements – especially in ones marketed for sexual enhancement, weight loss or muscle building, according to a study published in JAMA. In response, US health bodies and trade associations are calling for consumer caution and reform to ensure supplements are free from pharmaceutical contamination. Increased consumer knowledge, from a young age, around supplements should be beneficial to ensure healthy continued use.

By Laxmi Haigh

Gluten-free diet health benefits actually down to change in dietary fiber sources, study finds

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Nutrition Insight

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Following a gluten-free diet can lead to a reduction of intestinal discomfort, such as bloating, but this may be due to a change in dietary fiber composition, suggest Danish researchers.

The University of Copenhagen study notes that the healthy, gluten-free diets in their study required a shift of fiber sources from wheat and rye to vegetables, brown rice, corn, oat and quinoa, and that certain health improvements were down to these sources – not the absence of gluten.

The study demonstrates the need for fiber-enriched, good quality, gluten-free options on the grocery shelves for those who need to follow a gluten-free diet, as well educating people who choose to follow the diet out of choice or perceived health benefits from the absence of gluten alone.

Consumers continue to be attracted to the gluten-free lifestyle and food offerings carrying the tag have gained a strong foothold in the marketplace over the past years. Innova Market Insights data have shown that gluten-free claims saw an average annual growth of 24 percent between 2013 and 2017. "We find dietary fibers – not the absence of gluten alone – to be the primary cause of the changes in intestinal discomfort and body weight. By now we think that our study is a wake-up call to the food industry. Gluten-free may not necessarily be the healthy choice many people think it is," says Professor Oluf Pedersen, principal study investigator, Novo Nordisk Foundation Center for Basic Metabolic Research at the University of Copenhagen.

The study

The researchers undertook a randomized, controlled, cross-over trial involving 60 middle-aged healthy Danish adults with two eight week interventions comparing a low-gluten diet (2g gluten per day) and a high-gluten diet (18g gluten per day), separated by a washout period of at least six weeks with a habitual diet (12g gluten per day).

The two diets were balanced in number of calories and nutrients including the same amount of dietary fibers. However, the composition of fibers differed markedly between the two diets. Based on their observations of altered food fermentation patterns of the gut bacteria, the researchers conclude that the effects of low-gluten diets in healthy people may not be due to reduced intake of gluten itself but rather due to a change in dietary fiber composition by reducing fibres from wheat and rye and replacing them with fibers from vegetables, brown rice, corn, oat and quinoa. "We demonstrate that, in comparison with a high-gluten diet, a low-gluten, fiber-rich diet induces changes in the structure and function of the complex intestinal ecosystem of bacteria, reduces hydrogen exhalation and leads to improvements in self-reported bloating. Moreover, we observed a modest weight loss, likely due to increased body combustion triggered by the altered gut bacterial functions," says Pedersen.

No basis for change of diet recommendation yet

A low-gluten diet has previously been recommended to diminish gastrointestinal symptoms in patients with inflammatory bowel diseases and irritable bowel syndrome, disorders which occur in up to 20 percent of the general Western population. The present study suggests that even some healthy individuals may prefer a low-gluten diet to combat intestinal discomfort or excess body weight. "More long-term studies are needed before any public health advice can be given to the general population," says Pedersen. However, the food industry can surely take these findings into account; he continues: "Most gluten-free food items available on the market today are massively deprived of dietary fibers and natural nutritional ingredients. Therefore, there is an obvious need for availability of fiber-enriched, nutritionally high-quality gluten-free food items which are fresh or minimally processed to consumers who prefer a low-gluten diet."

"Such initiatives may turn out to be key for alleviating gastrointestinal discomfort and in addition to help to facilitate weight control in the

general population via modification of the gut microbiota," he concludes.

In previous findings, Researchers from the University of Minnesota also expressed concern about the "healthy" tag some people automatically attribute to gluten-free living. The researchers found that among young adults, valuing gluten-free foods could be indicative of an overall interest in health or nutrition. These young adults were more likely to engage in healthier behaviors including better dietary intake and also valued food production practices (e.g., organic, non-GMO, locally sourced). However, they were also more likely to engage in unhealthy weight control behaviors, such as smoking, using diet pills or purging and over-concern about weight. Consumers are continuously searching for healthy eating patterns that suit them, and gluten-free is just one diet that has proven to be popular. However, with growing studies on the topic – such as the Danish study at hand – consumers can tweak their gluten-free diets to be as healthy as possible, as well as the food industry working to supply fiber-rich, gluten-free foods.

By Laxmi Haigh

Infant's first 2.5 years crucial in healthy gut bacteria development, study reaffirms

By Will Chu 30-Oct-2018 – NutraIngredients Asia

UK researchers appear to have confirmed the importance of the first years of a child's life as a prime window of opportunity for gut development and optimal health in later life.

Writing in Nature, an analysis of stool samples collected from 903 children strongly point to the first two and a half years of a child's life as crucial to the structure and function of the gut microbiome. The study points to little change past this age as research co-leader Dr Christopher Stewart, from Newcastle University's Institute of Cellular Medicine, emphasises the benefits of breastfeeding to the immature gut.

"Breastfeeding has long been understood to be good for infants and epidemiological evidence shows being breastfed early in life is associated with lower risk of many later life diseases, such as allergy and obesity. Targeting the nutrients in breast milk that encourage the growth of healthy bacteria in the infant gut, or providing probiotic containing Bifidobacterium, represent important avenues for future research aimed at restoring the beneficial properties of being breastfed when breast milk is not available."


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A wealth of evidence has firmly established a link between Bifidobacterium and breastfeeding with this approach associated with higher levels of the Bifidobacterium species, B. breve and B. bifidum. Another bacterial species, Bacteroides is also associated with the developmental phase, with higher levels of Bacteroides fragilis noted in infants delivered vaginally. Bacteroides are also associated with increased gut diversity and faster maturation, regardless of the birth mode. The benefits of these gut microbes are not lost on probiotic firms with the likes of Ferring (VSL#3), Bio-Kult's range of advanced multistrain formulations and UK-based Provitality's Probio 7 Probiotic, all containing one or more Bi_dobacterium species in its products.

In a study involving Newcastle University scientists sequencing-based approaches were used to analyse 12,500 stool samples from 903 children in the TEDDY study, collected monthly from children aged three to 46 months old. They found microbiome composition and diversity changed over time in three distinct phases: the developmental phase (3–14 months), transitional phase (15–30 months) and stable phase (31 months onwards).

Vaginal birth was associated with a temporary increase in Bacteroides bacteria. Siblings, exposure to pets, and geographical location were also factors in the differences between microbiome profiles. The research also noted that weaned infants exhibited a rapid turnover in the bacterial community and a loss of most of the Bifidobacterium , replaced by bacteria within the Firmicutes phyla.

Firmicutes are typical of an adult microbiome and the appearance of these bacteria once breastfeeding was stopped occurred much quicker than the team expected. "We know that the first few years of life are important for microbiome establishment," said Dr Joseph Petrosino, group leader of the microbiome study and director of the Alkek Center for Metagenomics and Microbiome Research at Baylor College of Medicine in the US.

"You are born with very few microbes, and microbial communities assemble on and in your body through those first years of your life. In this study, we took a closer look at the establishment of the microbiome over the first few years of life, and the early life exposures associated with that sequence of events, in this amazing cohort."


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Gut and diabetes

Conclusions drawn from this study are a supported in another paper featured in the same journal in which 11,000 stool samples from 783 infants were analysed in the TEDDY study. Here, the early gut microbiome was characterised in children, some of whom went on to develop type 1 diabetes. They report that the microbiomes of infants without type 1 diabetes harbour more genes related to fermentation and short-chain fatty-acid synthesis that, in combination with previous evidence, are associated with a protective effect.

Lactoferrin supplementation may be necessary for premature infants: Chinese review

By Cheryl Tay 06-Nov-2018 - NutraIngredients Asia

Supplementation with lactoferrin may help to minimise the incidence of necrotising entereocolitis (NEC) and lateonset sepsis (LOS) in premature infants, with no adverse effects, say researchers in China.

They also reported that lactoferrin supplementation can reduce the risk of these infants' hospital-acquired infection and infection-related mortality. Researchers at Chongqing Medical University, the China International Science and Technology Cooperation Base of Child Development and Critical Disorders, and Chongqing Key Laboratory of Paediatrics conducted a systematic review to determine if lactoferrin intake was safe and effective for pre-term infants, especially against NEC and LOS.

They searched databases such as Medline, The Cochrane Library, and Ovid-Embase for English- and Chineselanguage RCTs on lactoferrin use to prevent LOS and NEC in premature infants, settling on nine RCTs involving 1,834 patients.

According to pooled analysis, prophylactic lactoferrin was found to have markedly lowered the incidence of allculture proven LOS by up to 15.3%, compared to 6.5% in the control groups. It was also reported to have reduced the incidence of NEC by up to 5.6%, compared to 2% in the control groups. NEC was the primary outcome of interest in five of the nine studies reviewed, with the incidence of NEC at 2% in the treatment groups as opposed to 5.6% in the control groups after lactoferrin supplementation.

Sub-group analysis of the pathogen type of sepsis suggested that lactoferrin's beneficial effects were applicable to not only LOS, but all kinds of sepsis. The researchers wrote: "Although the distribution of pathogens by type was not significantly different in the treated and control groups, lactoferrin tends to have better prevention efficacy in fungal sepsis compared to bacterial sepsis."

Lactoferrin was also linked to a significant decrease in hospital-acquired infection by 25% (11.5% in control groups), and infection-related mortality by 4.9% (0.8% in the control groups).
Additionally, it was found to be able to shorten the time needed to reach full enteral feeding, and contributed to a declining trend of the duration of hospitalisation. At the same time, lactoferrin was also found to particularly benefit infants with very low birth weight (below 1.5kg), more so than infants with low birth weight (between 1.5kg and 2.5kg), for whom the efficacy of lactoferrin was not statistically significant.

However, the researchers also reported that lactoferrin supplementation "did not have a significant effect on allcause mortality" (5.4% in the treatment groups versus 3.5% in the control groups), though none of the RCTs reviewed reported any adverse effects brought on by lactoferrin or probiotic supplementation.

A question of quality

Several potential limitations were highlighted for consideration when interpreting the results, including the RCTs having been conducted in different regions, among both developing and developed countries. This meant that lower detection rates of culture-proven sepsis and higher sepsis risk in lower-income countries could lead to high heterogeneity in data. However, the researchers noted low heterogeneity when analysing lactoferrin's effects against LOS, NEC, and infection-related mortality.

The initial time of intervention was also different among the studies, an important detail due to lactoferrin concentration being high in colostrum and relatively low in mature milk. Lactoferrin interacts with gut cells differently, depending on its concentration: in high concentration, the interaction manifests as lactoferrin-driven gut cell proliferation and maturation, while in low concentration, it manifests merely as intestinal differentiation.

To mimic the property of lactoferrin in colostrum, the initial supplementation time in pre-term infants should be within their very first days of life; some of the studies only began supplementation after four days of life. The researchers also wrote that for exclusively breastfed infants, lactoferrin's benefits were still significant, with the incidence of LOS in untreated

infants similar between those who were breastfed and those who were fed formula. This suggested that breastmilk alone did not confer the benefits of lactoferrin intake, and as such, that preterm infants needed additional lactoferrin, "specifically to prevent LOS" . Furthermore, despite colostrum containing the highest lactoferrin content, supplementing premature infants with additional lactoferrin is still important. This is because it can take two to three weeks for infants with very low birth weight to receive full-volume enteral feedings, as well as full amounts of the protective components in human milk.

