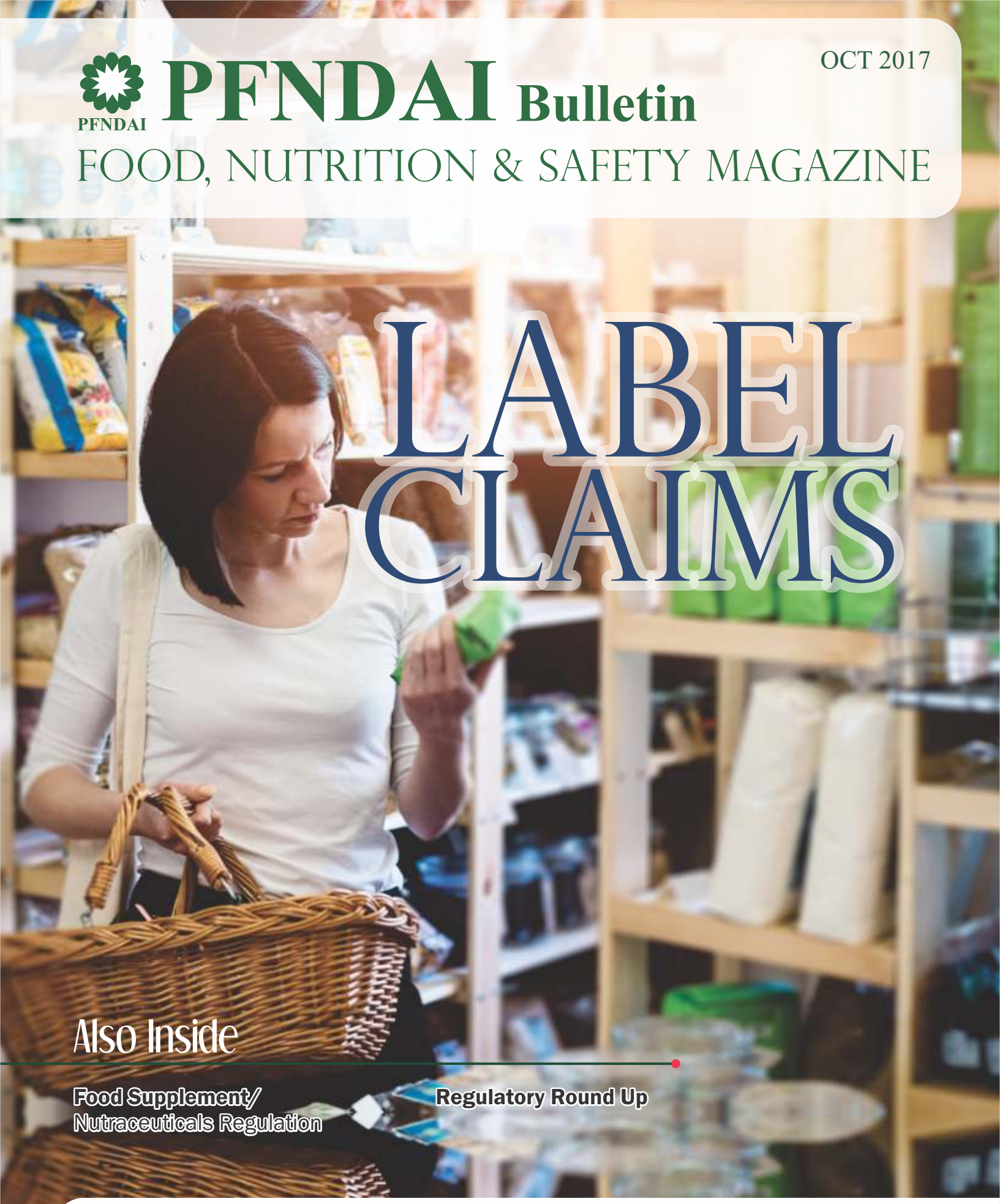
PFNDAI

PFNDAI Bulletin

FOOD, NUTRITION & SAFETY MAGAZINE

OCT 2017



LABEL CLAIMS

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Regulatory Round Up

PROTEIN FOODS AND NUTRITION DEVELOPMENT ASSOCIATION OF INDIA

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FOOD, NUTRITION & SAFETY MAGAZINE

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EDITORIAL

Antibiotic resistance is a huge problem facing the health care. Although antibiotics were known for over a hundred years, systematic work on antibiotics probably started with the commercialization of penicillin in the USA after it was discovered in UK by Alexander Fleming almost a century ago. Antibiotics revolutionized the treatment of bacterial infections and saved millions of lives.

Antibiotics not just saw a phenomenal success, there were also some problems as bacteria developed resistance against them. There are many reasons for development of resistance. This resistance may be developed when bacteria are exposed to sub-lethal levels of antibiotics when the bacteria may be under stress conditions and may undergo mutation. This may enable them to produce chemicals like enzymes that would neutralize the antibiotic.

Further this resistance may be passed on to other bacteria so the dangers of spread of antibiotics resistance are grave.

Fortunately there were other newer antibiotics developed to replace the antibiotics for treating patients infected by resistant bacteria. However, it is now seen that due to abuse of antibiotics sometimes the bacteria are found that are resistant to multiple antibiotics, the so called multi-drug resistant bacteria. The situation is now seeing a crisis as newer antibiotics discovery and commercialization are becoming scarce.

The antibiotics usage has not been ideal as there are cases of abuse. Overuse of antibiotics is seen as well as use of antibiotics when not needed. Use of improper dosage is another cause as sub-lethal doses may promote stress conditions for bacteria which may develop resistance.

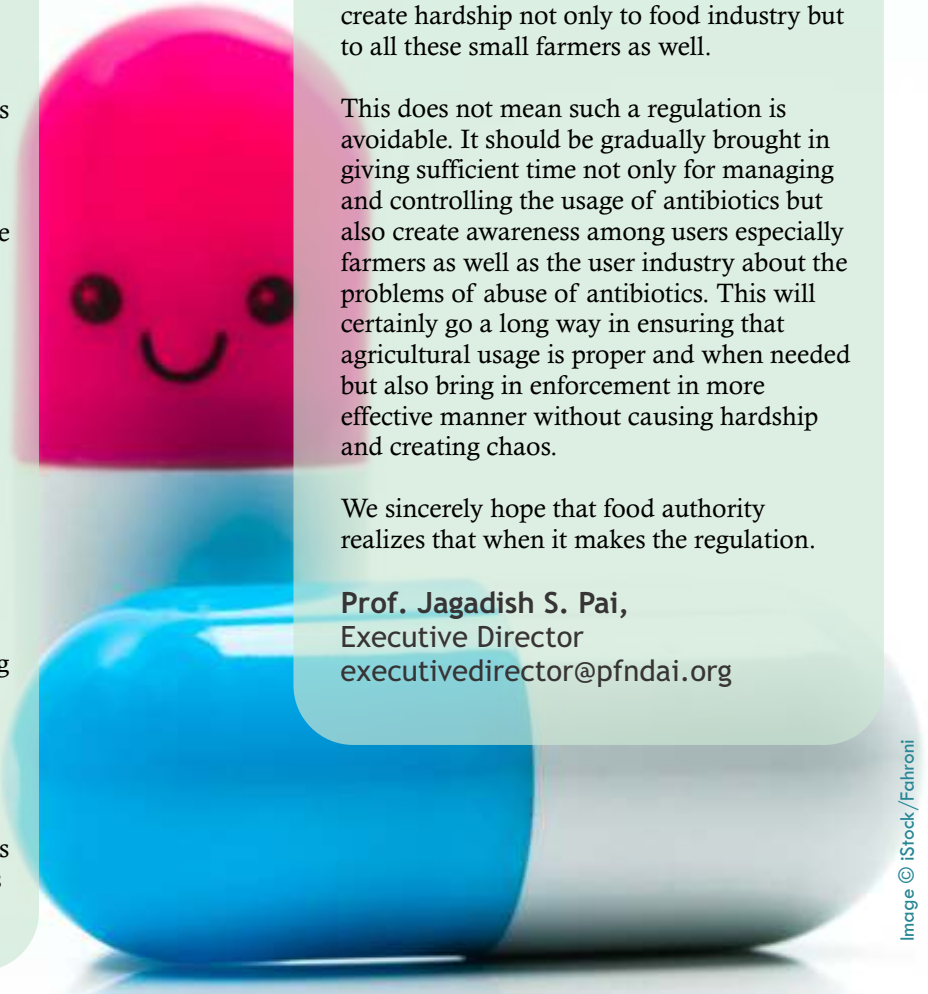
There is also good amount of antibiotics used in agriculture not just for curing the bacterial diseases but also to promote growth and preventing infections in farm animals like cattle, poultry etc. This may remain in meat and/or milk may cause resistance among bacteria. This is one reason for regulatory authorities globally trying to put a limit on antibiotics content in these products which will discourage misuse in agriculture.

However, when such regulation is implemented in developing countries, it must be realized that dairy and meat business involves small farmers. Monitoring levels becomes extremely difficult and expensive if not impossible. Government should not all of a sudden bring in regulation which will create hardship not only to food industry but to all these small farmers as well.

This does not mean such a regulation is avoidable. It should be gradually brought in giving sufficient time not only for managing and controlling the usage of antibiotics but also create awareness among users especially farmers as well as the user industry about the problems of abuse of antibiotics. This will certainly go a long way in ensuring that agricultural usage is proper and when needed but also bring in enforcement in more effective manner without causing hardship and creating chaos.

We sincerely hope that food authority realizes that when it makes the regulation.

Prof. Jagadish S. Pai,
Executive Director
executivedirector@pfndai.org



LABEL CLAIMS

By
Ms Swechha G. Soni,
Intern PFNDAI, MSc Student,
Nirmala Niketan College

&

Dr. B Sesikeran,
MD, FAMS

Among the claims that can be used on food and dietary supplement labels are three categories of claims that are defined by FDA: health claims, nutrient content claims, and structure/function claims.

Health Claims:

Health claims describe a relationship between a food substance (a food, food component, or dietary supplement ingredient), and reduced risk of a disease or health-related condition.

What is the purpose of a Health claim??

In actual means, a health claim is the information about the product, put up on the label regarding its beneficial effects on one's health on its consumption. Health claim consists of two components:
1. A substance (whether a food, food component or a dietary ingredient).
2. A disease or a health related condition.
A statement lacking either one of the above components does not come under a health claim.

Health claim can be either legitimate or illegitimate.

✓ Legitimate: The purpose is to inform the consumer the benefit of the product or its ingredient on health by sharing the correct information.
× Illegitimate: To purposely mislead the consumer to believe that the product or the ingredient in the product provides a benefit, when actually it is not true.

Qualitative Claim:

A qualitative claim describes a product with an ingredient that gives an implied health benefit by its mere presence or absence. For eg. No added sugar/ contains probiotics.

Specific Structure Function Claims: Specific structure function claims may describe the presence of an ingredient with established health benefit and not the product as whole. It may describe the role of a nutrient or dietary ingredient related to a nutrient deficiency condition or disease and affects the normal functioning of the body.
For eg;
• Rich in calcium- builds strong bone.
• Rich in omega 3- good for heart health.

Quantitative Claims/ Nutrient Content Claims:

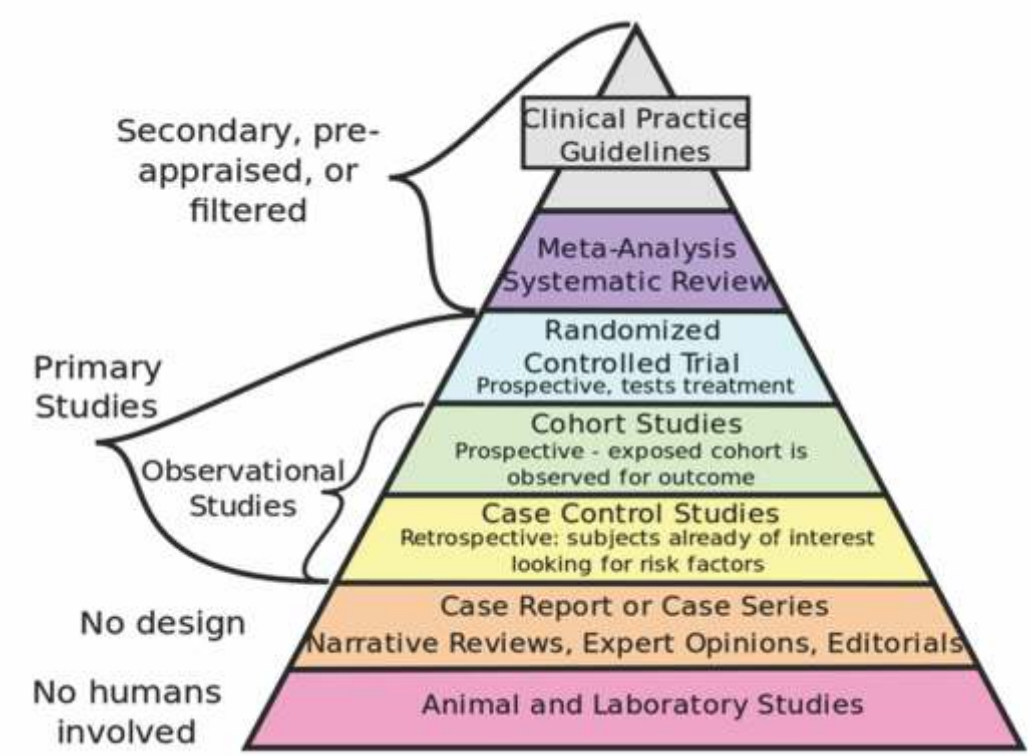
These claims describe about the quantity of the ingredient/nutrient in the product which in high or low concentrations maybe beneficial for health.

For eg.
- Low in sugar- good for weight conscious
- Rich source of fibre

The nutrient/ingredient can be a rich source when present in more than 30% in a product and can be a good source when present in more than 15%.

Health Claims- Specific to diseases:

Put up on products beneficial in a disease state, such as:
- Foods for special dietary uses (FSDU), which are in use for people with metabolic alterations.
- Foods for special medical purposes (FSMP), which are addressed in particular to a disease.

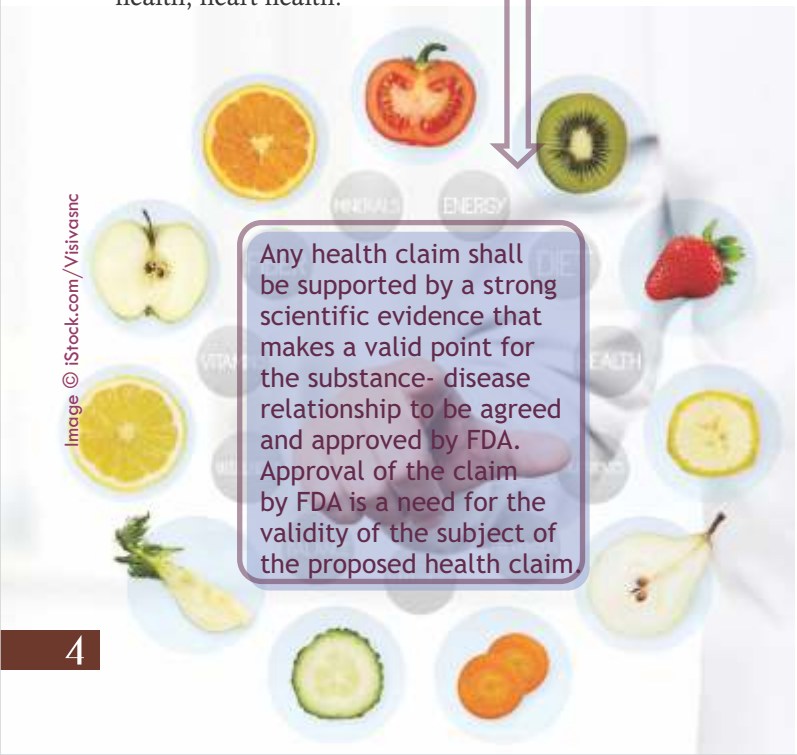


Health Claims- Not specific to a disease.

Not only are the health claims related to diseases, but also to certain health related conditions such as:
- Improves appetite
- Good for growing children
- Promotes immunity
- Eye vitamins and mineral supplementation
- Dietary supplement- promotes urinary tract health, digestive health, heart health.

Evidence based Review system?

An evidence-based review system evaluates the degree of strength of the Scientific Evidence proposed to support a health claim.
The evaluation process involves various steps:
- Assess scientific studies and other data
- Eliminating inconclusive studies
- Rate the remaining studies for methodological quality



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Any health claim shall be supported by a strong scientific evidence that makes a valid point for the substance- disease relationship to be agreed and approved by FDA. Approval of the claim by FDA is a need for the validity of the subject of the proposed health claim.