The researchers concluded: "The nine included trials indicated that lactoferrin supplementation in pre-term neonates is safe, without obvious adverse effects. The results of our meta-analysis demonstrated that prophylactic supplementation of lactoferrin could significantly reduce the incidence of NEC, LOS, and hospital-acquired infection in pre-term neonates. "It also detects a trend of decreased infection-related mortality, with statistical significance. Our study also revealed that lactoferrin could slightly reduce the time to achieve full enteral feeding and duration of hospitalisation of preterm infants, with statistical significance. In addition, lactoferrin with LGG (Lactobacillus rhamnosus) seems to have greater benefits in the prevention of NEC and LOS (very low evidence). However, there are not enough high-quality trials to determine whether the beneficial effects of lactoferrin could be enhanced by combining it with probiotics.

"The efficacy of lactoferrin for preventing LOS and NEC still needs more high-quality RCTs to demonstrate. The longterm effects of lactoferrin also need follow-up, (as) current evidence is under-powered to detect (these effects). "Future studies should focus on the optimal duration, dosage, type, and long-term effects of lactoferrin."

Omega-3 and pregnancy: New Cochrane Review reveals reduced risk of pre-term births

By Gary Scattergood 16-Nov-2018 - NutraIngredients Asia

Increasing omega-3 intake during pregnancy, either through supplements or in foods, may reduce the incidence of pre-term births and the likelihood of having a baby with a low birthweight, according to a new Cochrane Review.

The review was conducted by South Australian Health and Medical Research Institue's (SAHMRI) Healthy Mothers, Babies and Children team in collaboration with the Women's and Children's Hospital and the University of Adelaide. Academics assessed 70 randomised controlled trials, involving 19,927 women, in order to update a review originally conducted in 2006. Professor Maria Makrides, Theme Leader and Deputy Director of SAHMRI, said the study found that daily omega-3 supplementation reduces the risk of birth before 37 weeks by 11 per cent, and reduces the risk of birth before 34 weeks by 42 per cent. There were also fewer babies with low birthweight. However, omega3 intake also increased the incidence of pregnancies continuing beyond 42 weeks, although there was no difference identified in induction of labour for post-term pregnancies. The researchers stated "The risk of the baby dying or being very sick and going to neonatal intensive care may be lower with omega- 3 compared with no omega-3." Eleven trials reported that they had received industry funding. But when the results were omitted, it made very little, or no difference, to the findings.

Promising Finding

Professor Makrides added: "This is an extremely promising finding because we now have strong evidence that omega-3 supplements are a simple and cost-effective intervention to prevent premature


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birth, which we know has serious health implications." "Premature birth complications are the leading cause of death for children under five years of age. Premature babies are at greater risk of chronic issues with their respiratory, immune and digestive systems and they're more susceptible to problems with speech, social skills, learning and behaviour." Professor Makrides' team suggests women expecting a single baby begin taking a daily dose of omega-3 at the 12-week stage of their pregnancy. The supplement needs to contain between 500 and 1000 milligrams of omega-3 with at least 500 milligrams of DHA. South Australian Minister for Health and Wellbeing, Stephen Wade MLC, congratulated the researchers on their work, saying a reduction in premature births would have widespread benefits for the community.

The review concluded: "More studies are underway and their results will be included in a further update of this review. Future studies could consider if and how outcomes may vary in different populations of women, and could test different ways of increasing omega-3 intake during pregnancy."

FOOD SCIENCE & INDUSTRY NEWS

Thermal treatment of orange juice can increase absorption of carotenoids

IFT Newsletter Nov 6, 2018

Certain types of cold treatment used by the citrus juice processing industry greatly impact the color of orange juice and the concentration and bioaccessibility of the carotenoids present in the juice, according to a study published in the Journal of Functional Foods.

The researchers analyzed fresh orange juice, pasteurized orange juice, and ultra-frozen orange juice thawed at room temperature, in a microwave oven, and in a refrigerator. The results showed that while there was some loss of carotenoids in the juices that underwent cold treatments, the juices that were ultra-frozen and then thawed at room temperature or defrosted in a microwave had more bioaccessible carotenoids than fresh juice.

Thermal treatments affect the structure of carotenoids, reducing the size of the particles and degrading cellular material. The researchers believe that this may help with the release of carotenoids from the matrix that are then absorbed by the intestines.

The researchers plan to conduct another study to determine the content of certain carotenoids in the blood of subjects after they consume various samples of orange juice that underwent the processing conditions.

Consumer interest in liquid nutraceutical delivery forms grow as "pill fatigue" perseveres, says Bormioli Pharma

13 Nov 2018 Nutrition Insight

Consumers are more mindful of their health and nutraceutical products have become aspects of an everyday diet.

This, coupled with a faster pace of consumer living has spurred a number of packaging innovations for nutraceuticals. This is according to Elena Piazza, Business Development & Marketing Manager at Bormioli Pharma, which supplies pharmaceutical and nutraceutical packaging solutions. Its portfolio includes a dual chamber system packaging which offers precise reconstitution for oral products, including food supplements.

The number of consumers interested in incorporating supplements into their daily regime is growing. Supplement use has increased by 10 percent over the last decade, a consumer survey on dietary supplements commissioned by the US Council for Responsible Nutrition (CRN) and Ipsos Public Affairs has found. The findings also showed that among users aged 18 to 35, usage was up 8 percent from 2017, taking the total number to 83 percent
Supplements typically come in pill form, but, increasingly, consumer interest in alternative delivery forms due to "pill fatigue" is driving the development of innovative delivery and dosage forms – that must also adhere to strict safety and protective matters necessitated by the fragile nature of nutraceuticals.

PackagingInsights: How does packaging for nutraceuticals differ from packaging for food and beverages?
Piazza: Some of the main differentiating factors would be the need for safety features, such as tamper-evident rings, as well as improved protection against external agents. In addition, using pharma-grade packaging raw materials is recommended in order to provide consumers with a safer and healthier product.

PackagingInsights: What are some of the most challenging R&D issues when developing nutraceutical packaging?
Piazza: Nutraceutical products are increasingly based on organic and natural excipients, which are more sensitive to interactions with external agents such as humidity, oxygen and light. From a primary packager point of view, packaging should be designed to ensure product stability and improve the shelf life. In our experience, these objectives can be achieved only working on both mechanical and chemical aspects. We find that plastic offers a large amount of flexibility for our applications.

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PackagingInsights: What are some of the stand-out nutraceutical packaging options on the market?
Piazza: Now, on-the-go formats allow for consumption everywhere and anywhere; functional and intuitive packaging solutions enable frequent use and eye-catching designs facilitate consumer choice inside big stores. The way nutraceutical products are packed is becoming increasingly important in leading consumer choice.

PackagingInsights: Has the notion of "pill-fatigue" led to a diversification of delivery forms?
Piazza: More and more consumers are opting for liquid nutraceuticals or for nutraceuticals to be reconstituted in a powder plus liquid delivery form. This is due to a common need for ease of administration, such as for children and seniors, but for faster-consumption behaviors. Bormioli Pharma noticed this change very early on and for many years has been offering dual-chamber packaging systems.

PackagingInsights: How do Bormioli Pharma's dual chamber systems work?
Piazza: These packaging systems include two separated chambers, cap and bottle, one containing powdered active excipients and the other a liquid solvent. The consumer can easily reconstitute the product simply by screwing down the cap and shaking the bottle: A ready-to-use packaging delivery system ideal to be used on the go. We also developed a specific plastic technology for dual chamber systems which creates a total barrier against humidity, thus minimizing product degradation and preserving the ultimate effectiveness of the nutraceutical.

PackagingInsights: Sustainability is a mega-trend driving design in packaging. How does this affect nutraceutical packaging?
Piazza: We see an excellent future for sustainable packaging in the nutraceutical sector. People who consume nutraceuticals tend to seek a healthy, balanced and sustainable lifestyle, leading to a growing demand for both natural excipients and eco-friendly packaging. Conscious of this market trend, more than ten years ago Bormioli Pharma started studying new sustainable plastic materials. As of today, we offer our customers six different solutions, including bio-degradable, plant-based and recyclable materials.

Packaging for Nutraceuticals

Precision and safety are key when it comes to administering nutraceuticals, and packaging is a core part ensuring such safety for consumers. Bormioli Pharma's dual chamber technology seeks to ensure precision upon ingredient reconstitution and, thereby, offer nutraceutical companies greater flexibility in product formulation. As the market becomes busier with nutraceutical options, differentiation is also key. Combatting pill fatigue can be achieved with the active user experience that the dual chamber packaging options may bring, as well as its ability to be consumed on the go. Further options outside of the classic pill delivery form include gummy vitamins. Within this space, Gummy vitamin brand vitafusion, manufactured by Church & Dwight, has become the "first in the vitamins category" to use recycle friendly shrink-film labeled packaging in the US.

By Laxmi Haigh

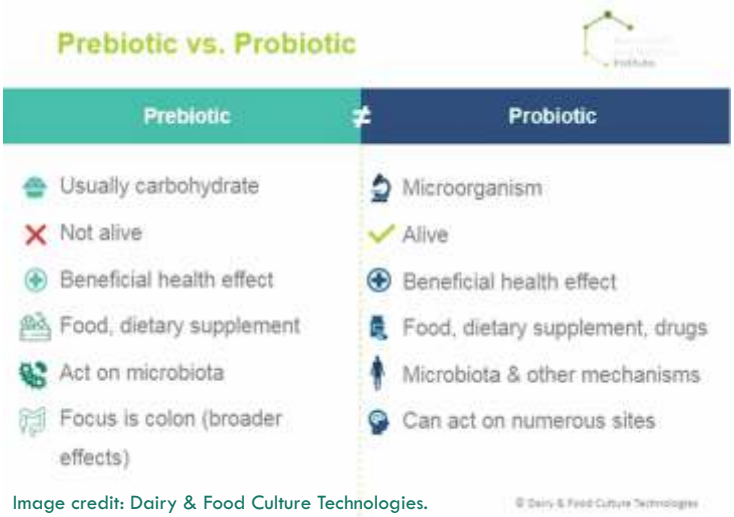


Image credit: Dairy & Food Culture Technologies.

Navigating the digestive health space: Probiotic strain specificity and microbiome key to future NPD

16 Nov 2018 Nutrition Insight

Emerging science linking a healthy microbiome to nearly every facet of health, as well as the ongoing media reporting on probiotics, have helped drive consumer interest in gut health.

This growing area offers a wealth of opportunities to formulators, but due to regulatory demands and increasing consumer scrutiny, a clear view of how to navigate this space is vital. During a Kerry Health and Nutrition Institute webinar on the future of digestive health, Mary Ellen Sanders, Founding President of the International Scientific Association of Probiotics and Prebiotics (ISAPP), and Stephen Quinn, Business and Regulatory Director for Kerry, discussed key insights into how science is linked to research and industry trends. Tipping the importance of strain specificity when researching benefits as well as the individuality of each person's microbiome, both speakers offered a clear view of the vast scientific and market opportunities around the world.

"Consumers are increasingly aware of digestive health and digestive ingredients in their food. We see that nearly three-quarters of customers consider food and beverage products that have been fortified with digestive health ingredients as appealing," says Quinn. "Specifically for probiotics, they know that good bacteria can positively influence the digestive system and immune health. These are the legacy, historical and traditional benefits that people know of when you talk about probiotics." "Prebiotics and probiotics are hot right now," Dr. Sanders agrees. "One of the drivers in this area is the increased awareness that microbes residing in our bodies are important to health. An explosion of research over the past fifteen years has revealed that our colonizing microbes, most of which reside in our gut, impact our health in many ways."

"A natural consequence of the advancements of basic research is the search for substances that can improve the functioning of the gut microbiota and promote gut health," she adds. Food and beverage companies are increasingly res ponding to this consumer interest and the market is growing exponentially. "The global probiotics market is going to be worth almost €57 billion (US$64.6 billion) in the next five years, growing at 7 percent a year. And food and beverages are making up 80 percent of that market," says Quinn.

Differentiation across world markets

Despite dairy options still dominating this market, they are not the only players worth noting – far from it. A range of products is entering the market, catering for an array of consumer groups from baby boomers all the way down to infants and children. Quinn notes that in the US, dairy probiotics are popular in the form of spoonable and drinkable yogurts, but even fruit juices, cereals and snacks such as burritos are undergoing probiotic fortification. While in other world demographics such as China, children and toddler products are proving popular, and in India, powdered products are excelling.

"Australia is very much into functional food and beverages and the probiotic market is doing disproportionately well. Trends like better-for-you and healthy snacking are also doing very well," he says. Europe presents a slightly different market as the term probiotic is not allowed on packaging due to European Food Safety Authority (EFSA) regulations on health claims. Despite a challenging regulatory environment, Quinn describes the population as a "well-informed," interested population, that is still the second largest market for probiotics. Consumers are aware of the term "cultures," and its links with gut health.

Science is key

"If we look at the health benefits, probiotics are especially attractive because of the 20 years' worth of health benefits that have been tested. Today, there are around 1,500 human clinical trials and these studies have been done with a cross-section of different strains and different doses, different subjects, different endpoints and so they are certainly not a homogenous body of evidence," adds Sanders. "And of course, not all of the studies that have been conducted have shown benefits. The benefits can have a cross body effect, so you see benefits not only on the gut but also on the skin, the intestinal tract, lungs, heart and vaginal tract," she adds.

Alongside the wide-ranging scientific body of evidence behind gut health ingredients, it is important to note that when it comes to probiotics, strains hold importance, Sanders explains. Strains are not all the same and studies tend to be specifically on certain strains and the findings are not generalizable. In this way, science is especially important when it comes to product formulators choosing a strain for added health benefits. Scientific evidence can also help to overcome certain myths that surround probiotics, Sanders explains that there is a common misconception that "more is better."

However, higher doses or higher levels of strains does not necessarily mean better, she says. "Another myth is that everyone is going to react to prebiotics, probiotics, synbiotics, abiotics or similar dietary interventions that are targeting gut health in the same way," she adds. Every individual has their specific diet and their range of colonizing microbes that are associated with their body. This combined with individual genetics and health parameters means that the health benefits achieved will depend on the individual, Sanders describes.

Looking forward

Probiotics are heavily associated with digestive health, and research continues to demonstrate growing platforms and interest in other health areas. "There is evidence of probiotics and digestive health as a category of benefits. We see benefits with antibiotic-associated diarrhea, with helping manage certain symptoms of functional gastrointestinal (GI) disorder, functional constipation and functional diarrhea. We see the treatment of acute diarrhea, we see overall improvement in the global health of patients of IBS that are managing a variety of symptoms that are GI in nature. I think that there is enough evidence that probiotics have health benefits on digestive health," Sander notes. Recent evidence has also supported the use of probiotics for the immune system.

"We see that modulation both in upregulation and improved responses against pathogens, but on the flip side we also see probiotics that are capable of downregulating the immune system so it tramps down autoimmune or inflammatory activities," says Sanders. Regarding mental health, she adds that there are a few human studies that show some benefits, particularly in reducing anxiety and improving mood. However, more data is needed from human trials on this topic.

By Laxmi Haigh & Kristiana Lalou

Charcoal is the new black: Are charcoal products healthy or just a fad?

28 Nov 2018 Nutrition Insight

Image © iStock.com/trumzz

Foods fortified with charcoal are becoming increasingly popular for their distinct black color and perceived health benefits. However, as "instagrammable" as black foods may be, experts note that there is little research proving charcoal's effect on wellness.

Activated charcoal has no effect on taste and adds vibrant black color to products. Companies are combining the color trend with traditionally perceived health properties, despite the potential lack of substantial scientific evidence.

The color of health?

Charcoal has long been touted to promote kidney health, aid with diarrhea and gastrointestinal issues and even have anti-inflammatory properties. Charcoal infused products boast "detox" claims yet there are limited recent studies to date looking at the effects of long-term use at the levels of charcoal present in "health" and "detox" products. "There are claims that activated charcoal can help reduce gas, bloating and flatulence. However, the studies available are significantly limited. Most studies are around 30-40 years old and have been carried out with limitations, using tools which have not been validated in order to gain results," Kirsten Jackson, Consultant Dietician and Director for the British Dietetic Association (BDA) tells NutritionInsight.

Beverage containing charcoal are increasingly marketed as "detox" products. The results from these studies are conflicting. Some suggest activated charcoal may be useful while others show that taking this ingredient provides no benefit. It has also not been tested in anyone who actually has digestive problems, for example, IBS," she adds.

Activated charcoal is a powder, made from bone char, coconut shells, sawdust and coal. The charcoal becomes activated when processed at high temperatures. The ingredient is widely used to color food black and is seen in coconut ash ice cream, pizza crusts, burger buns, lattes, lemonade drinks, pastry, pasta and even cocktails. Natural health advocates have long claimed that activated charcoal has anti-aging properties, aids in weight loss and lowers cholesterol. Ayurvedic and Eastern medicine practitioners used it to whiten teeth and cleanse toxic mold spores from the body. Often used as a treatment in some cases of poisoning, charcoal has the ability to absorb toxins.

"The surface of activated charcoal is very porous. This means that it is good at absorbing things and is commonly used by doctors in emergency situations to absorb poisons before they get into the body," says Jackson.

Personal care

In personal care, charcoal is claimed to have skin care properties, promote oral health and even whiten teeth. This is supported by a number of personal care and oral health products in the market that contain charcoal. "There is actually no evidence that suggests activated charcoal provides any benefit to our oral health. Instead, many products with activated charcoal may actually be harmful as they don't contain the right amount of effective ingredients (such as fluoride) which help prevent tooth decay and other oral health problems. In addition, some products may be over abrasive, meaning they can wear away the enamel of our teeth, which is known to cause pain and increased sensitivity," an Oral Health Foundation spokesperson tells NutritionInsight.

Regulatory reactions

Oral care products containing charcoal may claim teeth whitening benefits.

In the US, the Food and Drug Administration (FDA) states that it currently has no regulation on activated charcoal as an ingredient to be added to food, such as a food additive or color additive. However, companies may apply for "Generally Recognized As Safe" (GRAS) status for their use of activated charcoal. If granted this status after approval from "qualified experts," the charcoal-containing ingredient/product can be legally used before official FDA approval.

However, only this past summer, the New York City Department of Health and Mental Hygiene (DOHMH) put a ban on all charcoal applications in food and beverage citywide, deeming it dangerous and of having insufficient health claims. According to the DOHMH, the ban is based on charcoal use lacking clear FDA guidelines.

This announcement may have come much to the dismay of NYC businesses that used activated charcoal infused products as a selling point. The black foods trend can be maintained by using alternative options to activated charcoal, like black food coloring, black sesame seed powder and cuttlefish ink.

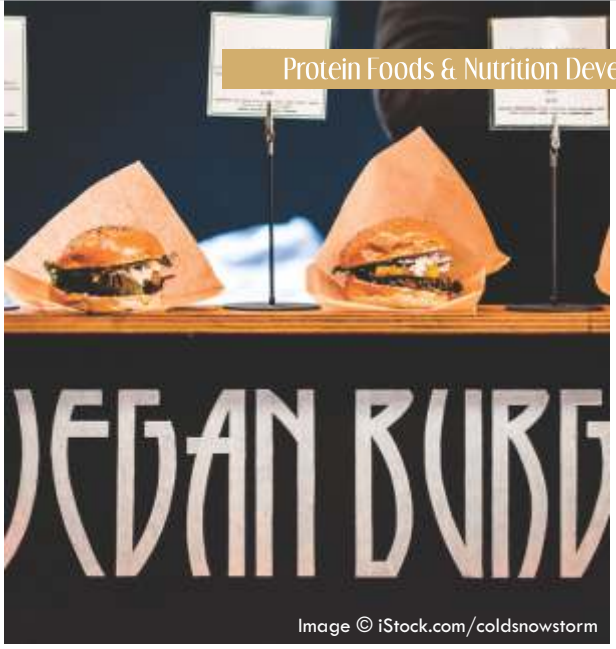
Dark matter

As a color trend, charcoal is still going strong and it is seen in numerous product applications. Back in April, Swirl's Ice Cream launched black ice cream to the food market in the Netherlands, and the company believes that black ice cream will be popular with consumers looking for new eating experiences.

"The black food trend has been obvious internationally for quite some time now. We've seen black hamburgers, black macarons and even black pasta. We are very proud to be the very first to introduce black ice cream to the Netherlands," says Tjerk van der Linden of Swirl's Ice Cream to our sister website FoodIngredientsFirst.

The black color of this ice cream is created by adding a plant-based black carbon powder, made from coconut shells, so that it also fits within plant-based food trends. The powder is tasteless, ensuring the ice cream keeps it delicious and familiar vanilla taste, according to van der Linden.

By Kristiana Lalou



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Zero meat: Japanese firm enters alternative protein market

By Tingmin Koe 10-Dec-2018 – Food Navigator Asia

The firm has launched its first line of alternative protein products in Japan, and has pledged that further goods will follow in order to tap into rising consumer demand.

Branded as "Zero Meat", the products are two frozen-chilled burgers, with "meat" patties made from soy beans. One of the products also contain plant-based cheese made from soymilk cream. The firm is selling alternative protein products for the first time. It took about a year to develop the products, a spokeswoman from Otsuka Foods told FoodNavigator-Asia . A reason for entering the alternative protein market is because it had noticed more consumers reducing meat intake for health reasons.

"In recent years, meat substitute foods that can be eaten in place of hamburger and sausage have been attracting a lot of attention worldwide," the firm said. "A variety of reasons are thought to be behind this trend, including food shortages due to a rapidly rising global population, the size of the environmental impact caused by producing livestock compared to grains, and growing numbers of people becoming vegetarians and vegans for health reasons."

It intends to introduce more meat substitute products. "Under the 'Zero Meat' brand, the company plans to continue proposing delicious and healthy eating habits by developing a variety of meat substitute foods, starting with these two hamburger products."

The products are first sold in convenience stores and supermarkets in the Kanto area. Company is one of the few Japanese firm to enter the alternative protein industry which is mostly dominated by US firms, including JUST and Impossible Foods.