Types of health claims based on scientific strength (USFDA):

1. Authorized Health Claim: These are the claims that have been supported by strong undisputed evidence verified by FDA and allowed to be displayed on food products/ dietary supplements approving a positive response in reducing a disease risk/ health related condition.
2. Qualified Health Claims: These claims are supported by less significant scientific agreement (SSA), yet acceptable level of evidence.

Identifying Studies That Evaluate the Substance/Disease Relationship:

I. Stages in review:

1. A literature research, relevant to the proposed health claim- Have the studies specified and measured the substance that is the subject of the claim?

2. Individual relevant articles on human studies from other types of data and information- Have the studies appropriately specified and measured the specific disease or health related condition that is the subject of the claim?

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INDIA'S PROTEIN-DEFICIENCY.

Recent survey suggests that 73% of Indian diets are protein-deficient*. Part of the reason lies in the insufficiency of protein content in conventional protein sources such as eggs, lentils, meat, milk etc. Moreover, the steep cost (per 100 gms of protein) of these sources further makes it difficult for families to fulfil their daily protein need. We at Ruchi Soya; the makers of Nutrela Soya Chunks & Mini Chunks and Soya Granules, help consumers bridge this gap by providing the richest source of protein at the most affordable price. Soya contains 52% protein which is significantly above the protein content in eggs, lentils & milk all put together. We urge you to make soya an integral part of your diet recommendations. Let us join hands to help India say a GOODBYE to protein-deficiency!

FOOD	Approx Protein% /100gm	Approx Price/100gm
NUTRELA SOYA CHUNKS	52	9
DAL	25	10
MEAT	22	45
PANEER	19	32
EGG	14	12

www.nutrelahealth.com www.facebook.com/nutrela

*Source: The Times of India, July 2017

3. Review primarily on articles reporting human intervention and observational studies - randomized controlled intervention studies to provide the strongest evidence whether or not there is a relationship between a substance and a disease.

II. Study Specificity:

1. Studies shall be specific to the population for whom the claim is targeted and also the results must be specific for being applicable.
2. E.g. The evidence consisting of studies showing an association between intake of a substance and reduced risk of juvenile diabetes, should not be extrapolated to the risk of diabetes in adults.

III. Observational Studies:

• Observational studies determine the relationship between the substance and disease.
• Well controlled systematic observational studies can provide significant information to specify the probable interconnections to be tested by intervention studies.
• In contrast to intervention studies, even the best-designed observational studies cannot establish cause and effect between an intervention and an outcome.

1. **Cohort Studies** - In a cohort study, an outcome or disease-free study population is first identified by the exposure or event of interest and followed in time until the disease or outcome of interest occurs. These studies are more reliable.

2. **Case-Control Studies** - Case-control studies identify subjects by outcome status at the outset of the investigation. Once outcome status is identified, subjects are categorized as cases, controls. Data about exposure to a risk factor or several risk factors are then collected retrospectively, typically by interview, abstraction from records, or survey. These are less reliable than Cohort Studies.

The Gold Standard
FDA, intends to consider as part of its health claim review process a meta-analysis that reviews all the publicly available studies on the substance/disease

Image © iStock.com/IvelinRadkov

(Jae W. Song, and Kevin C. Chung; Observational Studies: Cohort and Case-Control Studies)

3. **Cross- sectional Studies** – Cross-sectional studies usually involve collecting information on food consumption at a single point in time in individuals with and without a specific disease. These studies can be useful in getting a co-relation between the dietary intake of a substance and the prevalence of a disease. Cross-sectional studies are considered to be a "relatively weak method of studying diet disease associations" because of inaccuracy of the survey methods used and the variations in the diet intake.

IV. Animal and in vitro studies:

Studies on animals and in vitro studies shall be used as background information regarding the mechanisms that may be involved in any interconnection between the substance and disease.

Identifying Surrogate Endpoints of Disease Risk:

• Surrogate endpoints are risk biomarkers that have been shown to be valid predictors of disease risk and therefore may be used in place of clinical measurements of the onset of the disease in a clinical trial
• Example- LDL, cholesterol are the biomarkers for cardiovascular diseases.

Checklist for evaluation of supporting studies:

• Were the study subjects healthy or did they have the disease that is the subject of the health claim?
• Was the disease that is subject of the claim measured as a "primary" endpoint?
• Did the study include an appropriate control group?
• Was the study designed to measure the independent role of the substance in reducing the risk of a disease?
• Were the relevant baseline data (e.g., on the surrogate endpoint) significantly different between the control and intervention group?
• How were the results from the intervention and control groups statistically analyzed?
• What type of biomarker of disease risk was measured?
• How long was the study conducted?
• If the intervention involved dietary advice, was there proper follow up to ascertain whether the advice resulted in altered intake of the substance?
• Where were the studies conducted? (Diverse populations cannot be compared due to different nutritional status and different dietary intakes)
• What type of information was collected?
• Were scientifically acceptable and validated dietary assessment methods used to estimate intake of the substance?
• Did the observational study evaluate the relationship between a disease and a food or a food component?

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Methodological Quality of Studies:

- Were the studies randomized and blinded and was a placebo provided?
- Were inclusion/exclusion criteria and key information on the characteristics of the study population provided?
- Was subject attrition (subjects leaving the study before the study is completed) assessed, explained in the article reporting the study, and reasonable?
- How was compliance with the study protocol verified?
- Was statistical analysis conducted on baseline data for the all subjects initially enrolled in the study or only those who completed the study?
- Did the study measure disease incidence or a surrogate endpoint of disease risk?
- How was the onset of a disease determined?
- Was there an adequate adjustment for confounders of disease risk?

Totality of Scientific Evidence:

The results of the studies are evaluated to draw scientific conclusions and to check the degree of strength of the evidences. Each study is reviewed for-

- Number of studies and number of subjects per group.
- Methodological quality (high, moderate, or low).
- Outcome of the studies within each type as to whether it is beneficially effective, non-affective or rather has adverse effects.
- In general, the higher the frequency of the studies showing a beneficial effect, there is a high chance of the existence of the substance/disease relationship – Conflicting results do not disprove an association (because the elements of the study design may account for the lack of an effect in negative studies) but tend to weaken confidence in the strength of the association.
- Relevance to the general population –

Did the studies only include subjects with unique lifestyles (e.g., smokers, vegetarians)?

Do the studies suggest that the intake level of the substance that provides a benefit significantly exceeds usual intakes in the country. (Evidence based review system-FDA 2009)

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COMING EVENTS

GOED Exchange
February 6 - 8, 2018
Location: Seattle, WA
T: (480) 990-1101 (USA)
E: supplysidewest@virgopub.com
W: www.goedexchange.com

Panacea
8th Natural Products Expo India
February 7-9, 2017
World Trade Centre, Mumbai
T: 022-28410164
W:
www.naturalproductsexpoindia.com

World Mithai & Namkeen Convention 2018
Federation of Sweets & Namkeen Manufacturers of India
February 10, 2018
New Delhi
T: +919930275404
E: mahdi@advanceinfomedia.com

Opportunities in Health Foods
February 17, 2018
Hotel Kohinoor Continental
Organisers: Zantech
T: +919821319391
E: zantechmail@gmail.com

Capacity Building: Food Regulatory Process
Responding to Regulatory Notices/Notifications
March 7-8, 2018
Hotel Kohinoor Continental
Organisers: Protein Foods & Nutri Devel. Asso (PFNDAI)
T: 022-2353 8858/8998
E: foodscientist@pfndai.org

20th International conference on Nutrition, Food Science and Technology
April 16-17, 2018
Location: Dubai, UAE
E: foodtechnology@nutritionalconference.com

3rd Nutraceutical and Functional Food
Asia Pacific Summit & Exhibition 2018
June 6-8, 2018
in Singapore
T: +86 21 55800330*8006
W: +86 21 55800309
E: marcia.liu@duxes.cn

IFT 18
A Matter of Science + Food
July 15-18, 2018
Chicago, IL, USA
W: Iftevent.org

21st World Congress on Nutrition & Food Sciences
July 09-10, 2018
Sydney, Australia
E: worldnutrition@conferencesworld.org

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FOOD SUPPLEMENT/ NUTRACEUTICALS REGULATION

By Ms. Rini Sanyal, Head, Worldwide Regulatory & Govt Affairs, Herbalife

Introduction (Key Drivers of the sector)

Specialised Foods like Food or Health supplements. FSDUs, Nutraceuticals etc. have witnessed a tremendous increase in the recent years among the consumers due to their potential of providing health benefits, which is the key driving factor. Reduce dietary deficiency and general wellbeing are the other aspects for the growth of the industry.

Key differentiators (in comparison with Conventional foods)

• Cannot be compared with conventional foods or standardised Foods
• Formats – capsule, tablets, pills, sachets, jelly or gel, liquid, powder
• To be taken in measured unit quantities / recommended serving

Thus, Supplementary nutrition is focussed to provide and reduce the dietary gap of micronutrients and other nutrients in normal diet

- Key to compensate the dietary deficiencies which exist due to poor or wrong diet / type of food(veg / non veg) or existing Health conditions
- Vitamins and minerals aid in cell function, convert macronutrients into energy and help support the immune system etc.

The Contributory Factors

1. Lifestyle
2. Lack of adequate level of Nutrition from diet

Background:

the sector receives positive recognition with the enactment of FSS Act 2006

Enabling Provision: Section 22 of Food Safety & Standards Act 2006, however, the coverage remain large and includes among FSDUs, Functional Foods, Nutraceuticals, Health supplements – foods from GM origin, Irradiated foods, organic foods etc.

Section 22 and the scope

Covers foods which are specifically processed or formulated to satisfy particular dietary requirements due to particular physical or physiological condition or specific diseases and disorders"…which actually covers food that may be used in certain diseased condition

Codex Reference

These Guidelines apply only in those jurisdictions where products defined are regulated as foods. Vitamin and mineral food supplements for the purpose of these guidelines derive their nutritional relevance primarily from the minerals and/or vitamins they contain. Vitamin and mineral food supplements are sources in concentrated forms of those nutrients alone or in combinations, marketed in forms such as capsules, tablets, powders, solutions etc., that are designed to be taken in measured small-unit quantities1 but are not in a conventional food form and whose purpose is to supplement the intake of vitamins and/or minerals from the normal diet.

FSS Regulation (Regulatory framework)

The Food Safety and Standards (Health Supplements, Nutraceuticals, Foods for Special Dietary Uses, Foods for Special Medical Purposes, Functional Foods and Novel Food) Regulations, 2016 have been gazette notified on 23rd December 2016
Compliance of existing as well as new products latest by 1st January, 2018
During this period, FBOs may continue with manufacturing, importing, storing, packing, distributing and selling products / ingredients following any of the below listed criteria
• Prior notification of FSS Act
• Either approved or granted NOC during the PA regime
• Licenses were obtained for such products / ingredients

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Product coverage as food (which may also use Ayurvedic ingredients)

Food or Health or Dietary Supplements / Nutraceuticals Food for Special Dietary Uses and Food for Special Medical Purposes However, the act and the regulation have clubbed all the above under the same definition

Issues and concerns

There are certain issues and concerns in the notified regulation. Some are of general nature and some are specific and those need to be resolved / addressed before the implementation date.

General Requirements:

➢ Capsule format (hard, soft or vegetarian) to comply with general monograph & quality criteria as per Indian Pharmacopoeia

➢ For making claims on Food Supplements - Individual nutrient content shall not be less than 15% of RDA

➢ For Higher Nutrient Content claim – nutrient content not less than 30% of RDA

➢ Quantity of nutrients added shall not exceed the RDA specified by ICMR (only in case where such limits are not provided, limits laid down by international Food Standards body like Codex shall apply

➢ Purity Criteria for the ingredients used in the categories shall be as determined and notified in the official gazette by the Food Authority from time to time

➢ Tolerance limit for variation of nutrients (during sample analysis of finished products) shall not be more than –(10)% from the declared value

➢ Formulation of such foods shall be based on the principles of medicine / nutrition and supported by valid scientific data

➢ Manufacturing of both ingredients and products shall be carried out in compliance with established Good Manufacturing Practices.

➢ The formulation of such articles of food shall be based on the principles of sound medicine or nutrition and supported by validated scientific data, wherever required.

Specific Requirements

➢ The mere combination of vitamins and minerals formulated in tablets, capsules, syrup formats shall not be covered in any of the categories of these regulations except when vitamins and minerals are added to an article of food or in a food format

➢ Schedule IV(list of Plants & Botanicals): Originally, this list was originally included from Ayush and it consists of plants, vegetables, fruits etc. with limits and claims. Later, the same has been converted to Plants & botanicals sources without any modification on the usage limits

➢ Schedule VI (Nutraceutical): There is no Nutraceutical ingredients per se, either the listed ingredients under Nutra are from plants, botanical sources or extracts from plants, fruits etc. there is restriction on usage of Nutra ingredients in Food / Health Supplements except enzymes.

➢ Missing ingredients: as per available data, there are certain ingredients which are safe, recognised globally and in use in the country for some time.

Ask: for the benefit of industry, the incongruities shall be addressed at the earliest.


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REPORT - NUTRITION AWARENESS ACTIVITY 2017

KARUNYA UNIVERSITY, COIMBATORE

By
Ms. Anuja Rawool,
Food Scientist, PFNDAI

The Nutrition Awareness Activity was organized in collaboration with Dept. of Food Processing &Engineering, Karunya University, Coimbatore on Friday, October 6, 2017.

The theme for the entire activity was Application of Food Technology for better Nutrition.

The event was divided in two sessions, the first session comprised competitions for students and the second session was a seminar.

Competitions organized were Poster Making, Innovative Recipe Competition & Nutritional Quiz wherein students of Food Science, Nutrition, Home Science and Food Technology from various colleges /University including Avinashilingam University, American College (Madurai) College participated.

In the Poster making competition, participating students made posters on 'Nutraceuticals from Plants and High product processing, wherein they made informative posters on the sources of Nutraceutical ingredients and their health benefits. This competition was judged by Dr. S. Gobikrishnan, Professor at Karunya University and Dr. N. Ramasubramanian – Director VR Food Tech

In the second competition, the participants made a very good attempt to come up with creative, innovative, delicious, yet nutritious traditional recipes on 'Nutritious breakfast". This competition was judged by Dr. Ashlesha Parchure – Director VR FoodTech and Dr. Pragalyashree – Professor, Karunya University.

Nutrition Quiz was organised with various rounds for elimination and the final round. To name a few rounds were Buzzer round and Rapid fire round. There was an overwhelming response from the audience.

Speakers

Dr. Ranganath

The seminar was organised in the Elohim Auditorium of Karunya University.

Dr. T.V. Ranganathan, HOD-Dept. of Food Processing and Engineering, Karunya University welcomed all delegates to the Nutrition Awareness Activity.

Dr. N. Ramasubramanian – Director VR Food Tech on behalf of PFNDAI briefly presented about PFNDAI and the various activities carried on by the Association.

Dr. Rohini Sharma Associate Professor, PSG College of Arts& Science Coimbatore presented on "Importance of Oats & Whole Grains in Diet " wherein she presented the importance of whole grains and how to add more whole grains to our daily diet. She introduced about the whole grain nutrient and also research and health benefits. Also the whole grain and weight management was presented.

Many of the discussions were held during the presentation where students were asked a few questions reflecting to the topic like how to identify the whole grains and refined grains, what are whole grains etc.; students were keen to answer and also enjoyed the session.

Dr. T.V. Ranganathan, HOD-Dept. of Food Processing and Engineering, Karunya University presented the 'High Temperature &UHT Processing for Better & Nutritious Food Products'. He spoke about the various techniques used in food processing and what are their effects . He also spoke about UHT processing used increasingly for heat-treating milk, as the shelf-life is extended from days to months, and UHT milk can be stored and transported without refrigeration. The use of UHT treatment varies around the world.

There was a good interaction with several thought provoking questions being raised by students to the speakers.

Prizes were distributed to the winner students for all the competitions by Dr. N. Ramasubramanian, Dr. Ashlesha Parchure, Dr. Rohini Sharma, Dr. T.V. Ranganathan other dignitaries present. Ms. Anuja R. Food Scientist-PFNDAI presented the vote of thanks and thanked all the participants for thought provoking questions and thanked colleges for sending their students and faculty for actively participating in the various events.

Dr. Ramasubramanian

Dr. Rohini Sharma

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Thanking


Winner


Winner


Winner

Stall


Winners


Dr. Ramasubramanian judging Poster


Dr. Gobikrishnan judging Poster


Dr. Parchure judging Recipe


Dr. Pragalyashree judging Recipe


Quiz Competition

REGULATORY ROUND UP

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

Hope 2018 has begun well for you and all set to face the regulatory challenges of the year. Please find below the new addition and changes since the last update.

Standards

FSSAI has released a note titled "Implementation" relating to Nutraceutical regulation. It amends the Nutraceutical regulation and introduces additional botanicals and nutraceuticals in Schedule IV and VI respectively. The new ones are in bold. The notice specifically bans certain substances. Creatine which was banned earlier now finds a place in the list of approved nutraceuticals with maximum permissible usage level. Confusing situation.

Final notification on Organic Foods. Conditions for marketing, labelling and display of organic foods have been laid down.

Final notification on fixing the aflatoxin in areca nut

FSSAI notice operationalizing the use of additional additives in different food and food categories. The notice is an amendment to the Annexure A of Food Products Standards and Food Additives regulation. As the amendment is operationalized, it can be used with immediate effect.

A draft regulation introducing standards hitherto non-standardized foods likequick frozen French-fried potatoes, Edible fungus products and revision of standards of Ginger, Tomato ketchup; Tomato sauce.

Draft notification to include provision for additional additives in various food categories and microbiological standards for spices. Sorbitan esters of fatty acids, paprika oleoresins in different food categories. New microbial standards have been introduced for spice and herbs. The present regulation covers only the spices.

A draft regulation exclusive for infant nutrition has been put up. The draft regulation includes the present Infant Milk Substitute standards mentioned under Milk and Milk Products (with amendments) and introduces standards for infant products with Inborn Errors of Metabolism and also based on traditional Indian ingredients. A regulation of far reaching consequences.

A draft amendment to Contaminants, Toxins and Residues regulation. The proposed draft is related to MRLs of Pesticide residues. The present standard on the maximum residue limits for pesticides is replaced. A few existing ones have been removed and a few added.

General

FSSAI notice with regard to extension of time limit to comply with the standards for caffeinated beverages

A draft regulation relating to the recognition and notification of laboratories by FSSAI. It defines the criteria and process for recognition and notification of food testing laboratories by FSSAI.

List of additional laboratories recognized by FSSAI

FSSAI permits the use of stickers to declare Fortification Logo on the labels.

A food safety alert issued by FSSAI on certain chocolate products from Denmark.

FSSAI through a directive lists the approved health claims which may be used in case of foods complying with the regulation on fortification.

FSSAI notice with regard to erstwhile product approval process. FBOs who have received product approval and if the product happens to be a food not specified, then an application under Non-Specified Foods regulation is to be made.

FSSAI amends its earlier notice on the condition of obtaining "No Objection Certificate" from Central Ground Water Authority.

In case of imports, FSSAI amends the fee structure and also conditions relating to import of infant food for inborn errors of metabolism.

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RESEARCH IN HEALTH & NUTRITION

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Ginger's obesity-fighting and anti-diabetic benefits underlined: China review

By Gary Scattergood 26-Jul-2017 - NutraIngredients Asia

Recent studies have built a consensus that ginger has beneficial effects against obesity, diabetes and cardiovascular diseases, according to a new review.

Academics says ginger has these effects by regulating fat metabolism, suppressing carbohydrate digestion, modulating insulin secretion and response, inhibiting oxidative stress, and lowering blood pressure and cholesterol. The review, published in the Annals of the New York Academy of Sciences, notes: "Epidemiological and clinical studies from recent years have built a consensus that ginger and its major constituents exert beneficial effects against metabolic syndrome."

They added in addition to animal models and in vitro cell studies, several clinical studies have been conducted on humans to evaluate the beneficial effects of ginger. The researchers, from China Agricultural University, said one study clearly demonstrated how ginger extract significantly reduced body weight and serum lipid levels in rats fed a high-fat diet (HFD). "In particular, 6-gingerol, one of the major active compounds of ginger, exhibited anti-obesity effects by altering the activities and expressions of some lipid metabolism marker enzymes."

Anti-inflammatory properties

In clinical studies on humans, one study showed how ginger supplementation had a beneficial effect on weight loss and some obesity-associated parameters in overweight and obese adults. The researchers added the anti-obesity effects of ginger may be associated with its anti-inflammatory properties. With regard to diabetes, and following a number of trials on animals, several recent clinical trials have demonstrated that ginger treatment can reduce levels of blood glucose and inflammation in diabetic patients.

The consumption of ginger was found to significantly improve insulin sensitivity and glucose homeostasis. "Additionally, ginger exhibited beneficial effects on blood pressure and endothelial function in diabetic patients. These results mean that ginger could be useful in the treatment of diabetic complications," they added.

The paper also underlines that ginger has been reported to have positive effects in both in vivo and in vitro studies assessing treatments for non-alcoholic fatty liver disease, while several studies have suggested that consumption of ginger and ginger-derived bioactive agents are associated with a decreased risk of cardiovascular disease (CVD).

"On the basis of the above results, it is concluded that the beneficial effects of ginger in controlling lipid disorders, lowering plasma cholesterol levels, preventing hypertension, and improving endothelial function contribute to the prevention of cardiovascular and metabolic disorders," added the paper. "However, further studies are advocated to evaluate the effects of ginger and its main components in human subjects in the prevention and/or treatment of metabolic disorders," the researchers concluded.

Meta-analysis supports potential of omega-3s for ADHD

By Stephen Daniells 30-Jul-2017 NutraIngredients Asia

Omega-3s fatty acid supplements may improve symptoms and cognitive performance in children and adolescents with attention deficit hyperactivity disorder (ADHD), according to a meta-analysis of gold standard clinical trials.

Data from seven clinical trials involving over 500 children and adolescents indicated that omega-3s were associated with improvements

Image © iStock.com/KatarzynaBialasiewicz

in clinical symptoms of ADHD, while data from three clinical trials involving over 200 children and adolescents indicated a positive impact on cognitive measures associated with attention.

"We provide strong evidence supporting a role for n3-PUFAs deficiency in ADHD, and for advocating n-3 PUFAs supplementation as a clinically relevant intervention in this group, especially if guided by a biomarker-based personalization approach," wrote the authors, led by Jane Pei-Chen Chang from King's College London, in Neuropsychopharmacology .

Commenting independently on the meta-analysis, Harry Rice, PhD, VP of regulatory & scientific aairs for the Global Organization for EPA and DHA Omega-3s (GOED): "In the past, I've been lukewarm on whether or not increasing EPA/DHA intake benefits children with ADHD. Results from this meta-analysis put me a little closer to believing. Minimally, given the low side eect prole of omega-3s versus the drugs of choice to treat ADHD, I would highly recommend rst increasing intake of EPA/DHA. This is particularly true if a child doesn't eat at least two servings of fatty sh a week or doesn't take an omega-3 supplement on a regular basis."

The new meta-analysis was performed using the Preferred Reporting Items for Systematic Reviews and MetaAnalysis (PRISMA) guidelines and used established scientific literature databases to identify appropriate studies for inclusion. Data from seven randomized controlled trials (RCTs) with 534 young people indicated that that omega-s3 supplementation significantly improved inattention and hyperactivity symptoms, according to parental reports.

Boosting EPA/DHA intakes
Meta-analysis details
Additional analysis revealed that the improvements in hyperactivity were only observed when doses of EPA (eicosapentaenoic acid) of 500 mg/day or more were used. Interesting, the researchers did not nd improvements in hyperactivity and inattention when they looked at teacher's reports, unlike what was reported by parents. Omega-3 supplements were associated with improvements in select measures of cognitive performance, said the researchers.

"N-3 PUFAs are crucial for optimal neurotransmitter function: for example, incorporating more EPA and DHA in the cell membrane can increase cholesterol efflux, modulate lipid raft clustering and disruption, and affect the function of the dopamine transporter (DAT), which in turn may affect attention and executive function by regulating synaptic dopamine levels," wrote the researchers.

Data from case-control studies were also collected to assess if omega-3 levels were also associated with ADHD, with results indicating that children and adolescents with ADHD had lower levels of EPA, DHA (docosahexaenoic acid),and total omega-3s.

"In the context of 'personalised medicine', it is tempting to speculate that a subpopulation of youth with ADHD and with low levels of n-3 PUFAs may respond better to n-3 PUFAs supplementation, but there are no studies to date attempting this stratification approach," wrote the researchers. "However, we have [previously] shown that individuals at genetic risk of developing depression in the context of the immune challenge, interferon-alpha (IFNalpha), have lower levels of RBCs n3-PUFAs, and that n-3 PUFAs supplementation prevents the onset of IFN-alpha-induced depression, arguably by replenishing the endogenously low anti-inflammatory PUFAs in the 'at risk' individuals."

"Moreover, a recent study by Rapaport [Mol Psychiatry, 2016, Vol. 21, pp. 71–79] has stratified patients with major depressive disorder into a 'high' and a 'low' inflammation group, and shown that the 'high inflammation' group has better responses to EPA. Therefore, stratification of ADHD children by n-3 PUFAs levels or by immune biomarkers could be one approach to optimise the therapeutic effects of n-3 PUFAs supplementation."

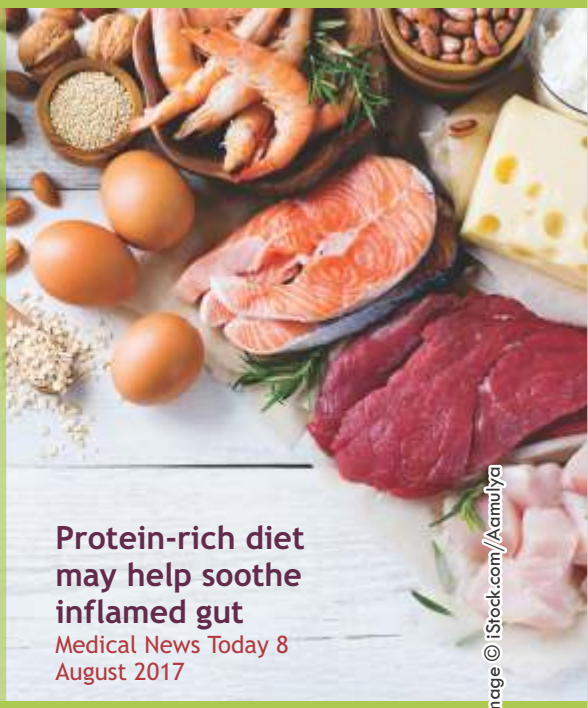


Image © iStock.com/Acmutya

Protein-rich diet may help soothe inflamed gut

Medical News Today 8 August 2017

Immune cells patrol the gut to ensure that harmful microbes hidden in the food we eat don't sneak into the body.

Cells that are capable of triggering inflammation are balanced by cells that promote tolerance, protecting the body without damaging sensitive tissues. When the balance tilts too far toward inflammation, inflammatory bowel disease can result.

Now, researchers at Washington University School of Medicine in St. Louis have found that a kind of tolerance-promoting immune cell appears in mice that carry a specific bacterium in their guts. Further, the bacterium ¬needs tryptophan - one of the building blocks of proteins - to trigger the cells' appearance.

"We established a link between one bacterial species - Lactobacillus reuteri - that is a normal part of the gut microbiome, and the development of a population of cells that promote tolerance," said Marco Colonna, MD, the Robert Rock Belliveau MD Professor of Pathology and the study's senior author. "The more tryptophan the mice had in their diet, the more of these immune cells they had."

If such findings hold true for people, it would suggest that the combination of L. reuteri and a tryptophan-rich diet may foster a more tolerant, less inflammatory gut environment, which could mean relief for the million or more Americans living with the abdominal pain and diarrhea of inflammatory bowel disease. The study is published in the journal Science.

Postdoctoral researcher Luisa Cervantes-Barragan, PhD, was studying a kind of immune cell that promotes tolerance when she discovered that one group of study mice had such cells, while a second group of study mice that were the same strain of mice but were housed far apart from the first group did not have such cells.

The mice were genetically identical but had been born and raised separately, indicating that an environmental factor influenced whether the immune cells developed. She suspected the difference had to do with the mice's gut microbiomes - the community of bacteria, viruses and fungi that normally live within the gastrointestinal tract.

Cervantes-Barragan collaborated with Chyi-Song Hsieh, MD, PhD, the Alan A. and Edith L. Wolff Distinguished Professor of Medicine, to sequence DNA from the intestines of the two groups of mice. They found six bacterial species present in the mice with the immune cells but absent from the mice without them.

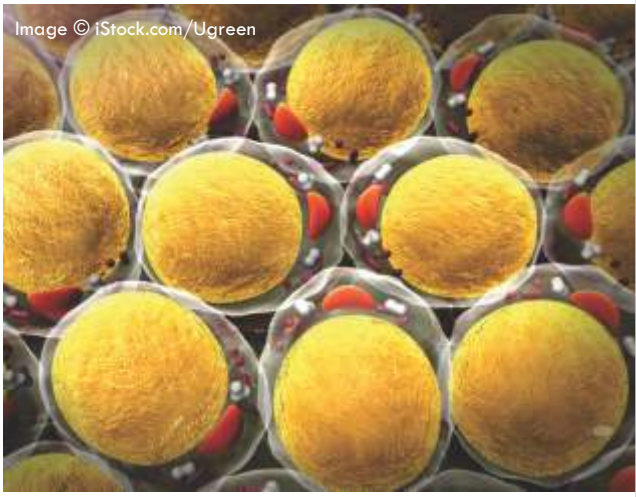
With the help of Jeffrey I. Gordon, MD, the Dr. Robert J. Glaser Distinguished University Professor, the researchers turned to mice that had lived under sterile conditions since birth to identify which of the six species was involved in inducing the immune cells. Such mice lack a gut microbiome and do not develop this kind of immune cell. When L. reuteri was introduced to the germ-free mice, the immune cells arose.

To understand how the bacteria affected the immune system, the researchers grew L. reuteri in liquid and then transferred small amounts of the liquid - without bacteria - to immature immune cells isolated from mice. The immune cells developed into the tolerance-promoting cells. When the active component was purified from the liquid, it turned out to be a by-product of tryptophan metabolism known as indole-3-lactic acid.

Tryptophan - commonly associated with turkey - is a normal part of the mouse and the human diet. Protein-rich foods contain appreciable amounts: nuts, eggs, seeds, beans, poultry, yogurt, cheese, even chocolate. When the researchers doubled the amount of tryptophan in the mice's feed, the number of such cells rose by about 50 percent. When tryptophan levels were halved the number of cells dropped by half.

People have the same tolerance-promoting cells as mice, and most of us shelter L. reuteri in our gastrointestinal tracts. It is not known whether tryptophan by-products from L. reuteri induce the cells to develop in people as they do in mice, but defects in genes related to tryptophan have been found in people with inflammatory bowel disease.

“The development of these cells is probably something we want to encourage since these cells control inflammation on the inner surface of the intestines," Cervantes-Barragan said. "Potentially, high levels of tryptophan in the presence of L. reuteri may induce expansion of this population."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The role of proteins in fat breakdown

IFT Weekly Aug 16, 2017

When we exercise continuously at a low pulse rate, lipolysis (the breakdown of stored fat) starts after about 30 minutes. The same thing happens when we are hungry: the fat cells receive a hormonal signal telling them to make a depot available and break down the stored lipid droplets into fatty acids.

A study conducted by Ruth Birner-Grünberger, biochemist at the Medical University of Graz, and supported by the Austrian Science Fund (FWF), investigated the complex interaction of activation and regulation in fat breakdown.

Birner-Grünberger set out to study three things: which proteins are involved in fat burning, where their interaction in fat cells occurs, and how they are mobilized or inhibited. In preliminary studies, she discovered several lipases (proteins that break down fat) and other proteins that regulate the process. Particularly striking for the researchers was the amount of phosphorylation they found. Phosphorylation is a chemical modification that binds phosphates to proteins and thereby serves to activate or inhibit proteins in cells.

The research project was designed to answer the question as to when and where chemical modifications unlock or inhibit the proteins involved in lipolysis. In vitro studies were not sufficient, however, to explain the interaction of the lipolytic proteins. Success was achieved only when the scientists observed animal cells by means of a confocal laser-scan microscope. To get an adequate amount and quality level of protein for the test series, Birner-Grünberger collaborated with Monika Oberer, structural biologist at the University of Graz, and Dawn Brasaemle, cell biologist at Rutgers University.