Partnerships

Some Japanese companies are tapping on the opportunities that the market offers by collaborating with foreign plant-based meat start-ups. For instance, Mitsui Co had invested in the US plant-based meat start-up Beyond Meat and is responsible for promoting the product in Japan.

At the point of investment, Mitsui explained that since vegan and vegetarian diets were not common in the Japanese diet, the firm thus decided to invest in foreign plant-based meat firms instead.

Nishimoto, a Japanese food wholesaler, is also selling plant-based tuna and eel sushi produced by New York based Ocean Hugger Foods (OHF) – a plant-based seafood firm. It earlier said it intended to expand OHF's vegan sushi ingredient sales from JYP$200m to JYP$1.5bn within a few years.


Image © iStock.com/Vingeran

Other than alternative protein and plant-based products, some Japanese firms are also following the footsteps of Western firms in producing lab-grown meat. An example is Integriculture Inc, which claimed that cultured 'foie gras' could be commercially launched by 2021. It went on to raise JPY$300m in a seed funding round led by Real Tech Fund.

Saffron supplement with anti-Alzheimer's potential to hit stores in India and the US

By Tingmin Koe
11-Oct-2018 - NutraIngredients Asia

A new saffron supplement, which claims to aid cognitive function, will be available for sale in the US from next month, and in India next year.

Branded as Saffretine, the supplement — which comes in the form of capsules — is targeted at individuals in their 40s to 60s. There are also plans to bring the supplement to Japan and South East Asia at a later stage. The supplement is a brainchild of the Indian Institute of Integrative Medicine (IIIM).

The researchers found out that crocins and aglycone crocetin present in the botanical extract of the saffron flower are key ingredients in delaying the onset of Alzheimer's disease (AD), Ram Vishwakarma, the director of IIIM told NutraIngredients-Asia in an interview.
The research team has given crocins and aglycone crocetin the codename IIIM-141. IIIM-141 delays the onset of AD by inducing the expression of p-glycoprotein (P-gp), Vishwakarma explained. P-gp are present in the blood-brain barrier (BBB), which protects the brain from harmful substances, and P-gp removes toxics during sleep.

The research team hypothesised that AD is developed when the concentration of P-gp decreases with age. This results in the accumulation of amyloid-β – a type of protein involved in the development of AD, Vishwakarma said. The team believed that as the concentration of P-gp increases, more amyloid-β would be removed. This was later tested and confirmed in mice studies.

In July this year, the IIIM licensed the supplement making technology to Indian company Pharmanza Herbal. "The neurodegenerative diseases are going to pose major challenges for the future of medicine. As life expectancy increases, these diseases are also becoming more important. We believe the solution to the challenges comes from natural products," Vishwakarma said. "More research should be done on plant-based dietary supplements and medicines," he urged.

Efficacy test

The researchers tested the efficacy of IIIM-141 in improving neuro functions in mice study. Two behavioural tests were conducted, namely the 1) Morris Water Maze (MWM) test and 2) passive avoidance test. The first assesses the mice's ability in locating a hidden platform while swimming in a pool. The mice were previously trained to locate the platform. Prior to the ability test, they were fed with a memory-impairing drug streptozotocin (STZ).
They were later treated with IIIM-141 at 50 and 100mg/kg dose, and the latter showed a more obvious reduction in response time. For instance, the time taken to locate the hidden platform for STZ-induced mice reduced from around 60 secs to slightly more than 10 secs after receiving IIIM-141 treatment at a dosage of 100mg/kg for four days. In the second test, the mice's ability in avoiding an electric shock was assessed. Similarly, the mice were fed with memory-impairing drug before the ability test – this time round, the use of scopolamine. In this test, researchers found that the administration of IIIM-141 at 100mg/kg body weight for seven days have showed anti-dementia properties.

Safety test

Besides efficacy tests, researchers also conducted safety studies of IIIM-141 based on the guidelines of the Organisation for Economic Co-operation and Development (OECD). It was found that all mice survived after undergoing single dose of 2,000mg/kg for 14 days. In addition, no change in the body weight, biochemical and haematological parameters was seen, except for slight gastric distress and soft stools during the first hour of administration. On the other hand, a 28-day repeat dose toxicity which was performed at 25, 50, and 100 mg/kg doses also did not show negative effects.
"There was no specific treatment associated pre-terminal deaths and abnormalities observed in the rats at any of these doses. All animals from the control and the treated dose groups survived throughout the dosing period of 28 days," the researchers concluded.

Details of the research are documented in the following research paper: "Crocus sativus Extract Tightens the Blood-Brain Barrier, Reduces Amyloid β Load and Related Toxicity in 5XFAD Mice" and "Preclinical Development of Crocus sativus-Based Botanical Lead IIIM-141 for Alzheimer's Disease"

Developing a medicine
There are plans to develop IIM-141 into a medicine, Vishwakarma revealed. "After the launch of the supplement, we are planning to undertake the drug route and develop it into a drug in US," he said. "We will file the drug with the USFDA and intend to do clinical trials in the next one to two years."

At present, a patent application for the supplement has been filed. AD is one of the leading causes of dementia. 50 million people worldwide are living with dementia in 2018, and the number is expected to triple to 152 million by 2050, according to the World Alzheimer Report 2018 .

Probiotics for building muscle mass: Company targets the US market with 'world's first' sports product

By Tingmin Koe
13-Dec-2018 – NutraIngredients Asia

Taiwanese probiotics firm is aiming for a strong entry into the US sports nutrition market with a probiotic strain capable of building muscle mass.

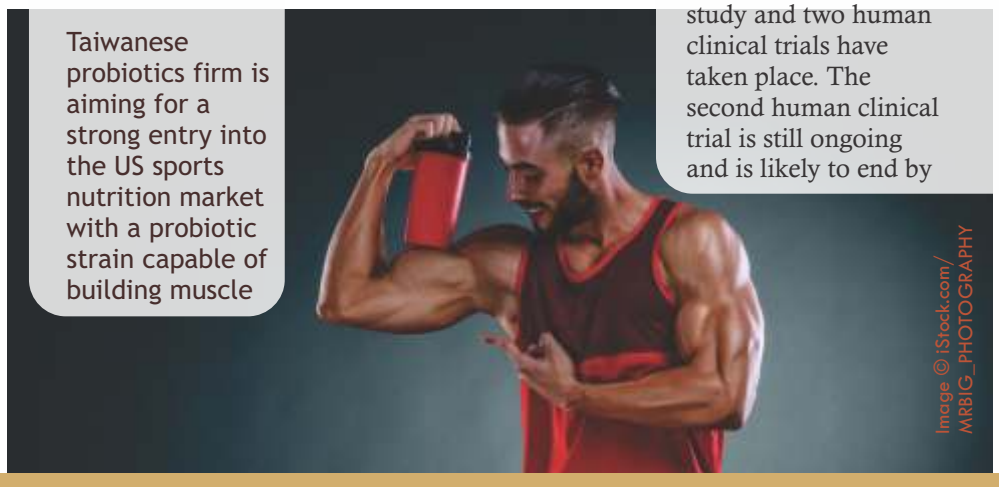

Image © iStock.com/ MRBIG_PHOTOGRAPHY

The strain Lactobacillus plantarum TWK10 (L. plantarum TWK10) is isolated from the Taiwan pickled vegetables and is able to enhance muscle building and exercise endurance. The firm is already in talks with major brand companies and product distributors for business partnerships. An end product containing TWK10 is likely to enter the market next year, with the US as a prime target, NutraIngredients-Asia understands from Lisa Chen, assistant marketing manager at the firm.

"Sports nutrition is biggest in the US market and thus, the US is of course our key target. We are also interested in China, Taiwan, and Japan, which is going to host the Tokyo Olympics 2020," Chen said.

The firm also claims that TWK10 is the world's first probiotics for building muscle mass. "TWK10 is the world's first probiotics that is able to build muscle mass. Currently, most of the other probiotics that are in the market are for boosting the body immunity or promoting gut health."

TWK10 also increases aerobic endurance performance and post-exercise blood glucose concentration, a human clinical trial has shown. Isolation of the strain started in 2009, led by a professor from the National Taiwan Sports University. Subsequently, a mice study and two human clinical trials have taken place. The second human clinical trial is still ongoing and is likely to end by this year.

Sport nutrition – the future of probiotics?

Synbio Tech decided to produce a probiotic for enhancing sports performance as it believes in the gut-muscle axis and that this will be "the trend for the (future) probiotics industry," Chen said. "We find that the sports nutrition market is growing and we think that sports probiotics will be the trend of the (future) probiotics industry." The firm is currently in the process of applying a patent for TWK10.

Longer time-to-exhaustion

Synbio Tech has conducted two human clinical trials to study the effectiveness of TWK10. Prior to the human clinical trials, a mice test was conducted. The _rm has recently completed the first stage of its second human trial and has found that the TWK10 is able to extend the time-to-exhaustion during physical exercise.

For the trial, 27 males and 27 females were recruited and were divided into three groups. They were the placebo group, the group which took 1X amount of TWK10, and the group which took 3X amount of TWK10.

The latest results given to NutraIngredients-Asia showed that TWK10 is able to extend the time-to-exhaustion during physical exercise. For instance, the time-to-exhaustion was more than 15mins for the 3X TWK10 group, nearly 15mins for the 1X TWK 10 group and slightly more than 10mins for the placebo group.

On the other hand, the first human clinical trial, which lasted for six weeks, showed that the TWK10's time-to-exhaustion was 58% longer than that of the placebo group. 16 males between the ages of 20 to 40 years old were recruited into the trial. None of them has received professional athletic training.

The subjects were divided into the placebo group and the group which consumed TWK10. The TWK10 group received six weeks of TWK10 supplementation in the form of capsules, in which each capsule contains 1 × 10 of CFU L. plantarum TWK10, maltodextrin, deproteinized permeate whey powder, lactose, and microcrystalline cellulose. The placebo group consumed capsules containing the same ingredients except for the L. plantarum TWK10. The two groups consumed the respective capsules once per day after a meal for six weeks. During an exercise test, the TWK10 group's time-to-exhaustion was 58% longer than that of the placebo group. Speci_cally, the TWK10 spent 21.53 mins (± 204 sec) to reach exhaustion, while the placebo group was exhausted only after 13.62 mins (± 79 secs) of exercise.

The rating of perceived exertion (RPE) for the TWK10 group was also slightly lower than the placebo group, with the TWK10 group registering a RPE of 16 (±1), while that of the placebo group is higher at 18 (±0). "The results may be explained by the anti-inflammation effects induced by L. plantarum TWK10, leading to an improvement in skeletal muscle atrophy markers," researchers said. "Taken together, our results suggest that TWK10 has the potential to be an aerobic exercise supplement for physiological adaptation or an ergogenic supplement with health benefits for amateur runners."

Energy harvesting

TWK10 has also showed to contain energy harvesting properties. As seen in the _rst trial, the TWK10 group's blood glucose concentration was 15.1% higher than the placebo group after exercise. For instance, the blood glucose concentrations for the placebo and TWK10 groups during pre-exercise were 84mg.dl (±1) and 87mg.dl (±2). This suggests that TWK10 plays a role in energy harvest. " The glucose level was significantly elevated, possibly for energy utilization benefit, " the researchers said.