This led to the discovery of the first steps of spatial and chemical interaction on the fat droplets in tissue cells. In order to activate the first (of three) lipases, one needs a chain of command including the activator CGI58 and the regulator perilipin. When the fat cells are in a basal state, the two proteins are sitting on the lipid droplet bound together. Upon marking with phosphate, the proteins separate and CGI58 travels to another spot on the droplet in order to activate the first lipase (ATGL). As a regulator, perilipin prevents the lipases from being activated when they are not required.

Birner-Grünberger is planning a follow-up project during which she intends to use phosphoproteomics (the global analysis of thousands of protein phosphorylation processes in cells) to understand which energetic processes are regulated simultaneously with lipolysis, such as glycogen degradation, and to observe the temporal sequence.

Gut bacteria-produced compound may stave off aging

Medical News Today 22 August 2017
By Ana Sandoiu

Researchers examined a class of chemical compounds called indoles and found that they have potential for extending vitality in our fellow mammals, mice.

The findings could pave the way for a drug that could one day help humans to "live better for longer." Genetically, the findings reveal a Dorian Gray-like effect, say the authors of the new research, as the chemical compounds known as indoles combat the adverse effects of aging. "Indoles" is the parent name given to a range of chemicals found in nature. The compound occurs in some flowers, such as jasmine and orange blossom, but it can also be found in fecal matter. Some of indole's chemical versions, such as Indole-3-carbinol, can be found in broccoli, Brussels sprouts, cabbage, kale, and other cruciferous vegetables. Indoles are also produced in our gut by many kinds of bacteria that break down tryptophan, which is an essential amino acid.

New research - led by Daniel Kalman, Ph.D., a professor of pathology and laboratory medicine at Emory University School of Medicine in Atlanta, GA - examines the effect of indoles on improving the "health-span" of various organisms, ranging from fruit flies to mice. The term health-span is used by the authors to mean the "proportion of time that an animal remains healthy and free of age-related infirmities."

"We need a better understanding of health-span," says Prof. Kalman. "With medical advances, people are living longer; but you might not really want to live longer if it means spending those extra years frail and infirm."

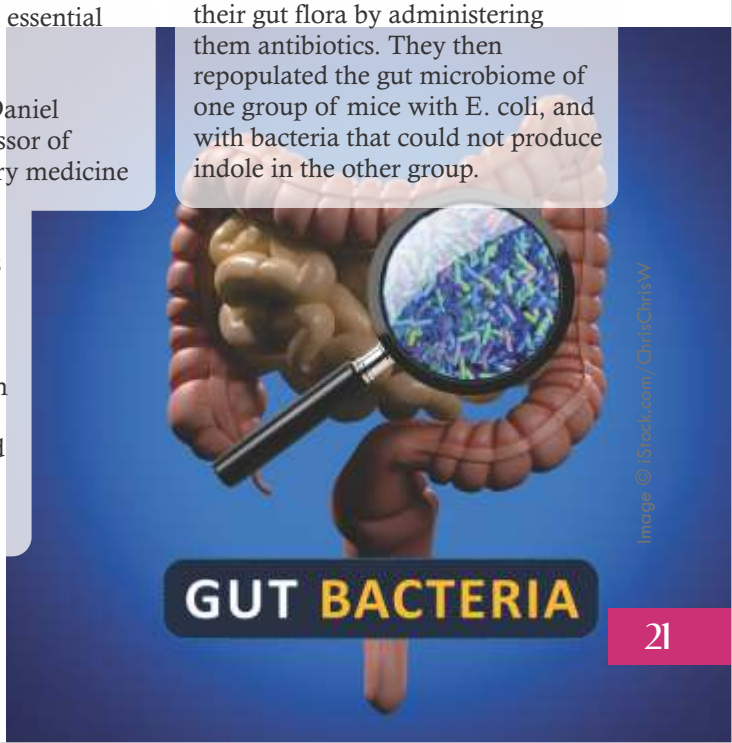
Given our rapidly aging world population, the researcher adds, the health and economic burden that age-related diseases will put on the healthcare system is predicted to skyrocket in the next few decades.

Studying indoles in worms and mice

Prof. Kalman and team's new study builds on their previous research that found that indoles, whose production was mediated by the Escherichia coli bacteria, made mice more resistant to infections and other forms of physiological stress. For the new research, Prof. Kalman and team fed E. coli to a type of worm called Caenorhabditis elegans. Some of the worms could produce indoles as normal, while another group was genetically engineered not to be able to do so.

Specialized stem cells may rejuvenate aged hearts

The researchers also carried out experiments in mice, destroying their gut flora by administering them antibiotics. They then repopulated the gut microbiome of one group of mice with E. coli, and with bacteria that could not produce indole in the other group.



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Indoles increase healthspan

The findings revealed not so much an increase in lifespan, but an extension of health-span. With time, the older worms that had produced indoles were still mobile and active after the age of 15 days. Additionally, these worms had significantly more swallowing strength and were more resistant to heat stress compared with those that did not produce indoles.

Normally, due to aging, after the age of 15 days, all of these abilities are impaired in worms. Also, worms usually stop reproducing after the age of 5 days. The indole-producing worms stayed fertile for almost 12 days, however, suggesting that indoles more than doubled their fertility. Likewise, in mice, indoles seemed to enable old rodents - or mice that were 28 months old - to maintain youthful and healthy levels of weight, mobility, and activity. Indoles seemed to extend life in younger mice as well. In a mouse model wherein the rodents were exposed to life-threatening levels of radiation, indole-producing mice lived longer.

'The Picture of Dorian Gray' effect

The authors write that while there have been other studies to have uncovered genetic pathways involved in increasing the lifespan of various organisms, few of these indicated a way to extend the lifespan while concomitantly extending the health-span. "Rather, mutations that extend lifespan often reduce health-span and increase frailty," they write.

But the analysis of the genetic patterns activated by indoles in mice and worms showcased in the new study revealed "a gene expression profile in aged animals reminiscent of that seen in the young, but which is distinct from that associated with normal aging."

"It's like the Picture of Dorian Gray, in terms of the genes involved [...] Indoles make old animals look more like the young ones [...] This is a direct avenue to a drug that could make people live better for longer." Daniel Kalman, Ph.D. "Indole is such an ancient messenger," he adds. "It's how plants steer their growth, how bacteria talk to each other, and it is how plants and bacteria talk with us and ensure proper homeostasis with our immune system. It is perhaps not so surprising that these molecules help maintain our vitality."

Eating protein three times a day could make our seniors stronger

Science Daily August 30, 2017

Loss of muscle is an inevitable consequence of aging that can lead to frailty, falls or mobility problems.

Eating enough protein is one way to remedy it, but it would seem that spreading protein equally among the three daily meals could be linked to greater mass and muscle strength in the elderly. These are the findings of a study conducted at the Research Institute of the McGill University Health Centre (RI-MUHC) in collaboration with the Université de Sherbrooke and the Université de Montréal. The research team examined both the amount of protein consumed and its distribution among people aged 67 and over, using one of the most comprehensive cohort studies in Quebec.

The results of the study, which were published recently in the American Journal of Clinical Nutrition, shed new light on the diet of people in an aging population. "Many seniors, especially in North America, consume the majority of their daily protein intake at lunch and dinner. We wanted to see if people who added protein sources to breakfast, and therefore had balanced protein intake through the three meals, had greater muscle strength," says the lead author of the study, Dr. Stéphanie Chevalier, who is a scientist with the Metabolic Disorders and Complications Program at the RI-MUHC and an assistant professor at the School of Human Nutrition at McGill University.

A rich database of nutrition data

To achieve these results, Dr. Chevalier and her team collaborated with the Université de Sherbrooke and used the database from the Quebec longitudinal study on nutrition and aging called NuAge (Nutrition as a Determinant of Successful Aging).
RI-MUHC researchers analyzed data from the NuAge cohort, which included nearly 1,800 people who were followed for three years. They reviewed the protein consumption patterns of 827 healthy men and 914 healthy women aged 67 to 84 years, all residents of Quebec, trying to establish links with variables such as strength, muscle mass or mobility.

"The NuAge study is one of the few studies gathering such detailed data on food consumption among a large cohort of elderly people. We are proud that the NuAge study can contribute to relevant research of this magnitude in Quebec," says study co-author Dr. Hélène Payette of the Centre for Research on Aging and a professor at the Faculty of Medicine at the Université de Sherbrooke.


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"We observed that participants of both sexes who consumed protein in a balanced way during the day had more muscle strength than those who consumed more during the evening meal and less at breakfast. However, the distribution of protein throughout the day was not associated with their mobility," explains the first author of the study, Dr. Samaneh Farsijani, a former PhD student at the RI-MUHC supervised by Dr. Chevalier.

A "boost" of amino acids

All body tissues, including the muscles, are composed of proteins, which consist of amino acids. If the protein intake decreases, the synthesis is not done correctly and this leads to a loss of muscle mass.

"Our research is based on scientific evidence demonstrating that older people need to consume more protein per meal because they need a greater boost of amino acids for protein synthesis," says Dr. Chevalier, adding that one of the essential amino acids known for protein renewal is leucine. "It would be interesting to look into protein sources and their amino acid composition in future studies to further our observations."

How dietary fats' impact healthy or obese adults

Science Daily August 30, 2017

Metabolically healthy obese adults consuming a diet high in unsaturated fat and low in saturated fat may be able to decrease their total cholesterol by 10 points, a new study suggests.

However, there was little research evidence to support current dietary recommendations that replacing saturated fat with unsaturated fat aids in weight loss, the researchers also reported.

However, there was little research evidence to support current dietary recommendations that replacing saturated fat with unsaturated fat aids in weight loss, the researchers also reported in their meta-analysis of recent dietary studies.

Nutrition scientists at the University of Illinois analyzed the findings of eight randomized controlled trials to investigate the impact of diets that provided similar amounts of calories, but high amounts of either saturated or unsaturated fats, on the blood lipid levels and body composition of overweight and obese adults.

Each of the studies included a control group of participants who ate a diet high in saturated fats, constituting from 14 to 24 percent of their total energy intake. Found in animal products such as red meat, butter and dairy products, saturated fats have been linked to weight gain and increased risk of cardiovascular disease.
Compared with their counterparts, subjects who ate greater amounts of monounsaturated fats and polyunsaturated fats reduced their total cholesterol by more than 10 milligrams per decilitre.

However, reductions in these individuals' low-density lipoprotein (LDL, commonly called the "bad cholesterol") and triglyceride concentrations were marginal, said lead author Bridget A. Hannon, a graduate research assistant at the university.

Regardless of the amount of saturated or unsaturated fat they consumed, only those subjects who followed calorie-restricted diets lost weight, the U. of I. scientists found.

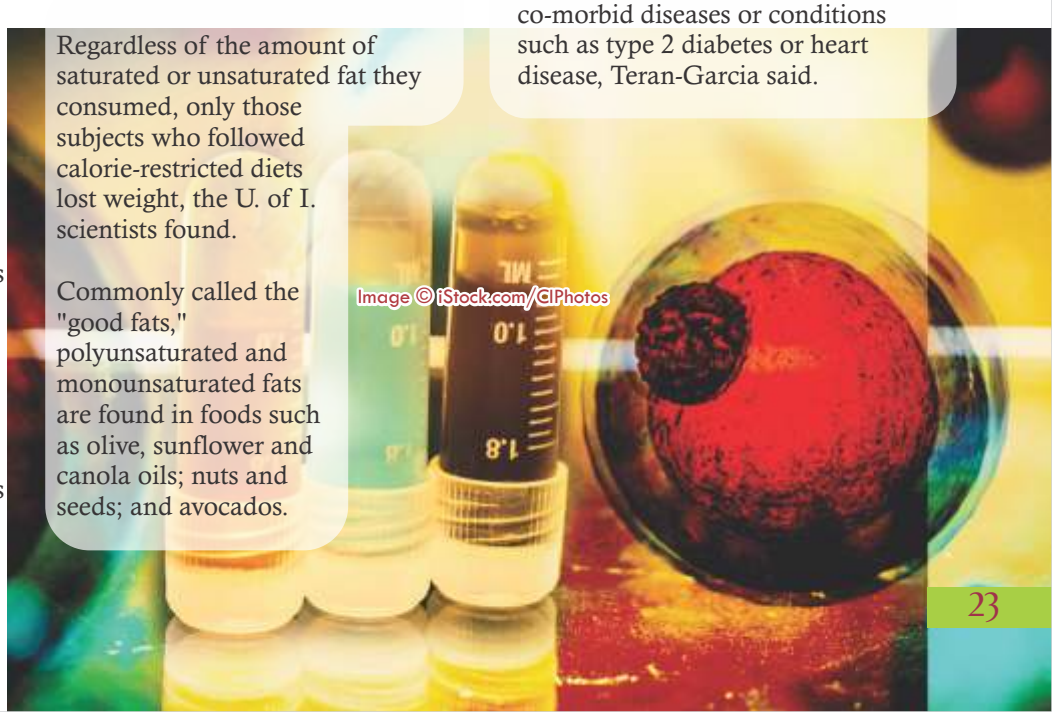
Commonly called the "good fats," polyunsaturated and monounsaturated fats are found in foods such as olive, sunflower and canola oils; nuts and seeds; and avocados.

Consumption of these unsaturated fats has been linked with lower risk of cardiovascular disease and other health benefits.

Obesity has been linked with more than 20 different diseases, and lowering one's total cholesterol by as little as 10 points can be clinically beneficial, preventing the onset or progression of many of these conditions, said nutritional sciences professor Dr. Margarita Teran-Garcia.
A pediatrician, Teran-Garcia is a professor of human development and family studies, and a faculty member in the Carle Illinois College of Medicine. She and kinesiology and community health professor Ruopeng An were co-authors of the study.

Published recently in the Annals of Nutrition and Metabolism, the study is believed to the first to examine the effects of replacing saturated fats with unsaturated fats in the diets of more than 660 metabolically healthy individuals who were overweight or obese. The meta-analytic method enabled the researchers to assess the results of multiple studies at once to determine the overall impact of this dietary replacement.

People who are metabolically healthy but overweight have not yet developed any of the weight-related co-morbid diseases or conditions such as type 2 diabetes or heart disease, Teran-Garcia said.



"We know that metabolic health, in the context of obesity, is a transient state that may not persist over time, and these individuals are at increased risk of developing different co-morbidities," said co-author Sharon V. Thompson, a registered dietitian and pre-doctoral fellow at the university.

"More than 60 percent of adults in the U.S. are obese or overweight, placing them at greater risk of weight-related diseases, including high cholesterol and stroke, and we need evidence-based strategies to recommend that will prevent disease development," Thompson said.

While the U. of I. scientists reported a lack of strong research evidence to indicate that unsaturated fats alone reduced blood lipids, they suggested that consuming healthy fats may be beneficial for preventing other obesity-related co-morbidities, especially if combined with a calorie-restricted diet and increased physical activity.

"This can be accomplished in small, simple steps, such as substituting olive oil and canola oil while cooking, and increasing one's consumption of fish, nuts, fruits and vegetables," Teran-Garcia said. "These strategies could not only reduce an individual's risk of obesity-related diseases but also help them get to a healthy weight."

Further research is needed to identify the specific properties of fatty acids and food sources that are beneficial and provide the ideal ratio of saturated to unsaturated fat that promotes health, Hannon said. "The U.S. population is not getting any healthier, and scientists need to provide the public with easy-to-follow, evidence-based dietary recommendations to prevent the progression of obesity-related disease," Teran-Garcia said.

Image © iStock.com/Ratana21

Cinnamon supplements alleviate metabolic syndrome in Asian Indians: RCT

By Cheryl Tay 22-Aug-2017 - Nutra Ingredients Asia

Regular cinnamon supplementation counters all aspects of metabolic syndrome in Indian adults, according to a trial led by the University of Delhi.

A 16-week randomised controlled trial (RCT) was conducted with 116 Asian Indian subjects (64 men and 52 women) who had metabolic syndrome. They were divided into two groups: in one group, each participant was given 2.5g of wheat our daily as a placebo, and in the other, each received 3g of cinnamon daily; both the wheat flour and cinnamon were administered in capsule form.

Subsequently, the intervention group experienced a significant decrease in fasting blood glucose, glycosylated haemoglobin and postprandial blood glucose. Compared to the placebo group, those in the cinnamon intervention group also experienced greater weight loss and increase of HDL cholesterol, as well as a greater decrease in waist circumference, LDL and total cholesterol, systolic and diastolic blood pressure, and body fat percentage.

It has previously been reported that cinnamate, a phenolic compound found in the inner bark of cinnamon, lowers cholesterol level in rats on a high-fat diet and suppresses lipid peroxidation by enhancing antioxidant enzyme activity in the liver.

Additionally, the "aqueous extract of cinnamon stem bark has been shown to reduce sucrose-induced elevation in systolic blood pressure of spontaneously hypertensive rats", as well as lower diastolic and systolic blood pressure in pre-diabetic and diabetic humans.

Asian Indians in particular are predisposed to insulin resistance, more so than other ethnic groups, and often develop metabolic syndrome and diabetes due to their tendency to become obese. As such, the study said that "if cinnamon acts at the cellular level in improving insulin resistance, it could be of great value to Asian Indians".

Furthermore, cinnamon capsules are significantly more affordable than anti-hyperglycaemic or weight loss medications. It is also commonly used as a flavouring agent in Indian cooking, which makes it easy to incorporate into daily diets.

Affordable solution

The results showed "significant decrease in measures of glycaemia, adiposity — including abdominal obesity — lipids, blood pressure, and major decrease in percentage of individuals having metabolic syndrome with single nutrient

intervention of cinnamon". The researchers noted that "a single supplement intervention with 3g of cinnamon for 16 weeks resulted in significant improvements in all components of metabolic syndrome in a sample of Asian Indians in north India."

The study concluded that though the results were "promising, they should be tested in a larger sample over longer period of time".

Revisiting dietary fat guidelines?

Science Daily August 29, 2017

Findings from more than 135,000 individuals from 18 low, middle and high-income countries in the Prospective Urban-Rural Epidemiology (PURE) study show that high carbohydrate intake is linked to worse total mortality and non-cardiovascular (CV) mortality outcomes, while high fat intake is associated with lower risk.

"Our findings do not support the current recommendation to limit total fat intake to less than 30% of energy and saturated fat intake to less than 10% of energy," said study investigator Dr Mahshid Dehghan, PhD, from the Population Health Research Institute, McMaster University, in Hamilton, Ontario, Canada.

"Limiting total fat consumption is unlikely to improve health in populations, and a total fat intake of about 35% of energy with concomitant lowering of carbohydrate intake may lower risk of total mortality. In fact, individuals with high carbohydrate intake, above 60% of energy, may benefit from a reduction in carbohydrate intake and increase in the consumption of fats."

PURE documented diet in 135,335 individuals, aged 35 to 70 years, from countries in North America and Europe, South America, the Middle East, South Asia, China, South East Asia and Africa.

For this analysis, consumption of carbohydrate, total fat and types of fat were recorded using country-specific, validated food frequency questionnaires, and associations were assessed with CV disease and mortality.

Among the 5,796 deaths and 4,784 major CV events over a median follow-up of 7.4 years, the researchers noted that carbohydrate intake in the highest versus lowest quintile was associated with a significant 28% increased risk of total mortality (hazard ratio [HR] 1•28; 95% CI 1•12-1•46, highest vs lowest quintile category P≤0•0001) but not CVD risk.

Conversely, total fat intake in the highest versus lowest quartile was associated with a significant 23% reduction of total mortality risk, an 18% reduced risk of stroke, and a 30% reduced risk of non-CVD mortality.

Each type of fat was associated with significantly reduced mortality risk: 14% lower for saturated fat, 19% for mono-unsaturated fat, and 20% for polyunsaturated fat. Higher saturated fat intake was also associated with a 21% decrease in stroke risk.

The researchers also examined the impact of fats and carbohydrates on blood lipids in the same PURE study participants.

Consistent with other reports from Western countries, they found that while LDL (so-called "bad" cholesterol) increases with higher intakes of saturated fat, HDL ("good" cholesterol) also increases -- so the net effect is a decrease in the total cholesterol/HDL ratio.

They found that LDL cholesterol (the basis of many dietary guidelines) is not reliable in predicting effects of saturated fat on future cardiovascular events. Instead, ApoB/ApoA1 provides the best overall indication of effect of saturated fat on cardiovascular risk among the markers tested.

"Focusing on a single lipid marker such as LDL-C alone does not capture the net clinical impact of nutrients on cardiovascular risk," said Dr. Dehghan.

"For decades, dietary guidelines have focused on reducing total fat and saturated fatty acid (SFA) intake based on the presumption that replacing SFA with carbohydrate and unsaturated fats will lower LDL-C and should therefore reduce CVD events."

But she said much of the evidence behind this approach has been from studies of Western populations where nutritional excess is a reality.

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"PURE provides a unique opportunity to study the impact of diet on total mortality and CVD in diverse settings, some settings where over-nutrition is common and others where under nutrition is of greater concern," she concluded.

Heart disease, stroke present highest mortality risk for elderly with high BMI: Singapore study

By Cheryl Tay 15-Aug-2017 - Food Navigator Asia

Image © iStock.com/KatarzynaBialasiewicz

Cardiovascular disease and stroke are the two main causes of mortality in overweight and obese individuals aged and above, according to a study led by the National University of Singapore U.

The study looked into the age-related associations of different BMI categories with all-cause, cardiovascular disease and stroke mortality, and found a "S-shaped relationship" between BMI and mortality. This meant that for people aged 65 and older, being overweight or obese was not typically associated with all-cause mortality, but specifically with mortality from cardiovascular disease or stroke.

The data was taken from a prospective cohort study, Singapore Longitudinal Ageing Studies , which assessed 2,605 adults aged 55 and above from 2003 to 2011 on their mortality hazard ratios for all-cause, cardiovascular disease and stroke mortality. Those with a regular BMI of 23 to 24.9 faced the lowest overall mortality risk, while among those aged 55 to 64, the underweight (BMI below 18.5 to 22.9) and overweight or obese (BMI over 30) faced elevated all-cause mortality risk.

Among those aged 65 and older, however, being overweight or obese was "not significantly associated with increased all-cause mortality", but more so with increased cardiovascular disease and stroke mortality. The study said that "from a clinical standpoint, the controversy over the association between high I and lowered mortality in older adults may lead to misinterpretations or confusions regarding the desired level of I in older persons".

It further explained that its findings should not be taken to mean that obesity in the elderly presents a lower mortality risk compared to obesity in those below the age of 65, as the total mortality risk from high BMI is still greater in the elderly due to the significant increase in mortality related to old age.

However, the ideal BMI range according to clinical guidelines for overweight and obese adults tends to be based on research regarding young and middle-aged individuals, which might make them less relevant for those aged 65 and older.

Relevant data
For these adults, obesity is not the only contributor to mortality risk. Being underweight or experiencing age-related weight loss is also a cause for concern, due to degenerative illnesses such as sarcopenia. As such, possible bone and muscle losses must be minimised when designing weight loss programmes for overweight or obese elderly folk.

The study concluded that while "the feasibility of exercise-induced reduction in waist circumference and abdominal fat without a corresponding reduction in I" had previously been reported by other researchers, more studies were needed to confirm this in order to safely lower obesity-related mortality risk in the elderly without significantly affecting their bone and muscle condition.

Probiotics a possible treatment for jaundice in newborn babies: Chinese meta-analysis

By Cheryl Tay 15-Aug-2017 - Food Navigator Asia

Probiotic supplementation might be able to safely and effectively treat jaundice in babies, a Chinese systematic review and meta-analysis found, but researchers say better quality data is required.

Researchers from Sichuan University analysed published papers on 13 randomised controlled trials (RCTs) that had tested the effects of probiotic supplementation on pathological neonatal jaundice — a potentially fatal paediatric disease — in 1,067

Image © iStock.com/Traida

newborns. As the disease is rather common, but there is little evidence of probiotics' effect on bilirubin levels in newborns (used to determine the cause of jaundice), the researchers aimed to systematically evaluate their safety and efficacy.

They found that probiotic supplementation "showed efficacy" in treating neonatal jaundice, lowering the subjects' total serum bilirubin levels after three days. This was in addition to probiotics' ability to enhance immunity "mainly by regulating bacterial colonies". The researchers said their results "provided evidence that the combination of routine complementary treatment with probiotic supplementation therapy…had an obvious increase of efficacy rate in neonatal jaundice".

Side effects
However, only two of the reviewed RCTs showed a reduction in the duration of phototherapy treatment time after supplementation, while only three of the RCTs found that it had managed to help shorten the overall length of the subjects' hospital stay. Additionally, only six of the studies reported that the newborns experienced no side effects whatsoever from probiotic supplementation, while five "observed 20 cases of adverse reactions presented as fever, diarrhoea, skin rash (and) fatigue".

Improvements needed
The researchers acknowledged several limitations of their analysis, one of which was the short observation period of the reviewed RCTs, which did not pursue long-term follow-up with their patients. They also said the methodological quality of RCTs on probiotic supplementation for neonatal jaundice needed to be improved, recommending better designed future studies for this purpose.

They further suggested that rare and serious adverse reactions to probiotic supplementation for pathological neonatal jaundice be observed via epidemiological studies. They concluded that while probiotic supplementation might be a safe, effective therapy option for the treatment of pathological neonatal jaundice, the varying quality of the reviewed RCTs meant that "long-term and high-quality research" on the topic was still necessary.

Short-term fish oil consumption helps prevents type 2 diabetes in people with existing metabolic disorders: Meta analysis

By Cheryl Tay 14-Aug-2017 – Nutra Ingredients Asia

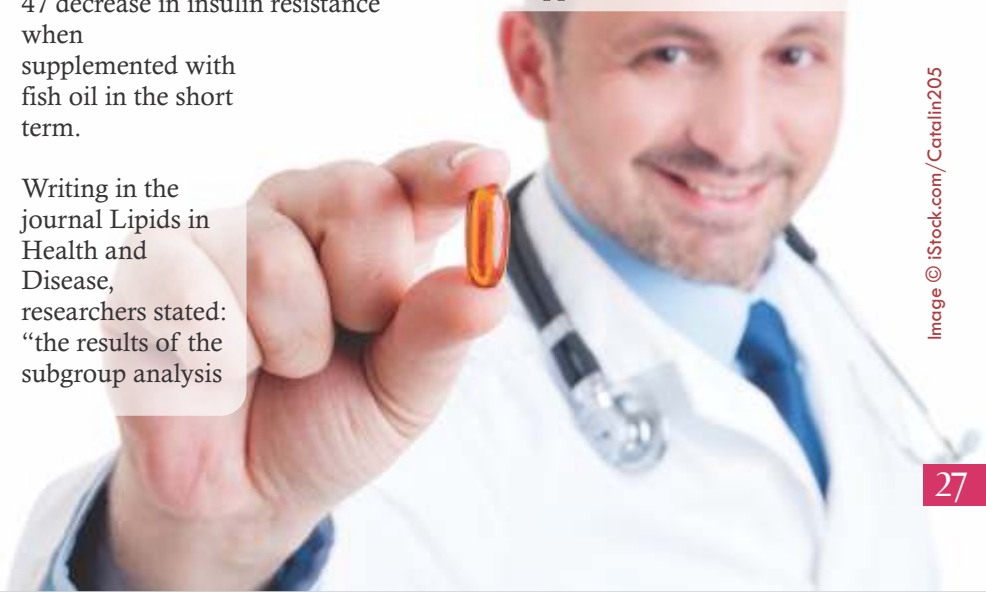
Fish oil supplementation can increase insulin sensitivity and reduce the risk of diabetes among metabolic disorder sufferers, according to a new meta-analysis by Chongqing Medical University.

Reviewing a total of 17 studies featuring 672 participants above the age of 18 the researchers found in their subgroup analysis that fish oil supplementation could heighten insulin sensitivity in those experiencing at least one symptom of a metabolic disorder. However, the same benefits were not observed in healthy people or those who already had type 2 diabetes. Those who had metabolic disorders but not type 2 diabetes experienced up to a 47 decrease in insulin resistance when supplemented with fish oil in the short term.

Writing in the journal Lipids in Health and Disease, researchers stated: "the results of the subgroup analysis showed an association of lower risk in the group of people with metabolic disorders.
"We found fish oil had no effects on insulin sensitivity among the healthy people or people with D. Also, subgroup analysis showed a positive effect of fish oil on insulin sensitivity among the short-term intervention group rather than the long-term intervention group."

Duration is key
Because serum omega-3 polyunsaturated fatty acid levels require a minimum of four weeks to reach equilibrium, the review suggested that the ideal intervention period should be less than 12 weeks but at least more than four weeks. This led the analysis to state that fish oil supplementation could be a "significant intervention as secondary prevention" for metabolic syndrome and type 2 diabetes. However, it also added that duration, not dosage, was crucial for such intervention to be effective, as the reviewed studies found that the supplementation dosage had no impact on insulin sensitivity.

The analysis concluded that the results had strong implications for the prevention of type 2 diabetes. "Taken together, these findings have great implications for prevention of D. he research studies in the future would be more beneficial to explicitly prescribe interventions for trials, especially the dose, frequency, administration and duration of fish oil supplementation.



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Additionally, more research should be done to determine the population who could benefit from the intervention," the paper concluded.

Botanicals and diabetes: Which products show the most promise to help ease Asia's epidemic?

Science Daily July 5, 2017

Fenugreek, ivy gourd, Russian tarragon, psyllium and ginger have been identified as some of the most promising botanicals meriting further investigation for the treatment of type 2 diabetes.

That is the view of researchers from the University of Macau, who assessed existing herbal products and secondary metabolites often used to treat type 2 diabetes, in order to report on their active compounds and glucose-lowering mechanisms.

They found that certain herbal supplements can alleviate nutritional deficiencies in type 2 diabetes patients, though there is still not enough medical information and relevant scientific evidence regarding their safety and efficacy. The worldwide prevalence of diabetes among adults has grown by almost 100% since 1980 and will continue to spread. Both South East Asia and China are experiencing significant increases.

Among the botanicals most often used to aid in managing blood glucose are bitter melon, cinnamon, fenugreek, garlic, ginger, ginseng, psyllium, and Russian tarragon, several of which have been touted as more effective than the others.

Fenugreek

Fenugreek seed consumption was found to significantly alter fasting blood glucose, with pre-diabetics seeing a rise in their insulin levels in recent studies. However, while several clinical trials have suggested that fenugreek seeds improve glycaemic control in diabetics, studies with better methodological quality are necessary for more conclusive proof.

Ginger

Ginger was found to improve insulin sensitivity, as well as to lower total cholesterol and triglycerides in type 2 diabetes patients. An RCT conducted on type 2 diabetes patients who had not received insulin showed that ginger supplementation significantly reduced serum triglycerides and had a minor beneficial effect on serum glucose.

Ivy gourd

Clinical trials have attested to ivy gourd's ability to lower blood sugar and control hyperglycaemia; the researchers called data from animal and human trials "promising" and worthy of future studies.

Psyllium

Psyllium is said to signicantly decrease of glucose absorption and lower total and LDL cholesterol, making it useful for the metabolic control of type 2 diabetes patients. It is also believed to delay gastric emptying and delay glucose access to the small intestine.

Russian tarragon

A recent RCT found that Russian tarragon significantly lowered systolic blood pressure and total insulin secretion, as well as significantly raised HDL cholesterol levels. Earlier studies said it lowered glucose and insulin levels in animals, and improved "insulin-signalling in primary human skeletal muscle cells".

Clinical studies

Additionally, some flavonoids are believed to obstruct glucose absorption, though "i n-depth studies to validate the efficacies and safeties of extracts of these traditional medicinal plants are needed, and large, well-designed, clinical studies need to be carried out before the use of such preparations…recommended for treatment and / or prevention of diabetes".

The researchers raised concern over type 2 diabetes patients being administered over-the-counter dietary supplements that have not been proven effective for their condition, saying that due to limited knowledge on the subject, more studies into "identifying active ingredients of several botanicals and their extracts with reported antidiabetic activity" and revealing how they work are necessary.

They also stated that the problem of significant bioactivity loss in orally consumed phytochemicals must be taken into account, adding that novel and natural delivery systems are being developed to solve the problem.

They concluded that as the incidence of diabetes rises, there is a growing need for effectively anti-diabetic phytochemicals, with the anti-diabetic properties of plants or their constituents "providing a great pool of potential effective and safe drugs for (the) prevention and management of diabetes".


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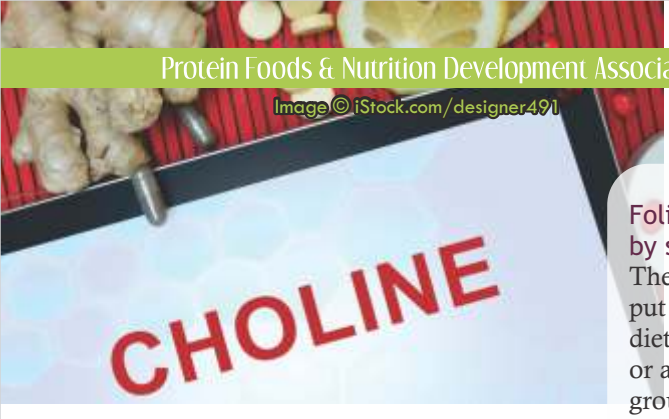

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Choline and vitamin B supplementation may improve post stroke brain function

By Adi Menayang 30-ul-2017 – Nutra Ingredients USA

Supplementing B-vitamins and choline in mice with simulated ischemic brain damage – similar to post stroke conditions – improved their motor function and task completion processes, according to Canadian researchers.