Beyond just taste: Five emerging flavour trends taking shape in Asia

By Tingmin Koe
20-Nov-2018 – Food Navigator Asia

Flavour firms need to keep up with the rapidly changing tastes of consumers and take a holistic approach to innovation in order to secure success, according to the International Flavours and Fragrances (IFF), which has highlighted five emerging trends in Asia.

Understanding the shifts in consumer lifestyles was critical, Karen Stanton, the global marketing and branding director of fiavours told FoodNavigator-Asia. "For example, we are looking not just at the '_avour of the month', but are looking at consumer lifestyle shifts -emerging themes that will help us understand the most important challenges and opportunities shaping the consumer landscape," Stanton said.

"Consumer needs are shifting more rapidly than ever before. In response, IFF has completely changed its approach to innovation with a technology pipeline that can address cross-category needs. The research is cross-category (across all of our business units), in order to look beyond just taste or just scent or just nutrition so as to have a broad fundamental approach to short- and long- term innovation."

At present, the firm is looking at six different areas for taste innovation, such as opportunities arising from plant-based diets, culinary taste, taste modulation, natural ingredients, and sustainability issues. For instance, a drop in global citrus supply has inspired IFF to develop citrus flavours from sustainable and renewable sources.

"Our response to this problem is twofold, which includes the development of technologies that respect and extend existing resources through by-product revalorisation, backward integration and sustainable sourcing, and also innovative natural citrus _avours from renewable, non-citrus, non-agricultural sources," she said.

She added that it was important to observe macro shifts in the global society in order to prepare for longerterm opportunities. "Whilst no-one has a crystal ball, without this far reaching insight (from macro societal shifts), we will never be able to prepare technologies (which have long development lead times) to deliver on new taste, scent, and nutrition frontiers."

Five emerging flavour trends

From health and wellness to consumer trust, Stanton highlighted five emerging flavour trends that were shaping demand for new food and beverage products in Asia.


Image © iStock.com/Steve Debenport

1) Health & Wellness

With heightened interest in health and wellness, any flavours that were, or could be associated with health were growing strongly, she said. Fermented flavours, such as kimchi and kombucha, are examples of increasingly popular flavours due to their perceived health benefits.

Indeed, in the case of kombucha, the market is predicted to grow 25% each year by 2020, due to its image as a healthier option, while kimchi is recognised as a gut-friendly food. Globalisation and product premiumisation have also driven the popularity of these flavours, she said.

2) Natural

Consumers are looking for elements that are associated with natural, pure, and fresh. "Any flavour or ingredient that can be associated with natural or positioned as pure, raw etc. is growing," she said. This includes the use of natural production and processing methods, such as fermentation and brewing, over the use of artificial processing methods.

The use of brewed ginger in beverages was an example of a beverage produced with natural processes, while natural ingredients such as herbs, spices, and botanical ingredients including turmeric, butterfly pea flower were also welcomed by the consumers, she said.

3) Globalisation

Globalisation is driving flavour trends in APAC. The Japanese influence was particularly strong across Asia, with the wasabi and sakura as classic examples, she said. She gave the example of the sakura flavour, which was usually introduced as a limited edition flavour during spring time. She also observed the increasing use of cheese in Asia, due to influence from the European markets.

Image © iStock.com/Atiwat Studio

4) Fusion

Fusion refers to combining flavours that contrast or complement one another, with sweet-and-sour flavoured snacks a typical example. There was also a rise in fusing culinary tastes into snacks, she said, pointing to the example of salted egg yolk flavoured snacks in Singapore.

Adding to the point above, Singaporean start-up F. East is also another example of a firm that has introduced locally-inspired potato chips flavours, such as Hainanese Chicken Rice and Singapore Laksa flavours, into the market. Also key was the ability to provide a different sensory experience, such as a sour-flavoured beverage, as opposed to the usual sweet flavour, she said.

5) Trust and Transparency

Consumers have learned how to read product labels and are looking for greater transparency in the food that they eat. "There is a huge amount of distrust happening with consumers right now, across the entire food industry and I am not just talking about the food industry either, but across many industries, institutions, the decline of trust is a very big issue," she said.

She pointed how consumers are seeking trust based on reputation, such as referring to consumer reviews, a departure from institutional trust, before making a purchase. She thus urged firms to devise ways on building consumer trust.

First observational study on breastmilk composition could drive scientific, technological and commercial advancements

By Cheryl Tay 15-Nov-2018 - NutraIngredients Asia

Kiwi scientists have published nationally representative research on the breastmilk composition of breastfeeding mothers in the country, which could aid the development of supplements or programmes to support the health of breastfeeding mothers and their babies.

The first-of-its-kind observational study — conducted by the New Zealand Institute for Plant and Food Research and funded by Danone Nutricia — saw the researchers analyse the dietary intakes and breastmilk nutrient composition of 78 breastfeeding women between the ages of 19 and 42. The women were living in New Zealand's North Island region of Manawatu-Wanganui, and the study population was representative of the national ethnic composition: 53 (68%) were of European descent, 17 (22%) were Māori and / or from the Pacific Islands, and eight (10%) were Asian.

They each provided three breastmilk samples over a one-week period — six to eight weeks after having given birth — completed a three-day food diary, and volunteered information on their pregnancy and lactation experiences. The researchers then analysed the breastmilk samples for protein, fat, fatty acid profile, carbohydrates, ash, and minerals (calcium, magnesium, selenium and zinc).

Compositional considerations
Subsequently, the researchers reported that, perhaps due to differences in culturally influenced dietary patterns and lifestyle factors, the concentrations of certain nutrients varied considerably among the ethnic groups. The Māori / Pacific Island mothers consumed less protein than the European mothers, while the Asian mothers consumed less energy and a lower proportion of fat from saturated fat than the other mothers. Instead, a significantly higher proportion of the Asian mothers' total fat intake came from monounsaturated fats, and they consumed more PUFAs than the European mothers, who tended to consume more calcium, phosphorus and zinc than the other mothers.

The Asian mothers also consumed the most iodine, folate, and vitamin A equivalents than the rest of the mothers. The European women had lower concentrations of omega-3, omega-6, polyunsaturated fatty acids (PUFAs), EPA, DHA and ALA (alpha-linoleic acid) in their breastmilk than the Asian women, but higher concentrations of ARA (arachidonic acid) and magnesium than the Māori / Pacific Island women.

The Asian women had higher concentrations of all the aforementioned nutrients than their European and Māori / Pacific Island counterparts, the latter of whom had the lowest concentrations of these nutrients among the three ethnic groups. However, regardless of the degree of dietary diversity across the different ethnic groups, all the mothers had similar amounts of the main macronutrients in their breastmilk, namely, protein, fat, and carbohydrates. There were also no significant differences between the mean breastmilk concentrations of calcium, selenium and zinc across the groups, or in ARA between the Asian and European mothers. DHA and ARA are particularly beneficial for brain, neural and eye development in infants.

Researcher recommendations
Speaking to NutraIngredients-Asia , Dr Christine Butts, team leader at Plant and Food Research, offered a possible explanation for the similarity in the breastmilk levels of main micronutrients across the different groups. "We didn't do an extensive study beyond the mothers' diets when it came to determining which factors influenced the nutrient composition in their breastmilk. However, I do think that the mothers' breastmilk providing these essential micronutrients for their babies, regardless of their diet, is a great example of the human body simply being amazing."

Still, Butts emphasised the importance of adequate nutrition for both mother and child, saying, "New Zealanders tend to have low selenium, iodine and folate intakes. Breastfeeding mothers should ensure they have adequate nutritional intake, as this directly affects the health of their babies. I would propose that they work hard on their diet and nutrition, engaging professional nutritionists and / or dietitians if possible to guide them and point them in the right direction. Dietary supplements can also be very useful to breastfeeding mothers."

Apart from conducting scientific studies like this one, the NZ Institute for Plant and Food Research is also a member of the Nutrition Society of New Zealand (NSNZ), a non-profit focused on furthering nutrition as a scientific field. The NSNZ facilitates collaborations among professionals in different areas of nutrition— such as human and animal nutrition — and according to Butts, Plant and Food Research and the NSNZ work cooperate periodically on such projects. She believes this particular study will be able to provide useful data to analyses on a larger scale in the future, and may even help manufacturers to develop not just dietary supplements and functional foods, but alsopersonalised nutrition programmes to support the health of breastfeeding mothers and therefore, their babies as well.

From 7 days to 2 seconds: Blockchain can help speed traceback, improve food safety & reduce waste

By Elizabeth Crawford 06-Nov-2018 - Food Navigator Asia

Once the “biggest skeptic” of how blockchain technology could benefit the food and beverage industry, Frank Yiannas, the VP of food safety for Walmart, says he experienced a near “religious conversion” after working with IBM to digitize the food supply chain. He explained to attendees at the Food & Nutrition Conference & Expo in Washington, DC, late last month that while industry often describes the process of moving food from the farm to the table as the “food chain” it is not actually linear.

"I try not to use the words food chain and instead use food system, because we know that when you do these tracebacks, they are not straight back," he said. Rather, he explained, they are chaotic and decentralized with producers regularly switching suppliers, and intermediaries, such as processors, constantly changing – making it difficult for one central player – such as Walmart – to digitally untangle and keep track of all the relationships in real time.

With this in mind, when Yiannas said he learned that blockchain, like the food system, is based on a decentralized and distributed model he realized that the technology and the modern food system "were made for each other." He explained part of the appeal of the technology is that it not only allows each player in the network to update their data so it is current – taking the burden off a central figure – but it also stops them from entering false data or making false changes to already inputted information because everyone must agree the changes are true. "Think about how when you have a traditional ledger, most of the time only one person has access to it. And that is why in the movies you see people cheat the ledger because they are the only one to see it. But when you have a shared ledger, like with blockchain, those records are seen by others and everyone agrees to them – so if you were go back and try to fudge the ledger, then everyone else has to agree to it," he explained.

Rooting out problems more quickly
With everyone on even footing and up-to-date information, blockchain makes it possible to quickly trace back any problems – such as food outbreaks or pre-expiration date spoilage – to their origin, and allows players to find out what went wrong where, and the extent of the damage. For example, Yiannas said that without the use of blockchain technology it took his team almost seven days to crack a hypothetical exercise that required them to trace back where are carton of mangos sold in one of the retailer's stores originated.

But with the help of blockchain, established through a pilot program with IBM, his team was able to track back a pack of mangos to the source in 2.2 seconds. He explained that this was possible because Walmart and IBM worked with suppliers to capture key information about mangos at each point in the food system. The speed with which blockchain enables companies to trace products – and any problems that may occur – back to the source means improved food safety and less economic loss, Yiannas said. For example, he explained that if trace back took seven days, as under the old system, that would mean unscrupulous players had seven days to continue to sell potentially dangerous product or that responsible ones would have to stop selling the products for seven days – costing farmers and producers who would be unable to sell their goods.

Potentially limitless uses for blockchain in the food system
The potential for blockchain goes beyond its ability to speed food safety investigations, Yiannas said. He noted it also can reduce food waste by more quickly and accurately identifying the source of a problem so that only impacted products are recalled or removed and not everything in the category. For example, he noted that when the most recent e coli scare related to romaine lettuce occurred, health officials originally were able to trace the contamination back only to Arizona, but because they did not know which specific farm or lot – most of the state's supply was destroyed or consumers refused to buy it. And because bags or romaine sold in stores did not have the location of origin printed on them, many consumers discarded perfectly safe product from other regions out of an abundance of caution.