The aim of the animal-model study, conducted by a group of researchers from Carleton University in Ottawa, Health Canada, and the Center for Stroke Research Berlin, was to understand the role of B-vitamins in stroke pathology using in vivo and in vitro mouse models. Results in reducing homocysteine levels - the plasma linked to risk of cardiovascular disease such as stroke using vitamin B supplementation has been a focus of many studies, though researchers of this current study argued that because some countries have mandatory folic acid fortifications and others do not, "the results remain inconsistent."

Divided into two components, the first portion of the study assessed the impact of folate a B-vitamin deficiency prior to ischemic damage followed by B-vitamins and choline supplementation in mice. The second portion assessed how a genetic deficiency of an enzyme involved in folate metabolism MTHFR increases vulnerability to stroke.

Folic acid deficient diet, followed by supplementation

The study involved 32 male mice put on either a folic acid-deficient diet to increase homocysteine levels or a normal diet control. Both groups were on the diet for four weeks prior to ischemic damage surgery to simulate stroke. After the brain damage, mice on the folic acid deficient diet were placed on a supplement diet, increasing folic acid intake from 0.3 mg/kg to mg/kg, while the control diet mice kept their same routine, which contains 2 mg/kg folic acid. In addition, the supplement group also consumed increased riboflavin from 6 mg/kg to 10 mg/kg, vitamin B12 (0.5 mg/kg from 0.025 mg/kg and choline bitrate 110 mg/kg to 4950 mg/kg. "These levels of vitamins were chosen because they have previously been reported to be beneficial in vivo, explained the researchers.

Behavioural tests and analyses

Four weeks after ischemic damage, researchers assessed motor function using a range of different tests, with results showing improved motor function of the supplemented diet group compared to the control diet mice. The data also showed that mice on the supplement diet had a higher movement score when compared to the control diet mice. "These data suggest that supplementation with B-vitamins and choline in preconditioned folic acid deficient animals is beneficial in reducing behavioural deficits associated with ischemic damage to the sensorimotor cortex," wrote the researchers. B-vitamins and choline not neuroprotective, but may induce neuroplastic changes

Analysis of the mice's brains after ischemic damage and the supplementation period revealed that, among the supplement diet group, there was reduced post-operative levels of homocysteine and more anti-oxidant activity, suggesting improved neuroplasticity. Though other studies have shown how folic acid promotes regeneration and functional outcomes in animals with spinal cord injuries, "we are the rst to show an increase in neuroplasticity after ischemic damage in the brain," they wrote. "B-vitamins and choline may promote neuroplasticity through their role in nucleotide synthesis, DNA repair, and methylation." These findings, the researchers argued, supports positive effects of supplementation of B-vitamins and choline in ischemic stroke individuals with elevated levels of homocysteine because of folate deficiency. "This dietary supplementation can easily be implemented in combination with other therapies, since it is relatively inexpensive and safe," they added.

Ginger's obesity-fighting and anti-diabetic benefits underlined: China review

By Gary Scattergood 26-Jul-2017 – Nutra Ingredients Asia

Recent studies have built a consensus that ginger has beneficial effects against obesity, diabetes and cardiovascular diseases, according to a new review.

Academics says ginger has these effects by regulating fat metabolism, suppressing carbohydrate digestion, modulating insulin secretion and response, inhibiting oxidative stress, and lowering blood pressure and cholesterol. The review, published in the Annals of the New York Academy of Sciences, notes: "Epidemiological and clinical studies from recent years have built a consensus that ginger and its major constituents exert beneficial effects against metabolic syndrome."


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They added in addition to animal models and in vitro cell studies, several clinical studies have been conducted on humans to evaluate the beneficial effects of ginger.

The researchers, from China Agricultural University, said one study clearly demonstrated how ginger extract significantly reduced body weight and serum lipid levels in rats fed a high-fat diet (HFD). "In particular, 6-gingerol, one of the major active compounds of ginger, exhibited anti-obesity effects by altering the activities and expressions of some lipid metabolism marker enzymes."

Anti-inflammatory properties
In clinical studies on humans, one study showed how ginger supplementation had a beneficial eect on weight loss and some obesity-associated parameters in overweight and obese adults. The researchers added the anti-obesity effects of ginger may be associated with its anti-inflammatory properties. With regard to diabetes, and following a number of trials on animals, several recent clinical trials have demonstrated that ginger treatment can reduce levels of blood glucose and inflammation in diabetic patients.

The consumption of ginger was found to significantly improve insulin sensitivity and glucose homeostasis. "Additionally, ginger exhibited beneficial effects on blood pressure and endothelial function in diabetic patients. These results mean that ginger could be useful in the treatment of diabetic complications," they added.

The paper also underlines that ginger has been reported to have positive effects in both in vivo and in vitro studies assessing treatments for non-alcoholic fatty liver disease, while several studies have suggested that consumption of ginger and ginger-derived bioactive agents are associated with a decreased risk of cardiovascular disease (CVD).

"On the basis of the above results, it is concluded that the beneficial effects of ginger in controlling lipid disorders, lowering plasma cholesterol levels, preventing hypertension, and improving endothelial function contribute to the prevention of cardiovascular and metabolic disorders," added the paper. "However, further studies are advocated to evaluate the effects of ginger and its main components in human subjects in the prevention and/or treatment of metabolic disorders," the researchers concluded.

Lack of diverse diets affecting mental development of children in rural India

By Cheryl Tay 02-Aug-2017 – Food Navigator Asia

A lack of dietary diversity is affecting the motor, language and social skills o children in one of India's poorest states.

A cross-sectional survey conducted in rural Bihar assessed children aged between six and 18 months from 4,360 households in Bihar's rural West Champaran district. Dietary diversity was examined along with motor skills (gross and fine), language, and personal-social development.

It was observed that the "majority of children had a low dietary diversity score (80%), many had morbidity in the past two weeks (76%), and 72% were anaemic, 33% were stunted (12% were severely stunted), and 27% were wasted (7% were severely wasted)". While 99% of the children had been breastfed - with 95% still breastfeeding - only 39% of the families "practised timely introduction of complementary foods at six months of age, and 34%...did not feed their children the recommended number of meals per day".

These results were directly correlated with compromised motor, language and personal-social development, which was compounded when the children's mothers had had no education at all

Diversity importance
The study hypothesised that "psychosocial stimulation, growth and nutritional factors were important correlates of child development". Interestingly, the results also showed that "dietary diversity is a more important correlate of development than food deprivation".

While low dietary diversity was common, the study suggested community-based nutrition programmes could lead to improvements. Furthermore, stimulation in children aged 12 to 18 months, as well as fine and gross motor development in children aged six to 12 months, were identified as "mediators in the relation between dietary diversity and mental development". Additionally, maternal influence was found to play a major role: mothers are the primary source of stimulation for children, and "a mother who supplies a diverse diet to her child likely also supplies diverse stimulation".


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In conclusion, the study suggested that "nutrition programmes that target diet diversification can have important implications for the mental development of young Indian children through their benefits on household stimulation and motor skills.

School study proves obesity prevention can work

Medical News Today 1 August 2017
Adapted Media Release

A unique approach to obesity prevention has helped schools in the ACT reduce the number of students who are overweight or obese, and even had a positive effect on mental health. The 'It's Your Move!' program - an initiative of Deakin University and ACT Health - was run in selected ACT schools over a three year period with the aim of preventing obesity among teens.

The project used three intervention schools and compared them with three 'control sites', targeting students aged between 12 and 16. Data was collected from 656 students, including BMI measurements and self-reported behavioural changes. At the program's end, two of the three intervention schools showed a significant decrease in the number of students classified as overweight or obese, compared to no change in the control group. The results were published in the Australian and New Zealand Journal of Public Health.

Lead author Professor Steven Allender, director of the Global Obesity Centre within Deakin's School of Health and Social Development, said the program was unique in that it looked at a whole range of contributing factors to obesity in combination. "The intervention included multiple initiatives at individual, community and school policy level to support healthier nutrition and physical activity," Professor Allender said. "Each school developed a 'Food at School' policy that encompassed canteen food, food at sport and fundraising events, and school catering. "The policy included instigating a traffic light colour coding system for food sold at the canteen, healthy morning teas for staff to encourage positive role-modelling, cooking classes after hours for staff and students, and increased access to water fountains in the school yard."

Each school also picked a key objective, including increasing active transport, increasing time spent physically active at school and supporting mental wellbeing. ACT Deputy Chief Health Officer, Dr Andrew Pengilley congratulated the three Canberra-based schools: Alfred Deakin High, Calwell High and Melrose High who participated in the pilot.

"The schools achieved a decrease in the proportion of students who were overweight or obese, an increase in the proportion who ate five or more vegetables a day, and an increase in the proportion of students who drank four or more glasses of water at school," Dr Pengilley said. "It is not easy to achieve an overall drop in overweight and obesity, but the pilot managed that in two schools, with the third school maintaining stable rates."These are welcome results that show by engaging school communities in the design of initiatives for their students; we can make positive changes to the health and wellbeing of young people.

"'It's Your Move!' has helped change each school for the long term by embedding healthier practices into their curriculum and policies, so students will continue to benefit from the program into the future." Professor Allender said the work was critical as obesity affected two thirds of Australia's population and cost $60 billion per year. "Even more worrying is that some recent studies show rates of obesity among children are as much as double our previous understanding," he said. "This has significant impacts on mental health, education attainment and employment prospects. But this trial proves that obesity is preventable."

Professor Allender said there was a significant decrease in depressive symptoms at the school that had made a special goal of improving mental well-being through the promotion of healthy eating and physical activity. "Students who reported symptoms of depression dropped from around a quarter of the group, to just over 17 per cent," he said. "This is great evidence that modifiable lifestyle behaviours - like what we eat and our amount of daily physical activity - can affect our mental wellbeing.

"Yet the number of obesity prevention interventions that include mental health follow-ups is low. We think this work demonstrates that community interventions can, and should, be multi-purpose. Systems thinking is the critical next stage in obesity prevention. We can't keep looking at health promotion activities in isolation from each other. A holistic approach is what is going to get results."
'It's Your Move!' has now been rolled out to 11 high schools in the ACT and 11 communities in South Western Victoria, with a further 100 communities on a waiting list to take part.


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Could a turmeric extract help to treat pancreatic cancer?

Medical News Today 1 August 2017
By Ana Sandoiu

A common obstacle in the treatment of pancreatic cancer is drug resistance. However, new research has shown that curcumin - a compound that can be found in turmeric - can help to overcome the resistance to chemotherapy.

New research shows that curcumin, which is a natural extract from turmeric (shown here), could have unique benefits as an adjunct to chemotherapy in treating pancreatic cancer. Curcumin is the active compound found in plants such as turmeric, and more and more studies have been pointing to the therapeutic potential of the compound for various conditions, ranging from cancer to diabetes. Preclinical studies have suggested that the compound has various antioxidant, neuroprotective, anti-inflammatory, and anti-carcinogenic properties.

However, the compound is very quickly metabolized and eliminated from the human body when taken orally. For this reason, more clinical studies and trials are needed to test the therapeutic benefits it may have - either on its own, or in combination with other types of conventional treatment. New research helps to fill this research gap, as it tests the benefits of curcumin in combination with traditional chemotherapy in the treatment of pancreatic cancer. Specifically, the new study investigates the potential of curcumin to overcome chemoresistance, which is a common challenge in the treatment of pancreatic ductal adeno-carcinoma (PDAC). The study was carried out by researchers led by Ajay Goel, Ph.D., director of gastrointestinal research and translational genomics and oncology at Baylor Scott & White Research Institute in Dallas, TX. The findings were published in the journal Carginogenesis.

Inhibiting drug resistance pathways
Cancer stem cells are believed to be the main culprit in the development of chemotherapy resistance in the treatment of PDAC; studies have suggested that they have the ability to escape chemotherapy, and that they may be the main cause of metastasis. However, as the authors of the new study explain, other research has shown that curcumin may block this acquired chemoresistance, although the precise molecular mechanisms for this potential benefit are unknown.

Recent evidence has pointed to a subunit of a so-called polycomb protein group as a crucial element in maintaining stem cells. Polycomb proteins play a key role in the differentiation of stem cells, and a subunit of the polycomb repressive complex 2 has been shown to regulate drug resistance. This subunit is called the Enhancer of Zeste Homolog 2 (EZH2), and its abnormal expression has been shown to block the action of tumour suppressors. When Dr. Goel and colleagues treated pancreatic cells with curcumin, it inhibited the EZH2 pathway, which made the cells more receptive to chemotherapy.

Moreover, the researchers found that curcumin blocks the formation of spheroids in cell cultures, which suggests that it would also inhibit the growth and recurrence of tumours. "By treating certain cells with small doses of curcumin, we were able to reverse the pathways that lead to chemo-resistance," says Dr. Goel. "This is an important breakthrough that could lead to better prognosis and longer lives for patients with chemo-resistant pancreatic cancer."

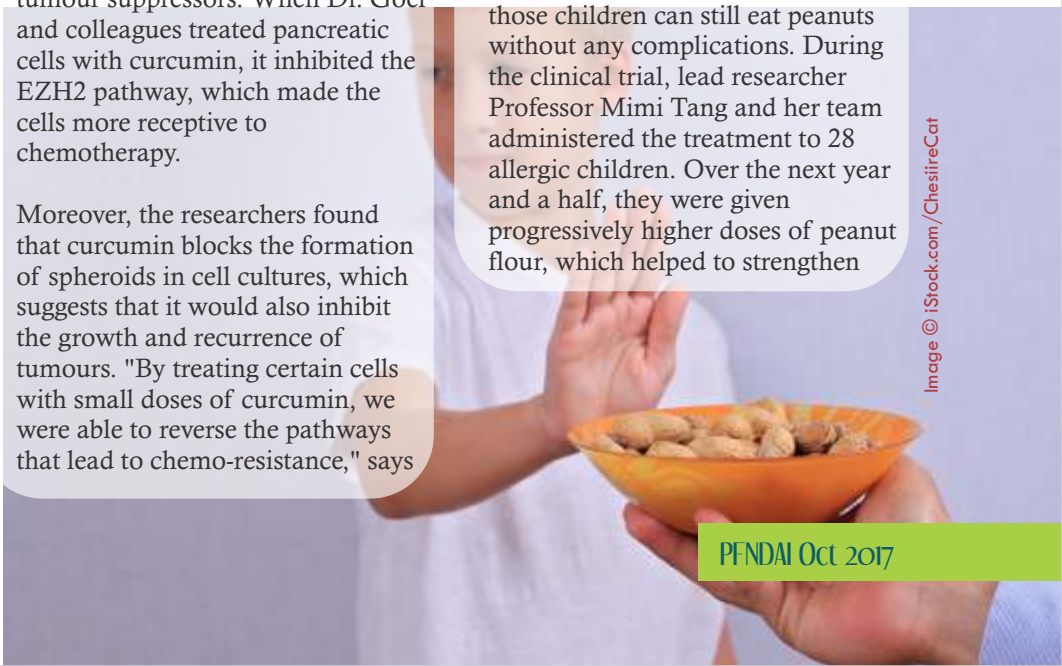
Previous studies have shown that curcumin has preventative benefits, but to the authors' knowledge, this is the first study that shows the beneficial effect of the plant extract in combination with chemotherapy and its advantages in overcoming drug resistance. Dr. Goel and his team are hopeful that this natural compound has unique healing potential. "Food-based botanicals have the potential to restore a healthier gene expression in patients but without the toxicity of certain drugs," he concludes.

Cure for peanut allergy imminent thanks to Australian scientists

By Cheryl Tay 17-Aug-2017
NutraIngredients - Asia

A treatment that offers a long-term cure for children with a fatal peanut allergy could soon be commercially available, thanks to scientists in Melbourne.

A clinical trial involving an experimental peanut-probiotic treatment was conducted at the Murdoch Children's Research Institute in Melbourne in 2013, curing 82% of its participants of their peanut allergy. Today, 80% of those children can still eat peanuts without any complications. During the clinical trial, lead researcher Professor Mimi Tang and her team administered the treatment to 28 allergic children. Over the next year and a half, they were given progressively higher doses of peanut flour, which helped to strengthen



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their tolerance. After the trial was over, 82% of them could include peanuts in their regular diet. A follow-up study was conducted four years later, and 80% of the cured children still had no allergic reaction to eating peanuts.