Blockchain also can reduce food waste by revealing potential inefficiencies, Yiannas said. For example, in the mango exercise, Walmart found that some shipments were stopped for four days at customs. "What happens if you take one or two days out, which is very easy, you have two more days of shelf life to give back to the customer, which means fresher food and more days at home and less food waste," he explained. It also could give suppliers two extra days to allow produce to ripen in the field because they would have the confidence that once they picked and shipped the product it would sell in a timely fashion – this translates to higher quality products, he added The technology also can be used to root out food fraud because it makes it more difficult for unscrupulous players to purposefully mislabel one product, such as horse meat, as something else, such as beef, he said. In the face of so many challenges and threats to the supply chain, many countries are increasing regulatory requirements and burden of proof for suppliers and manufacturers – and blockchain can help them meet those new demands, he said. Ultimately, Yiannas said, "the potential for blockchain is only limited by the imagination." But for now, he added, its biggest value is in providing increased transparency, which should lead to increased accountability and responsibility.

Indian and Korean researchers develop functional probiotic beverage from fermented coconut water

By Cheryl Tay 20-Nov-2018 - NutraIngredients Asia

Researchers in India and South Korea have developed a functional fermented coconut beverage using the bacterial strain Lactobacillus casei L4.

Coconut water has a unique combination of sugars, minerals, vitamins, enzymes and hormones, and is widely consumed globally. Fermenting coconut water with probiotics is said to be able to facilitate the development of an enhanced functional beverage that possesses probiotic benefits.

Fruits of fermentation

Based on this, researchers at Periyar Maniammai University, Seoul National University and Jawaharlal Nehru University aimed to produce a fermented coconut water beverage with the potential probiotic Lactobacillus casei L4. They fermented coconut water with L. casei L4 for 48 hours at 35 C, investigating its pH, organic acid production rate, antioxidant activity, levels of sugar, minerals and vitamin B12, and total viable bacteria counts after 24 and 48 hours.

Subsequently, they reported that the fermentation of coconut water with probiotic lactobacilli increased the cell viability count, with vitamin B12 production being the highest in the extracellular environment after 48 hours. Additionally, the total phenolic content was markedly higher in the fermented coconut water at 48 hours than at other time points, and the fermented materials demonstrated the most prominent radical-scavenging activities at 48 hours.

Fermentation also did not change the levels of most minerals, except calcium, manganese, phosphorus and sodium. Furthermore, the culture supernatant from the fermented coconut water was found to inhibit the growth of foodborne pathogens such as Bacillus cereus , Listeria monocytogenes , Staphylococcus aureus , and Salmonella typhi , though the degree of inhibition differed from one species to another.
The results indicated that the coconut water fermented with L. casei L4 could act as a novel functional beverage that contains both probiotics and electrolytes, and may be a suitable vehicle for preparing a wider range of novel functional products.

What do people think?

In terms of taste, the addition of honey and artificial coconut flavour to the fermented coconut water resulted in the end product tasting better, according to a sensory evaluation test. The researchers recruited 20 survey subjects to help them evaluate the palatability of the fermented coconut water (recipe A), fermented coconut water with 15% honey (recipe B), and fermented coconut water with 15% honey and artificial coconut flavour (recipe C). They observed no significant differences in colour or appearance among the samples, but the survey subjects generally preferred recipe C over the other recipes. This was most likely because of the decreased acidity and increased sweetness and aroma of the beverage following the addition of honey and coconut flavour. The researchers also suggested that similar fermented beverages could be "supplemented with fruit ingredients or herbs to improve their appeal to consumers" .

Future indications for fermentation
They concluded: "Lactobacillus casei L4, a strain shown to have potential probiotic activities, was demonstrated here to be useful in producing a fermented CW beverage. Following the 48-hour fermentation with L. casei L4, we determined that the fermented beverage contains essential minerals, vitamin B12, antioxidants, and has antimicrobial activity. Furthermore, even after 28-day storage at 4OC, (the) fermented broth retained the desired L. casei L4 levels, which are in accordance with the daily recommended probiotic dose. The fermented CW supplemented with 15% honey and artificial coconut flavour was shown to have the highest acceptance rate by the panellists. Further investigations are required for the development of inexpensive L. casei L4-fermented functional beverages with various health benefits."

'Precision agriculture for nutraceutical industry': Indian start-up details ambitious plans to raise standards

By Cheryl Tay 07-Nov-2018 - NutraIngredients Asia

Indian agri-tech start-up Sattvaponics Solutions has outlined its ambition to be a game-changer in the nutraceutical industry, spurred in part by a recent investment from the Centre for Innovation Incubation and Entrepreneurship (CIIE).

The technology business incubator of the Indian Institute of Management Ahmedabad (IIMA) invested an undisclosed amount in the start-up after the latter participated in the Economic Times Power of Ideas programme, of which the IIMA is a partner organiser.

Sattvaponics emerged as one of the winners after an intensive six-month programme, securing funding from the CIIE as a result. Speaking to NutraIngredients-Asia , co-founder Ashish Korde said: "This funding will be used primarily for developing new products that are already in our pipeline, as well as increasing our geographic footprint, so we can conduct multi-location trials. "We also want to scale up so we can produce more solutions and serve more customers within the nutraceutical industry."

Problem-solving platform

The solutions Korde was referring to are part of what he calls 'precision agriculture', optimised for the nutraceutical industry. While manufacturers, suppliers and brands in general are regulated and organised, the agricultural sector tends to be disorganised — especially in India.

Co-founder Kevin Parekh told NutraIngredients-Asia : "We are trying to solve the problems the nutraceutical industry is facing, especially in terms of raw materials. Firstly, there are high levels of contamination in the agricultural produce, be it from pesticides, herbicides or heavy metals. "The second issue is low bioactive content in the produce. Farmers are mostly motivated by high crop volume rather than bioactive content, since they are not compensated for the latter. The third issue is consistency.

Conventional farming depends heavily on natural factors, such as soil condition, and climate. The consistency of the availability of high-quality raw materials is difficult to maintain. In addition, compared to the food industry, the nutraceutical industry is quite small. It can be difficult for nutraceutical companies to get the right raw materials, due to problems like higher costs."

Protocols for every stage

Sattvaponics' problem-solving approach revolves around assessing individual issues and developing solutions that cover the entire process of developing an ingredient for nutraceutical use. Korde said: "Based on a particular problem, we design a solution that covers all the protocols, from farm stage to post-harvest processing. At the centre of our solutions is the consumer, who is struggling with all kinds of contamination and adulteration of raw materials.

Take for example ginger, which suffers from high pesticide contamination almost everywhere in the world. "We work with the customer to understand the issues, and design a protocol starting from seed development and treatment, focusing on the active ingredients of ginger and how to preserve their quality and bioavailability all the way through to post-harvest processing."

He added that in the long term, the company plans to scale up their solutions for farm applications, but is currently focusing on ensuring all the necessary quality controls are in place. The next phase would involve Sattvaponics providing training for farmers, so they can grow their crops using the firm's solutions. The produce will then be collected for processing before being supplied to nutraceutical manufacturers.

Korde said, "We don't focus on the overall yield of the crop, but on the per-acre yield of bioactives in a plant. We select a seed, and our entire set of protocols — which cover growing conditions, irrigation, harvesting time, drying procedures — are optimised to produce the best quality and maximum bioavailability of that particular crop."

He also highlighted the importance of the final steps of the production process, saying that often, much of a crop's bioactive content was lost in the last stages of conventional farming. As such, Sattvaponics uses sterile growing conditions in a protected environment, biological control agents and optimised plant nutrition to ensure the survival of bioactive ingredients after post-harvest processing. This also lowers the risk of diseases and pest attacks, negating the need for chemical pesticides.

"Eventually, everyone benefits: farmers from better yield, pricing and income, consumers from cleaner, more nutritious products, and manufacturers from being able to meet the growing demand for better quality products."

The firm aims to cover 300 to 400 acres of cultivation within the next three years in order to produce multiple high-value crops year-round.

Investments, India, and international interests

Korde and Parekh have a collective two decades of experience in the nutraceutical industry. They once worked with Mariwala, who co-invested in Sattvaponics together with the CIIE. While Sattvaponics was started in and is located in India, the firm's focus is on East Asia, South East Asia, and Europe. In fact, it has been in talks with companies in Japan, Taiwan and Europe, and has expressed interest in Singapore, Malaysia and Thailand.

Once it is established in its overseas target markets, however, Sattvaponics intends to use its standing, technologies and expertise to effect positive change in India's nutraceutical industry. Parekh said: "A lot of the experts we work with are not from India, and we want to work in other countries not only to access their technologies, but also to be closer to the markets themselves.

Ashish added: "Our vision is to raise the benchmarks for quality in the industry. We want to bring in technologies and solutions that not only work for larger, more established markets, but that are cost-effective and can improve the quality standards in market such as India. "We have a big population, and it is our responsibility to serve the market with clean, better quality products."

Probiotics and convenience: Japanese firm launches 'on-the-go' functional products

By Cheryl Tay 19-Nov-2018 - NutraIngredients Asia

Japanese firm House Wellness Foods is tapping into the functional food sector's growing trend of healthy convenience with a new range of products featuring its patented lactic acid bacteria strain, heat-killed Lactobacillus plantarum L-137 (HK L-137).

The products are designed to provide on-the-go nutrition in convenient formats, and include a yogurt- flavoured functional beverage and energy gel pack, a flavourless soluble powder that can be added to drinks and soups, instant Japanese curry, instant noodles, a strawberry-flavoured packaged dessert, and caramel-flavoured corn snacks. According to the company, consumers have responded well to the products, and it expects them to become even more popular over the next few years. GM Kotaro Soga told NutraIngredients-Asia : "Our target demographics are men and women in their 20s to 40s, especially when it comes to the drink, soluble powder and energy gel pack. We believe the rest of the products are suitable for male and female adult consumers of all ages.

"The entire range of HK L-137 products is meant to support overall quality of life and help customers maintain a healthy physical condition, and we chose these formats in particular because we want people to be able to consume HK L-137 easily in their daily meals."

Immunobiotic innovation
L-137 is in fact closely related to House Wellness Foods' bestselling ingredient Immuno-LP20, with Soga describing them as "more than 90% the same" . He said, "We have been selling our immunobiotic product, Immuno-LP20, in China and North America as an ingredient for use in health supplements for about 10 years. With HK L-137, we _nally developed the ingredient for functional food and beverage applications."

Indeed, for almost 30 years, the firm has invested the majority of its research efforts into finding evidence that daily consumption of HK L-137 can support and even enhance the body's ability to fight infection, and improve its overall physical condition.

The company's researchers focused on the fermentation process that had for years enabled traditional South East Asian cultures to preserve food for extended periods without the need for refrigeration, concluding that lactobacilli was the key to preserving organic matter for consumption. In this way, the cellular health maintenance properties of lactobacilli could be conferred via consumption to living organisms.

House Wellness Foods proudly claims that Immuno-LP20 was a pioneer of sorts in immunobiotics, which combine the everyday immune system benefits of probiotics with an enhanced ability to stave off infection and support long-term immune health. In 2013, an RCT published in the Journal of Nutritional Science reported that the oral intake of HK L-137 could prevent and ameliorate upper respiratory tract infection, as well as the onset of allergic reactions. The process of heat-killing the bacilli stabilises L-137, thereby maintaining its potency upon consumption. Its bioavailability after consumption is attributed to its unique ability to withstand being broken down by gastric fluids, which allows it to remain effective all the way down to the lower bowel.

At home and abroad
While the HK L-137 range of products has enjoyed domestic success, House Wellness Foods has no plans at the moment to export it. Soga said, "With HK-L-137, we want to focus on the Japanese market for now, and continue selling Immuno-LP20 in overseas markets. The market for probiotics and even postbiotics has been increasing over the past several years, and we believe there are big possibilities in the APAC region, where we are aiming to bring Immuno-LP20."


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House Wellness Foods' projected global sales are expected to reach US$62m (¥7bn) by 2020 and US$88.7m (¥10bn) by 2023.

Trend tracker: Infant formula, beauty from within and probiotics feature in our trend line-up

By Cheryl Tay 14-Nov-2018 - NutraIngredients Asia

In our latest overview of market trends in APAC, China's online dairy sales have declined, while Australia's daigou sales for infant formula are soaring — much to the chagrin of local parents. Elsewhere, we look at new products in the beauty-from-within space, and the newest probiotics consumer developments.

Online sales of dairy products slows in China, growth mainly fuelled by infant milk powder and liquid milk

Online sales of dairy products on China's e-commerce platforms grew at a YoY rate of 45.2% in Q1 2018 — the lowest since Q1 2016, according to an analysis carried out by China research company Syntun. The analysis broke down the market performance of liquid milk, infant formula powder, and adult milk powder sold on China's e-commerce platforms in Q1 2018. Data was collected from a range of B2C e-commerce platforms, including JD, Suning, Tmall, Amazon, and yhd.com. JD and Tmall remained the two most popular e-commerce sites for sales of dairy milk. Although most transactions took place on Tmall (49.5%), the sales revenue was higher for JD (51.2%).

Don't blame daigou, blame brands? Formula firms urged to explore new retail channels in Australia amid shortage complaints Brands must share the responsibility for shortages of infant formula in some Australian stores, instead of heaping the blame on daigou shoppers, says Australia-China Daigou Association (ACDA) president Dr Mathew McDougall. Daigou shoppers in Australia are once again in the spotlight, thanks to an open letter addressed to supermarket chain Woolworths from a father in Sydney.

The supermarket's decision to raise the per-customer infant formula limit from two to eight tins was criticised, and in response, it justified this with "improving supply in the market", adding that it would continue to "carefully monitor" stock availability and readjust the limit if necessary.

Amid the dissatisfaction from Australian parents being directed at daigou shoppers and local supermarket chains, McDougall said manufacturers, especially the a2 Milk Company, had a responsibility to find solutions. Israeli nutraceutical supplier Lycored is bringing its two decade-long research into 'beauty from within' to fruition with its ingestible skincare solutions, with which it intends to target the booming APAC market.

Golan Raz, head of the company's global health division, told NutraIngredients-Asia: "Lycored has been laying the foundation for ingestible skincare products for over 20 years, during which we've conducted extensive research that has contributed to understanding of the direct link between nutrition and skin wellness. "While we started our journey two decades, it's only within the last few years that we've really embraced 'beauty from within' as a core element of our brand identity."

When marketing probiotics, do consumers care about delivery technology?

When marketing probiotics, delivery system technology is still mostly a B2B tool, according to data from Lumina Intelligence. But as consumers scrutinize efficacy more, it may become an important marketing tool. "Using a delivery system and making consumers aware of that is one of the ways to demonstrate to consumers that a signi_cant count of bacteria in the product is going to survive the manufacturing, the storage and finally, the passage through the digestive tract to reach the intestines alive," Ewa Hudson, head of market insights at Lumina Intelligence, told us. Yet a majority of probiotic products screened by Lumina (79%) do not name a specific delivery system.

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REGULATORY NEWS

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Life imprisonment for food adulteration in India

By Pearly Neo 28-Nov-2018 – Food Navigator Asia

'Maximum punishment': India's Maharashtra FDA to prescribe life imprisonment for food adulteration violators

Life imprisonment will soon be the maximum punishment for food adulterators in the Indian state of Maharashtra , said the state's Food and Drug Administration (FDA). "The Maharashtra government will bring amendments to […] the Prevention of Food Adulteration (Maharashtra Amendment) Act, 1969 to provide life imprisonment for the accused," said Maharashtra FDA Minister Girish Bapat. "[Life imprisonment will be the] maximum punishment for adulteration cases."

Bapat also revealed that President Ramnath Kovind had agreed to other states' amendments to the respective state laws, prescribing life terms for the violators.

Australia to stop 'misleading' plant-based product labelling

By Pearly Neo 28-Nov-2018 – Food Navigator Asia

No more almond 'milk'? Australia looks to stop 'misleading' plant-based product labelling

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Manufacturers in Australia may soon have to re-label all plant-based products containing the terms 'meat' and/or 'milk' in them , as politicians request Food Safety Australia New Zealand (FSANZ) to review the standards surrounding these. Australian Regional Services Minister Bridget McKenzie said that these changes were necessary "to protect the reputation, hard earned by our clean, green farmers."

"I want consumers to have confidence that when they buy […] meat, it's beef from an animal and when they buy milk, it is actually produced by a dairy cow. We need to be careful [we] don't confuse the marketplace."

India's war on glyphosate: Canada and Australia under fire as FSSAI intensifies pulses testing

By Pearly Neo 14-Nov-2018 – Food Navigator Asia

Food Safety and Standards Authority of India (FSSAI) is stepping up efforts to detect glyphosate traces in imported pulses, with Canadian- and Australian-imported lentils coming under scrutiny.

In an official statement, the Indian food safety regulatory body said: "There is a possibility of higher levels of residues of the herbicide Glyphosate in pulses, thereby

Image © iStock.com/AlexandraFlorian

adversely affecting the health of the consumers. In this regard, while forwarding the samples of pulses for testing, Authorised Officers are directed that the labs are to test for Glyphosate, and the relevant data] shall be shared with FSSAI HQ, New Delhi every 15 days."

The statement also announced that Maximum Residue Limits (MRL) specified in international Codex Alimentarius standards will be used when granting import clearances, as India does not have any national standards for MRL despite over 5 million tonnes of pulse imports. The types of pulses expected to be affected are beans, lentils, peas and soya beans. As per Codex standards, the glyphosate MRL for beans stands at 2mg/kg, followed by lentils (5mg/kg), peas (5mg/kg) and soyabeans (20mg/kg).

India is one of the world's biggest pulse producers but also imports a good deal of these, especially from Australia and Canada. Together, the two countries make up some 56% of India's total lentil imports. According to reports, recent Canadian Food Inspection Agency (CFIA) tests reportedly revealed an average 282 parts per billion (ppb) of glyphosate in lentils and pulses grown in Canada, and 1,000 ppb in those grown in Australia, numbers which are considered high.

Pulses from Canada and Australia
In a news report published on the FSSAI website, Moong dal (lentils) from Australia and Masoor dal from Canada are expected to be handled with extra caution. This is due to specific mention by Indian-Canadian food security activist Santanu Mitra, whose allegations were what spurred FSSAI into taking action.

On his website, Mitra has detailed his many efforts on getting authorities to take action on glyphosate, including his frustrations in dealing with the Canadian government on the issue. "[Highly] toxic lentils and pulses are now being imported from Canada, Australia etc without any testing if those levels of glyphosate are allowed in India, and more importantly, if India has ever checked on safety of glyphosate in seed crops," said Mitra. "I have had quite a few [meetings with Canadian politicians] to push back at glyphosate."

"[Unless] Canada discloses hitherto hidden test records on safety of glyphosate, which the [government] received from Monsanto back in the 1970s and has been hiding till date, [success is difficult]. In my view of the constitutional law, no product may be released to the people without releasing its safety document. And yet, the government hides it, and replaces it with a plethora of 'independent scientific reports' from around the world, selectively picked, that declare glyphosate to be safe."

Mitra wants India to demand that Canada disclose their 'hidden safety documents of Glyphosate' for independent validation, as well as cancel all Canadian grain imports unless these are proven to be 'free of all biocides that are not approved for use by India'.

In Australia, the country's representative pulse industry representative Pulse Australia has defended the use of glyphosate. "[Glyphosate] has been registered for use in Australia for 40 years. […] All registered agricultural and domestic garden chemicals, including glyphosate have been extensively reviewed by […] the Australian Pesticides and Veterinary Medicines Authority (APVMA)," it said to SBS Punjabi.

The Canadian glyphosate controversy: Government vs consumer

A 2017 CFIA study said that almost one-third of all the foods that it tested contained glyphosate residue, although residues above MRLs were 'only' found in 1.3% of samples. Within this, the herbicide was detected in 47.4% of all bean/pea/lentil products tested, but with 0.6% above MRLs.

"This data was evaluated by Health Canada and no human health concerns were identified," said CFIA. "Basically, what this report] is saying to us is that the Canadian food system is safe," said Aline Dimitri, CFIA deputy chief food safety officer and executive director to Producer.

However, many advocates and consumer activists fired back on these results, claiming that CFIA was downplaying the results. "[These MRLs have never been scientifically determined or tested. I […] have never seen a single study that shows that there is actually a safe amount of glyphosate to ingest, so the MRLs used in the study are truly a moot point," said consumer advocate Erin Brockovich on her Facebook page. "It is far more significant that almost a third of the food supply tested in the study contained glyphosate. That's alarming and unacceptable."

Glyphosate in pulses

Glyphosate is one of the best-selling herbicides worldwide. It was considered safe up until 2015, but this status was revoked after the World Health Organisation's International Agency for Research on Cancer (IARC) classified it as a possible carcinogen. If consumed in large amounts, glyphosate can affect the body's immune system and nutrient absorption. Recently, a United States court ruled that glyphosate contributed to a person's cancer, and that Monsanto (producer of Roundup, a glyphosate-based herbicide) "acted with reckless disregard for human health" by deliberately downplaying its risks.


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'No more false claims': FSSAI finalises ban of 'frivolous' terms on processed food labels

By Pearly Neo 28-Nov-2018 – Food Navigator Asia

The Food Safety Standards Authority of India (FSSAI) is all set to roll out its latest food product advertising regulations, which will ban 'frivolous' terms such as 'natural', 'fresh', 'traditional', 'premium', 'best' and more on the labels of processed foods unless these meet certain standards.

Upon implementation, food companies will only be able to make such nutritional, health and/or quality claims 'based on available scientific information and international best practices' . According to FSSAI via the regulations draft which was released earlier this year, "[Food] business (sic) cannot use the words/ phrases such as natural, fresh, original, traditional, premium, finest, best, authentic, genuine, real etc. on the food labels except under specific conditions detailed therein."

"Foods can be claimed to be 'fresh' only if they are not processed in any manner except washed, peeled chilled, trimmed or cut or have undergone other processing necessary for making the product safe without altering its basic characteristic in any manner."

Additionally, the use of terms that are synonyms or even could mean any of the speci_ed words mentioned above within any company brand names will need to provide a disclaimer stating that "this is only a brand name or trade mark and does not represent its true nature".