Tang told Australian media: "These findings suggest our treatment is effective at inducing long-term tolerance — up to four years after completing treatment — and is safe. "It also suggests the exciting possibility that tolerance is a realistic target for treating food allergy. This is a major step forward in identifying an effective treatment to address the food allergy problem in Western societies."

The treatment contains a bit of peanut flour and a very high dose of the probiotic Lactobacillus rhamnosus , which is typically present in small amounts in yogurt. It is known to modulate the immune system by calming its response to its usual triggers, alleviating severe allergic reactions. The mixture of the peanut flour and the probiotic works to gradually train the immune system to tolerate increasing amounts of peanut flour.

Trial and treatment

How it works

According to Tang, "Probiotics are very potent immune-modulating agents to shift the way the immune system responds. This particular probiotic has been shown in other situations to support tolerance-like responses. It creates an environment for the immune system to respond differently."

A life-changing experience

Tang said, "These children have been eating peanut freely in their diet without having to follow any particular programme of peanut intake in the years after treatment was completed. This changes sufferers' lives. Our feedback is these kids are now going to parties without worry." She added that she hoped a product based on the treatment could be sold commercially within the next five years. The Murdoch Children's Research Institute in Melbourne will collaborate with a venture capital rm to commercialise the treatment, which will entail peanut allergy sufferers consuming daily doses of powder over the course of 18 months.

Cannot sleep due to stress? Here is the cure

Science Daily September 5, 2017

Everyone empirically knows that stressful events certainly affect sound sleep. Scientists in the Japanese sleep institute found that the active component rich in sugarcane and other natural products may ameliorate stress and help having sound sleep.

In today's world ever-changing environment, demanding job works and socio-economic factors enforces sleep deprivation in human population. Sleep deprivation induces tremendous amount of stress, and stress itself is one of the major factors responsible for sleep loss or difficulty in falling into sleep. Currently available sleeping pills does not address stress component and often have severe side effects. Sleep loss is also associated with certain other diseases including obesity, cardiovascular diseases, depression, anxiety, mania deficits etc.

The research group led by Mahesh K. Kaushik and Yoshihiro Urade of the International Institute for Integrative Sleep Medicine (WPI-IIIS), University of Tsukuba, found that octacosanol reduces stress and restores stress-affected sleep back to normal.

Octacosanol is abundantly present in various everyday foods such as sugarcane (thin whitish layer on surface), rice bran, wheat germ oil, bee wax etc. The crude extract is policosanol, where octacosanol is the major constituent. Policosanol and octacosanol have already been used in humans for various other medical conditions.

In the current study, authors made an advancement and investigated the effect of octacosanol on sleep regulation in mildly stressed mice by oral administration. Octacosanol reduced corticosterone level in blood plasma, which is a stress marker. The octacosanol-administered mice also showed normal sleep, which was previously disturbed due to stress. They therefore claim that the octacosanol mitigates stress in mice and restores stress-affected sleep to normal in mice. The sleep induced by octacosanol was similar to natural sleep and physiological in nature. However, authors also claimed that octacosanol does not affect sleep in normal animals. These results clearly demonstrated that octacosanol is an active compound that has potential to reduce stress and to increase sleep, and it could potentially be useful for the therapy of insomnia caused by stress. Octacosanol can be considered safe for human use as a therapy, because it is a food-based compound and believed to show no side effects. Octacosanol/policosanol supplements are used by humans for functions such as lipid metabolism, cholesterol lowering or to provide strength. However, well-planned clinical studies need to be carried out to confirm its effect on humans for its stress-mitigation and sleep-inducing potentials. "Future studies include the identification of target brain area of octacosanol, its BBB permeability, and the mechanism via which octacosanol lowers stress," Kaushik says.

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FOOD SCIENCE & INDUSTRY NEWS

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Thirst for health – Plant-based waters NPD

31 Jul 2017 Nutrition Insight

Water is evolving into something more than just H2O, with an increasing number of consumers viewing it as the perfect vehicle to boost their nutrient intake.

Beyond fortification options such as vitamin waters, the category is expanding to include plant-based waters that consumers believe may have a range of health benefits.

The trend is global. While the US leads in product introductions, Brazil, Mexico, UK and Canada fall behind, with the latter introducing near half of the US. Compared to the same period five years ago, plant-based water launches have increased by 39 percent. Aloe vera water launches have doubled.

Maple water and birch tree water are fueling new category expansion. Coconut water, which seemingly started the plant-derived movement still leads. It serves as the base for 284 products released worldwide in the past year. Besides having more familiarity with consumers because it's been promoted for over a decade, it's known be rich in electrolytes including potassium, magnesium, calcium and sodium. Coconut water provides 10 percent of the recommended daily allowance of vitamin C. As a bonus to water, it also has three grams of fiber and two grams of protein per 240g serving.

Canadian company Temple Lifestyle calls Thirsty Buddha Coconut Water nature's ultimate hydrating beverage. Now in an aluminium can, Natural Coconut Water is a product of Thailand. Gluten-free, non-GMO project verified, certified vegan and never from concentrate are the promises made to those who thirst for healthy hydration. Coconut water may be more interesting if carbonated. To that end, the company offers Sparkling Coconut Water. Flavours add even more appeal to sparkling water, thus the two launches flavoured with Pineapple and Watermelon.

An Australian company, Natural Raw C, infuses their sparkling coconut water with invigorating flavours such as: Mango and Passion fruit; Elderflower, Mint and Lime; and Blueberry Pomegranate. For those who prefer their sparkling water plain, they offer Straight Up. Another company, Harmless Harvest, uses its name to imply a sustainable product. They boast they are proud to be an ecosystem based business, rooted in natural capitalism and deep ecology. Their coconut water, extracted from organic coconuts grown in Thailand, is extracted and filtered via a proprietary process.

The addition of probiotics sets Harmless Harvest apart from competitors. Live probiotic cultures, 12.5 billion CFUs, support digestive and immune health. Over five grams of MCTs (medium chain triglycerides) is another healthful claim. Natural coconut fat is a ready source of energy. Coconut water provides a good source of fibre. Keeping with the clean label, no thickeners, stabilizers or artificial flavours are used. Besides Original, try Strawberry, Blueberry, or Mango and Acerola flavours.

Goodbelly explains probiotic power meets hydrating electrolytes in their Cultured Probiotic Coconut Water. Organic pear juice from concentrate adds flavour. Gluten-free is an important claim. In product reviews on the website, some consumers have complained about the presence of gluten in many of their products. Team Goodbelly says oat flour and barley malt have been necessary ingredients to support the live and active probiotic cultures in their juice drinks.

Maprao's Organic Coconut Water launched in Singapore with a compelling statement on the front of the bottle. "I'm super natural." Like Harmless Harvest, they point out coconut water sometimes turns pink, perfectly natural proof of how fresh their young green coconuts are. There are seven back of the bottle claims: organic; never heated; no additives; hydrating; fresh; pure; responsible. While Maprao uses Thai Nahm Hom coconuts, Pure Brazilian makes clear on their website that all coconuts are not the same. Their water is cold pressed from small green Anão coconuts and brought to the US. They claim that water from Anão coconuts has an average of 25 percent fewer calories than their Asian propagated peers.

Tiana Fair Trade Organics, in the UK, also speaks of differences in coconut water. As PepsiCo and Coca-Cola have bought interest in coconut water producers, ONE and Zico, suppliers in Brazil were unable to meet demands. Attention turned to Thailand, Columbia and the Philippines for new sources of coconut water. Aside from coconut variety, quality is impacted by climate, humidity and soil.

Although coconut waters make up the lion's share of plant-based waters, Aloe Vera is coming on strong. A recent import to the US, Aldo positions their drink as a health enhancing alternative to caffeinated and carbonated drinks. Made from water, aloe vera puree and aloe vera gel powder, sugar is the third ingredient in the ingredient declaration. A 360ml serving has 18g sugar. Aloe King comes from Korean producer OKF, where it is promoted as organic, natural and nutritional. The package declares it is the number one world sales brand. Premium Pomegranate flavoured aloe drink contains 30 percent juice. While this is new to the US, the company offers many other flavours including Gold Kiwi, Lychee, Mango, Goji berry, Acaiberry and a host of others.

Two Hapi Aloe Vera Drinks come to the US. Original flavour or Mango are created with natural flavours, no preservatives and no cholesterol. Mango is sweetened with a touch of honey, though the ingredient statement puts fructose and sugar, third and fourth in prominence. New Lemon flavoured Aloe Vera Juice come to France by way of the Organic Bloom brand. The ingredient statement is clear: Pure water, organic aloe vera pulp (13 percent), organic cane sugar, citric acid and organic lemon flavour. Aloe leaves are harvested in Thailand, where the beverage is bottled. Birch Water enters the UK from appropriately named Nature on Tap Ltd. Tappedtrees.com, the company's website explains that in Nordic countries, people drink birch sap for replenishment after a long winter.

Collecting birch sap does not harm the trees because the amount of pure sap that's collected is small. However, each bottle of Tapped contains a 100ml serving size of pure birch sap that's not from concentrate. Sugars are naturally occurring. The biggest benefit, per serving, is that it supplies 15 percent of the daily requirement for manganese. Those who prefer flavour might try Bilberry and Lingonberry, or Apple and Root Ginger Birch Water. Go Birch is offered by Freedom Brands. This drink is tapped from birch trees in the Baltic region of Europe. The pure water is absorbed by the roots of the birch and filtered slowly through the tree becoming enriched with naturally occurring enzymes, amino acids, antioxidants and minerals such as manganese.

Belseva calls birch water a genuine, 100 percent natural living water that people in rural Europe have been enjoying for centuries as a natural detox product. "Naturally diuretic, birch water stimulates the cleansing systems of the body, kidney and liver functions, and helps to eliminate the toxins in the body," they say. Maple Water is hitting shelves in the US and Canada. Happy Tree, founded in 2014, works with maple farmers in the US and "never take more from the tree than we need," the company says. Besides being sustainably sourced, this nutritious tree water is packed with naturally occurring vitamins, electrolytes, antioxidants, and just a hint of subtle sweetness making maple water perfect for all day hydration.

Happy Tree innovates with Maple Water Cold Brew Coffee, a product that contains only two ingredients. Making coffee in early season maple water provides naturally occurring sweetness and springtime nutrients. The cold brew avoids bitter oils and acids created by hot brew methods. The company, Drink Maple, states clearly on their bottle what their product is. "One ingredient straight from the tree." On their website, they point out the product's benefits. "Maple trees awaken in the spring and the sap begins to run, carrying with it many healthy nutrients – 46 in all," they say. Mineral rich, it's a good source of calcium and iron. It's high in manganese, a powerful antioxidant that could help with thyroid health and blood sugar control. It's low in sugar, with half the sugar of coconut water.

What's next for plant-based waters?

- As consumers seek all day hydration, they are looking for added nutrients as they boost water intake.
- Besides superfood positioning, plant-based waters fuel the desire for natural products. Tree sap waters tap into the demand for naturally sweetened beverages.
- Sustainability and ample ingredient supply may come into question if the demand is explosive.
- Expect exploration of more botanical sources as consumers demonstrate a willingness to try new beverage alternatives to juices and soft drinks.

First GM salmon sold in Canada

25 July 2017 Nutrition Insight

According to Nature, AquaBounty Technologies announced on August 4 that it has sold approximately 4.5 tons of its genetically modified (GM) salmon to customers in Canada.

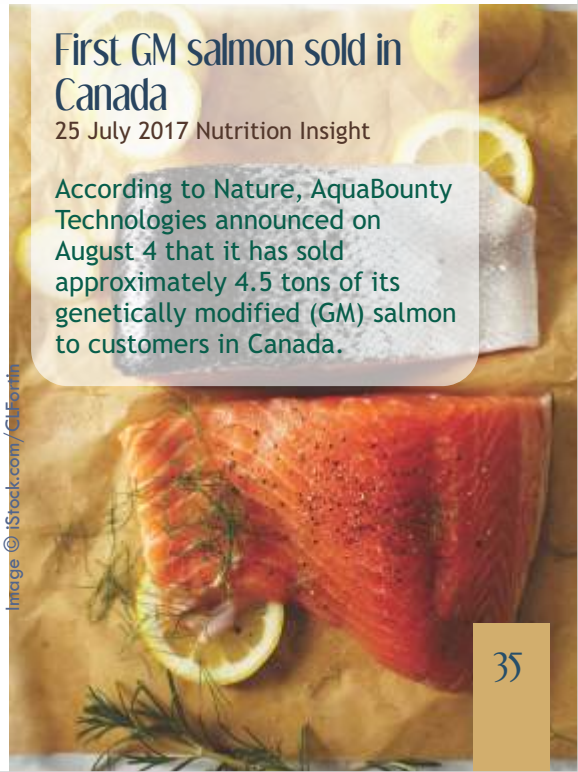


Image © iStock.com/GLFortin

The sale marks the first time that a GM animal has been sold for food on the open market, and the first sale for AquaBounty who spent the past 25 years developing the fish and gaining approvals.

The fish, a variety of Atlantic salmon (Salmo salar), is engineered to grow faster than its non-genetically modified counterpart, reaching market size in roughly half the time—about 18 months. AquaBounty sold its first commercial batch at market price: $5.30 per pound, to an undisclosed buyer.

AquaBounty raised the fish in tanks in a small facility in Panama. It plans to ramp up production by expanding a site on Canada's Prince Edward Island, where local authorities gave the green light for construction in June. In the same month, the company also acquired a fish farm in Albany, Ind.; it awaits the okay from U.S. regulators to begin production there.

The U.S. Food and Drug Administration (FDA) approved the salmon for consumption in November 2015, and Canadian authorities came to the same decision six months later. Neither country requires the salmon to be labelled as genetically engineered.

Does healthy food need a marketing makeover? 'Indulgent' descriptions make people eat more vegetables

By Niamh Michail -23 Jul 2017 Food Navigator

'Hold the green beans but pass the sweet sizzlin' ones.' Using indulgent words to describe vegetables makes people eat more of them - even if there is no difference in the way they are prepared, say Stanford scientists.

How can we make healthy, whole foods just as appealing as more classically indulgent and unhealthy foods? Simply by describing them in the same way, it would seem. This is the conclusion that researchers at Stanford University reached after conducting an experiment in which an indulgent label increased consumption by one quarter compared to the basic description.

Over the course of 46 days, student diners at a large canteen on campus were offered vegetables divided into one of four categories with corresponding descriptions - basic, healthy restrictive, healthy positive or indulgent. Green beans, for instance, were labelled simply as green beans (basic), 'light 'n' low-carb green beans and shallots' (healthy restrictive), 'healthy energy-boosting green beans and shallots' (healthy positive) or sweet sizzlin' green beans and crispy shallots' (indulgent).All were prepared in exactly the same way.

Diners chose vegetables with indulgent labelling 25% more than basic labelling, 35% more than healthy positive and 41% more than healthy restrictive. In terms of the mass of vegetables served per day, vegetables with indulgent labelling were consumed 16% more than those labelled healthy positive, 23% more than basic and 33% more than healthy restrictive.

"These results challenge existing solutions that aim to promote healthy eating by highlighting health properties or benefits and extend previous research that used other creative labelling strategies, such as using superhero characters, to promote vegetable consumption in children," write the researchers."This novel, low-cost intervention could easily be implemented in cafeterias, restaurants, and consumer products to increase selection of healthier options."

The canteen served around 607 diners (on mean) each day for 46 days, with diners made up of around 52% undergraduate students, 32% graduate students and 15% staff. Each day research assistants discretely recorded the number of diners selecting the vegetable and weighed the mass of vegetables taken from the serving bowl. Although they did not measure the amount actually eaten, they say people generally eat 92% of self-served food, regardless of portion size and food type.

A fresh makeover for fresh food

According to Bradley P. Turnwald, researcher at Stanford University's department of psychology and the study's lead author, the findings could have an important take home message for food manufacturers.

Which would you choose?

- Dynamite chili and tangy lime-seasoned beets or beets;
- Rich buttery roasted sweet corn or corn;
- Sweet sizzlin' green beans and crispy shallots or green beans;
- Zesty ginger-turmeric sweet potatoes or sweet potatoes;
- Twisted garlic-ginger butternut squash wedges or butternut squash;
- Tangy ginger bok choy and banzai shiitake mushrooms or bok choy and mushrooms;
- Twisted citrus-glazed carrots or carrots;
- Slow-roasted caramelised zucchini courgette bites or zucchini

"Our results suggest that describing healthy foods as delicious and indulgent may lead more people to choose them compared to emphasizing health. For the food industry, this suggests that healthy items may sell better when the labelling gets consumers to focus on the taste and indulgence rather than focusing on health. We speculate that this could make a difference to rising obesity rates over the long-term by changing the culture of how we talk about and portray healthy foods in our society."