"Such restrictions are primarily aimed at restricting an open-ended use of these words/phrases by food businesses on frivolous grounds," added FSSAI. The new regulations aim to ensure 'fairness in claims and advertisements of food products', as well as to warrant accountability by food companies. "We will soon notify the regulations on claims and advertisements, which have got the final approvals from the health ministry," said FSSAI CEO Pawan Agarwal to HinduBusinessLine.

Other stipulations in the new regulations

Apart from specific term restrictions, other claims that fall under the new regulations include non-addition (no-salt/no-sugar/etc.) claims, nutritional (energy/fat/cholesterol etc.) claims, 'source-of' claims, 'high-in' claims, low-glycaemic claims, health and nutrient claims, and more.

Food companies will also be prohibited from "advertising or making claims undermining the products of other manufacturer so as to promote their own food products or influence consumer behaviour."

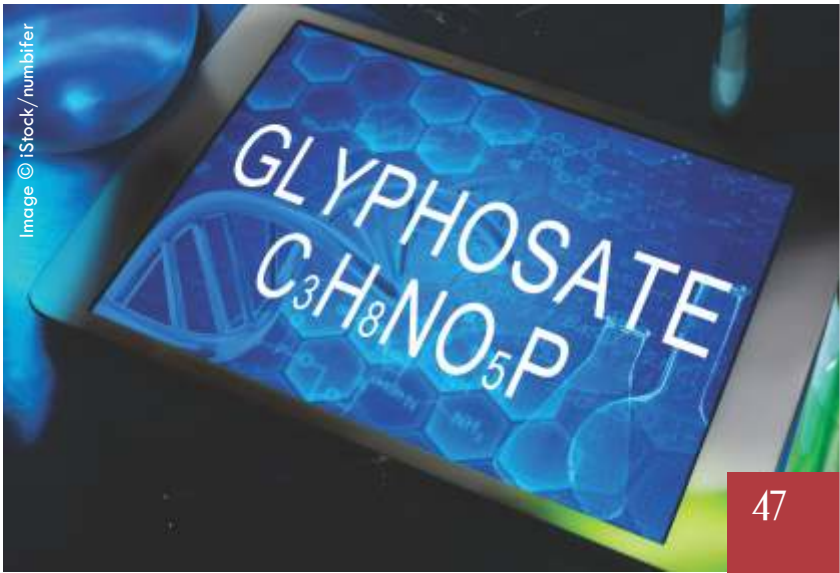
Comparative advertising that "undermines the importance of healthy lifestyles or portrays the food product as a complete replacement of normal meal are not permitted."

Further emphasis has also been placed on the importance of promoting healthy lifestyles. "Advertisements in respect of a food product that undermines the importance of healthy lifestyles or portrays the food product as a complete replacement of normal meal are not permitted," added FSSAI. Violators of the new regulations as well as those who are party to the publication of any 'misleading advertisements' are subject to a fine of up to INR1mn (US$13,993).

FSSAI declares imported pulses and beans 'safe' amidst activist protests of 'toxic chemical lobby' influence

By Pearly Neo 29-Nov-2018 – Food Navigator Asia

The Food Safety and Standards Authority of India (FSSAI) has declared all imported pulses and beans to be 'safe' from glyphosate contamination, despite activist protests concerning a lack of transparency and accusations of influence from the 'toxic chemical lobby'.



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Last month, FSSAI ordered the testing, monitoring and sharing of data with headquarters every 15 days, with regard to the presence of glyphosate in imported pulses. The main pulses affected were beans, lentils, peas and soya beans. Canada and Australia were specifically mentioned as countries with possibly 'toxic' pulse imports. "Monthly data pertaining to glyphosate level in pulses received from ports directly handled by FSSAI was analysed. [It] has been observed that of the 319 consignments tested, glyphosate residues were found in only 7 consignments and that too were within the prescribed MRLs," it added.

"So, it may be observed from above that there is no concern of any kind" FSSAI CEO Pawan Agarwal added that: "Such monitoring of pulses for glyphosate will continue for some more time till it is established for sure that there are no residues of glyphosate in imported pulses."

Too much hype?

Agarwal also voiced concerns that the previous glyphosate-testing order had been 'misreported by certain sections of media which creates a scare among public at large about safety of pulses'. According to the release, he expects the media to be 'more circumspect' when reporting on food safety issues, so as to ensure that public confidence in 'food available' is not shaken. "We have residue levels for pesticides, which we keep on notifying. Glyphosate is a pesticide that is permitted for use in India. The residue levels are decided according to crops. Even in India we have it for other commodities, but for pulses it was not there," he said to NDTV.

Protests against 'hasty' statement Indian-Canadian food security activist Santanu Mitra has written an open letter to Agarwal protesting the 'hasty' conclusions being made. Mitra's allegations were what led FSSAI to take action in the first place. "I would advise against arriving at such a hasty statement (that imported pulses are safe from glyphosate) based on evidence that might deserve a lot more scrutiny," said Mitra.

He expressed suspicion about the fact that very few samples were found to contain glyphosate. "Countries such as Canada and Australia do not use glyphosate only for weed control. They use it to desiccate […] crops just before harvesting [and the process] guarantees presence of and high concentration of glyphosate in harvested seeds," he claimed. "Any crop that is desiccated with glyphosate prior harvesting cannot have no glyphosate. Therefore, if tests in India show no glyphosate in those crops, the quality of those tests are suspect."

Mitra also pointed out the necessity for lab technicians to be 'highly skilled' to properly use the High pressure liquid chromatography tandem mass spectrometry (HPLC-MSMS) method when detecting glyphosate. "[If] the lab assistants are not s ciently trained […], the results can be less than perfect. This method is not something where the sample is shoved inside a machine, and the lab attendant then watches his smart phone and awaits accurate results to be spewed out by the machine," he said.

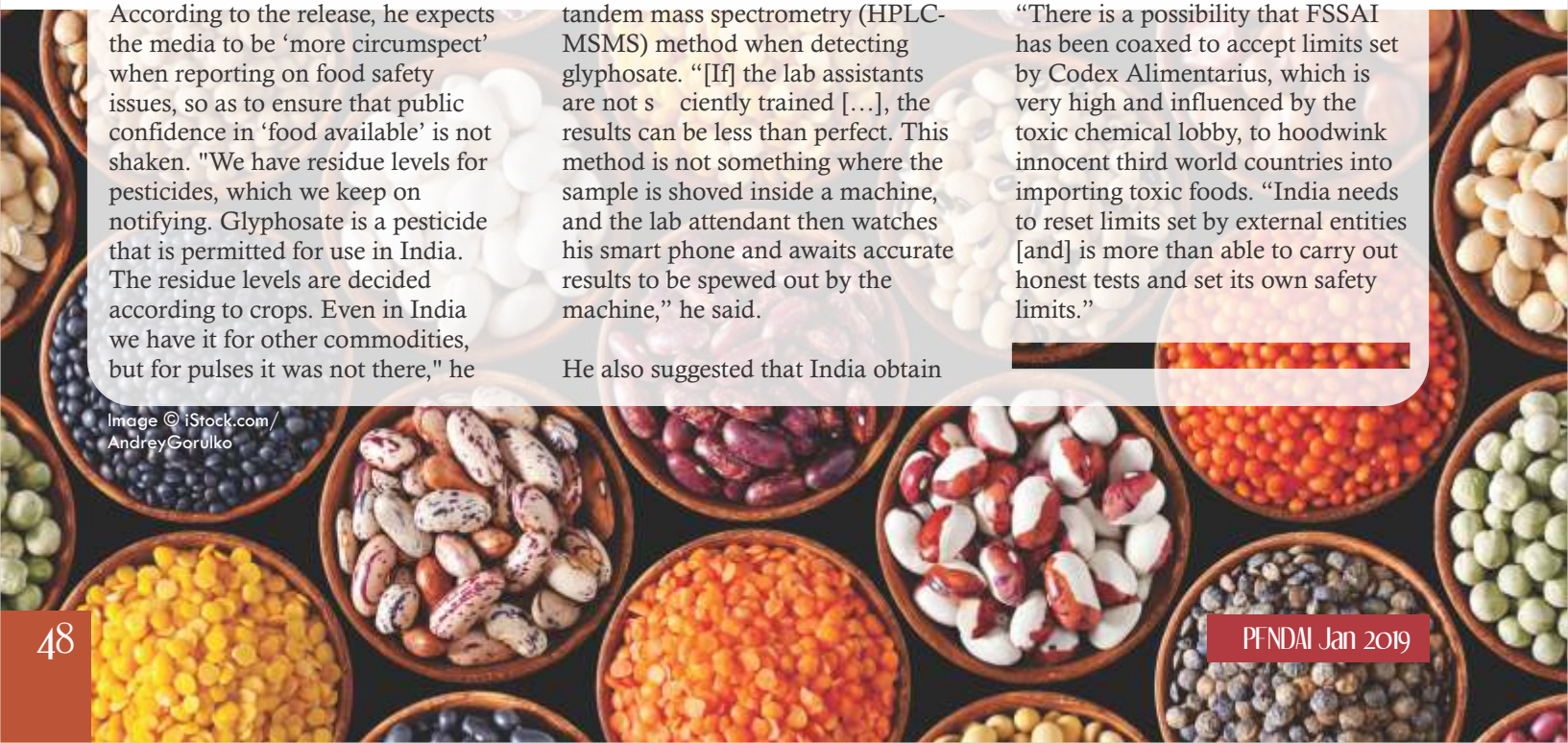
He also suggested that India obtain further guarantees as well as show more transparency in dealing with the issue. "I would strongly suggest that the Government of India obtains a written guarantee from all exporting nations such as Canada and Australia, that they do not use glyphosate, or any other poison, for desiccation of the crops before harvest.

"I would suggest FSSAI investigates reliability of these tests and to explain how crops desiccated with glyphosate can have no presence detected. Further, these results should be disclosed to the people so that they can stand public scrutiny.

"I would also recommend that you arrange for tests of the seeds grown in Canada and earmarked for shipment to India, be independently tested in certified labs in Canada and results submitted to you prior shipment."

Mitra also decried the glyphosate safe limits used in the testing, and pushed for India to set its own standards. "India has not set a safe limit for glyphosate. Further, India has not approved glyphosate for use in agriculture at all. Therefore, no glyphosate can or should be considered as 'within limit'," said Mitra.

"There is a possibility that FSSAI has been coaxed to accept limits set by Codex Alimentarius, which is very high and influenced by the toxic chemical lobby, to hoodwink innocent third world countries into importing toxic foods. "India needs to reset limits set by external entities [and] is more than able to carry out honest tests and set its own safety limits."



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- Suspension even at elevated shipping and storage conditions.
- Temperature independent
- Simpler processing – Functions Independently of other ingredients once activated
- Forms insoluble colloidal network – physically prevents the emulsion from separating

Fat Mimetic and Texturizing Agent

- Fat-like texture
- Calorie reduction
- Improve flow properties and textures of reduced fat products

Other Benefits

- Thixotropic- little to no loss in viscosity even after shear is removed
- Ice crystal growth control due to physical barriers created by insoluble network

APPLICATIONS

Ice cream
Whipped toppings
Beverages- pH neutral & low pH
UHT & Retort packaging
Dressings and sauces
Bake stable fillings
Culinary applications

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Ask our technical experts how they can provide further help to meet your specific finished product goals

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