'But the reverse seems to be true in France...'
But do the findings suggest that we have reached a point where fresh, whole, unprocessed food is simply no longer seen as appetising? For a majority of Americans at least, this is the case, Turnwald told FoodNavigator - healthy foods are seen as less tasty than unhealthy foods.

"Lab studies in America also show that adding a health label to foods leads people to say that the food tastes worse is less filling, and less enjoyable compared to when that food is not labelled as healthy. Interestingly, this association seems to be reversed in France - [...] the French associate healthy food with being tasty, " he added, referring to a 2012 study which found that French people spontaneously associate unhealthy food with bad taste while healthy food is linked to tastiness.

EU project aims to improve extraction and cultivation of microalgae

By Emma Jane Cash 30-Jul-2017
Nutra Ingredients

A new 5 mn Euro European project aims to make it cheaper and easier to enrich food, nutraceuticals and cosmetics with microalgae.
Improving extraction techniques and making cultivation of algae microorganisms cheaper are the main aims of the new research program, backed by the European Commission, as part of its Horizon 2020 program.

Microalgae, a source rich in omega-3, protein and beta-carotene, has gained popularity with manufacturers as a sustainable source of food and also fuel. According to ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development), the global market for products containing microalgae has an annual value of Euro 6.4 billion, with China and Indonesia currently dominating the market. European sales account for just 5% of the total microalgae market.

The VALUEMAG (Valuable Products from Algae Using New Cultivation and Extraction Techniques), project kicked o on April 26th, with its initial meeting held in Athens, Greece. The group is made up of 11 research centres from nine countries, including Italy, Greece, Spain, Netherlands, United Kingdom, Austria, France, Slovakia and Cyprus.

'Cost efficient and environmentally friendly

The project hopes to reduce costs of microalgae production, in order to allow the technology to become a competitive, durable alternative in the current market. Currently, cultivation methods for microalgae are expensive, around 6.00 per kg. The research project aims to significantly reduce the costs to 0.30 per kg, using new technologies including magnetic cultivation procedures.

"This technology immobilises the algal cells on a thin layer to optimise the use of water and nutrients," said Antonia Molino, manager of the project's activities for ENEA, who has been entrusted with testing new techniques as part of the project. "The result is a very low consumption of these resources, the capture of CO2 from different production processes, and, above all, easy extractions of the high-value biological molecules - which are mostly antioxidants - like omega3 and carotenoids".

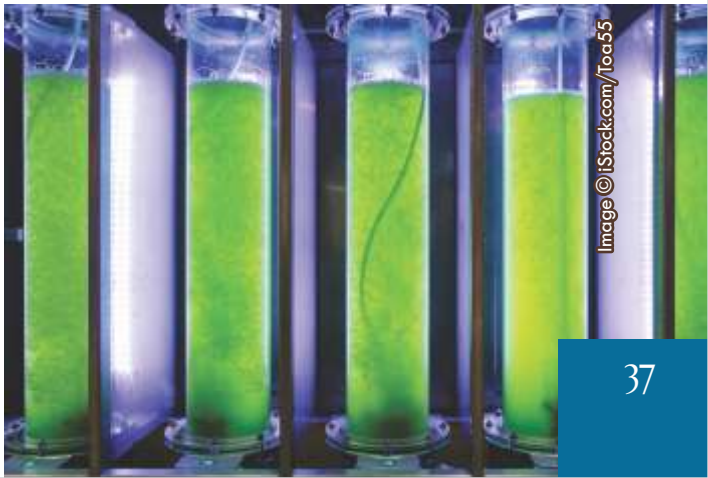
ENEA have been given a financial contribution of more than €760,000 to help fund its testing and research. The project also supports job creation in local EU communities, as 10 technicians will be required per 100,000 m2 of algae.

Magnetic methods

The new cultivation method, which has already been led for patent and is patent pending, introduces super-paramagnetic nano-particles (SPANs) of 10 nanometres (nm) + 2 nm in diameter in the microalgae cell protoplasm of different microalgae species to obtain magnetic modified microalgae (MAGMA).

This method produces zero greenhouse gas emissions, and even has the capacity to reduce the current CO2 atmospheric concentration due to its photosynthetic metabolism, said the team.

Harvested microalgae will be used in food production, commercially valuable products such as nutraceuticals and cosmetics, as well as in CO2 capturing and water recycling methodologies.



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Flavoured milk's popularity soars as Indians seek on-the-go nutrition

By RJ Whitehead 07-Aug-2017 – Food Navigator Asia

India's flavoured milk segment has been seeing a significant level of interest, with the category having attracted 43% of all dairy drink launches last year.

This amounts to more than double the figure recorded in 2012, and the trend is set to continue with a similar proportion continuing to launch so far this year. According to the Mintel, the market cannot get enough new flavoured milks. The global market analyst has found that 72m litres were consumed in 2015—up from 55m litres in 2012. At the same time, retail sales grew by 40%, reaching INR8bn (US$125.5m) in 2015, from 2012's INR5.7bn.

Ranjana Sundaresan, Mintel's global food and drink analyst, said most Indian dairy players now feature some form of flavoured milk in their ranges. Moreover, companies not typically associated with dairy have been getting in on the act. "Much of the category's retail growth can be attributed to the fact that urban Indian consumers are opening up to value-added dairy, particularly for its convenience and health benefits.

The popularity of packaged flavoured milk in India is also due to consumers' preference for assurance of safety," she added.

Mintel research finds that 64% of pre-packaged dairy drink consumers agree that ready-to-drink dairy beverages are healthy, and 48% say they provide them with energy. "Given growing health concerns, urban consumers are swapping carbonated soft drinks and even juices for flavoured milk," said Sundaresan, adding that parents with adolescent children now provide a strong opportunity for manufacturers.

"There is potential for innovation on flavours, formats and formulations that are in sync with what will appeal to children while fulfilling nutritional requirements—an important feature for parents ."

Looking ahead, manufacturers will find growing opportunities from morning consumption, with more than a quarter of dairy drinks now being consumed for breakfast, according to Mintel research. "Breakfast presents an opportunity for companies in the dairy industry, but currently very few launches highlight this positioning," said Sundaresan.

"Consumers don't have the time for a sit-down breakfast these days, and are looking for convenient food and drink options that keep them full and nourished while on the move." This opens up avenues for value-added, fortified, on-the-go dairy innovations that achieve satiety and provide breakfast nutrition, she added.

Food firms should stop 'dawdling' and address major public health problems with functional products

By Gary Scattergood 19-Jul-2017 – Nutra Ingredients Asia

Health and wellness concerns will spur sales of naturally functional foods in Australia, but major food firms need to "stop dawdling" and maximize the opportunities.

Speaking at the Australian Institute of food Science and Technology summit in Sydney, the founding director of Food & Nutrition Australia Sharon Natoli said the growing demand for more healthy and natural products was not easy for the food industry to get to grips with. "This represents a fundamental change in what we think about food and how we buy food," she said. "We need to transform thinking from what are the healthy and nutritional products that will help me sell, to how can we address the big health issues through our products."

Image © iStock.com/gpointstudio

She said traditional reformulation approaches such as sugar and salt reduction, or adding fibre, were no longer sufficient to make significant improvements to public health.

She predicted within five years that single nutrient claims, such as reduced fat, would be far less prevalent on supermarket shelves.

Naturally functional

"It's similar situation with free-from," she added. "I think this will continue to grow but people will be far more concerned with what is naturally functional and really understanding what a product can offer them, be it chia, turmeric, omega-3 and so on."

When it comes to creating functional products to meet public health needs, she said it was clear the food industry needs to do more. "Some companies are still dawdling…they need to realise that younger people in particular want a more simple way of eating.

"We need to see more around personalised nutrition and generally move from simply selling food to solving food problems. Obesity, chronic diseases and ageing populations are big problems and there are a lot of way food companies can solve these if they move from profit to purpose. This is one of the greatest opportunities for our food businesses."

How do sensory analysis techniques influence the design of new foods?

Food News Latam 31 JULY 2017

How do sensory analysis techniques influence the design of new foods? Between 80% -90% of the new food products that are launched on the market each year fail. The techniques of sensory analysis and perception integrate the demands of consumers in the design of new food products to ensure their success in the market.

Image © iStock.com/TeoLazarev

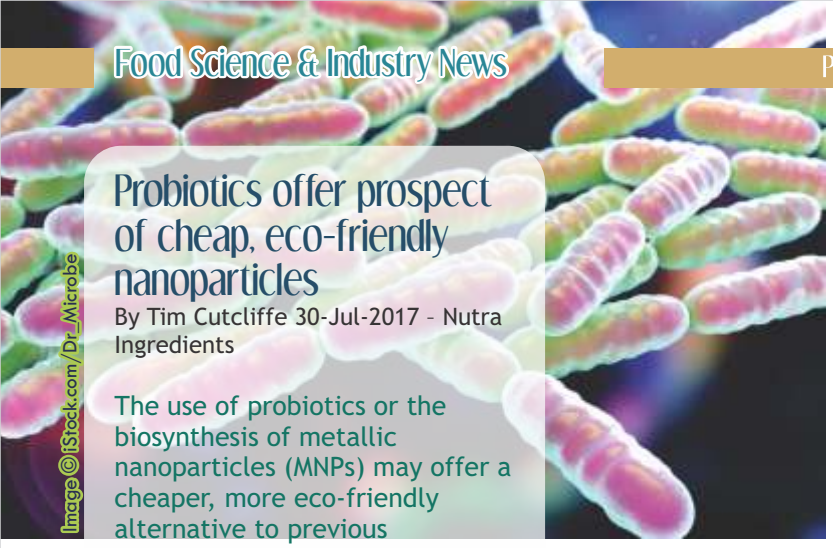
Food companies need to innovate to increase their competitiveness in a market in which consumers demand frequent developments in the linear. These innovations must respond to your needs, preferences and expectations in order to successfully position your products against those of your competitors. Only 29% of the innovations launched on the market in 2015 were successful. And in particular, the food industry faces a very high percentage of failure, between 80% and 90%, in the launching of new products. To know in advance what is going to the degree of acceptance of the consumer and to minimize the potential effects of rejection, the food companies have sensory and research techniques. In this sense, these techniques are of great interest to improve the formulation of products or design new ones.

The application of sensory analysis of the organoleptic properties (appearance, smell, aroma, texture and flavour) of a food is one of the most effective methods currently to ensure the acceptance of a product by the market. Thanks to its use, we can know the consumer's perceptions about a product and the degree to which they influence their purchasing decisions. In this way, as explained by María Mar Lorente, sensory analysis project technician at Consumalab, "the food company can also know the position that its product occupies with respect to the competition and discover how to awaken the interest of consumers, adapting the product to the reality of the market; not only during the launch, but also throughout his commercial life."

That is why sensory and consumer research is recognized as a key discipline that encompasses different methodologies to guide the innovation process and make communication and interaction between different areas of the company easier (quality, marketing, R + D).

The online course, Product innovation through sensory analysis and consumer research, organized by Consumolab, the AINIA centre dedicated to the research and study of consumer preferences, will increase the training of professionals in the food industries, facilitating the making decisions related to the launch of new products with greater rigor. María Mar Lorente stressed that in the first edition held last year, "93% of the participants indicated that they had reached their objectives with the completion of this course."

The contents, taught by professional experts in sensory analysis and consumer research, will include, among other aspects: sensorial attributes and their perception by the consumer, evaluation of the useful life and product innovation, analytical and consumer judge methods, bases of the analysis sensory (judges, samples and environment), planning a sensory study, data processing and analysis of results, as well as the realization of practical cases that reflect real problems of the companies and their resolution in an effective way.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Probiotics offer prospect of cheap, eco-friendly nanoparticles

By Tim Cutcliffe 30-Jul-2017 - Nutra Ingredients

The use of probiotics or the biosynthesis of metallic nanoparticles (MNPs) may offer a cheaper, more eco-friendly alternative to previous production methods, says a new review.

Probiotics are widely known for their use in dietary supplements, drinks and foods to help boost the population of beneficial bacteria in the gut. However, their use in the development of nanoparticles is less well recognised.

However, the review published in in Recent Patents on Drug Delivery and Formulation, suggests the use of biological materials such as probiotics could be a more economic and eco-friendly means of future nanoparticle biosynthesis. Previously, "the MNPs have been synthesised through several chemical and physical techniques, which have been found to be quite expensive and a few may pose environmental challenges, wrote corresponding author Professor Kamla Pathak from the Pharmacy College, Saifai, Uttar Pradesh University of Medical Sciences, India.

Multiple applications

The use of probiotic bacteria in synthesising MNPs has applications for bioactive delivery (including nutraceuticals), cosmetics, pharmaceuticals and biotechnology. The review found that gold and silver MNPs were the prime focus of interest, but various other metals and/ or their oxides were also investigated including zinc, copper, magnesium, tellurium and tungsten. Potential applications included anti-microbial, anti-fungal and chemotherapeutic uses.

"Gold NPs are suggested for drug delivery and treating lymphocytic leukaemia silver and copper NPs for antimicrobial activity and zinc oxide NPs as anti-corrosive, antifungal and as an additive in food products such as breakfast cereals," commented Pathak.

Individual studies and associated patents for nanoparticle synthesis used a diversity of species and strains of bacteria too numerous to mention individually. However, the bacterial genera Lactobacillus and Bifidobacterium were the most widely investigated.

The survey used a literature search to identify research and patent reports on MNPs biosynthesised using probiotic bacteria. The search reviewed patents from the United States, the European Patent Office and World Intellectual Property Organisation. "Use of probiotic bacteria in synthesizing metallic nanoparticles is an effective biosynthetic approach. However, the technique needs wider exploration for newer metallic/non-metallic/metalloid NPs for therapeutic applications," she concluded.

Seaweed extract can add body to dairy desserts

By Noli Dinkovski 26-Jul-2017 - Food Manufacture

The dairy market has been boosted by a new texturising ingredient made from sustainably sourced seaweed.

Carrageenan extract that adds "outstanding firmness, creaminess and body" to any gelled dairy dessert formulation, such as flan, custard and crème caramel, according to its maker Cargill. In line with its sustainability approach, Cargill uses cultivated seaweed - enabling it to offer the product at what it claimed was an attractive price.

'Continuously developing innovative ideas'

"Our team of experts are continuously developing innovative ideas to stimulate the market for carrageenans," said Xavier Martin, global seaweed product manager for Cargill Starches, Sweeteners & Texturisers (SST). "With consumers demanding quality at affordable prices in dairy desserts, we saw an opportunity to revitalise this important market segment."

Texture had become a strong deciding factor in consumer taste preferences, added Anne-Laure Rouger, dairy application specialist for Cargill SST. "We see consumers seeking firmer, more palatable products with a creamy texture," she said.


Image © iStock.com/Freestocker

Replicate the functionality of wild seaweed'

"With new technology, we can replicate the functionality of wild seaweed, offering food developers a reliable way to achieve an appealing texture."


Image © iStock.com/fotohunter

Stevia-based flavour modifier cuts need for expensive cocoa and vanilla

By Niamh Michail 20-Jul-2017 – Food Navigator

Stevia supplier has developed a stevia-based flavour modifier that enhances vanilla and cocoa flavours as well as sweetening. Faith Son, vice president of global marketing and innovation at the company said the sweetener could help manufacturers reduce the amount of cocoa and vanilla needed in a recipe by around 10 to 15%.

"The products modify the perceived flavours in food and beverages," said Son. "Companies can achieve cost savings when integrating PureCircle's flavour modifiers to reduce the amounts of cocoa and vanilla alongside sugar without compromising taste."

The flavour modifiers were tested with natural vanilla and cocoa ingredients during the initial product development stage, but the firm said it expects they could work well in a wide range of applications, such as with vanillin flavouring.

Available in powder form, they can be labelled as a natural flavouring on an ingredient list.
The Malaysian company said it expects demand to come from categories such as dairy (protein shakes, drinkable yoghurts and flavoured milks), baked goods and confectionery.


Image © iStock.com/Amarita

Supplements could be missing opportunity connected to essential oils, experts say

By Hank Schult 30-Jul-2017 – Nutra Ingredients USA

Herbal product companies may be missing an opportunity in which essential oils and specific dietary supplements could be recommended simultaneously in condition-specific settings, experts say.

Essential oils have become a huge part of the herbal products business. One recent estimate put the global market in these products at $7.5 billion in 2015. Another report postulates that the global market could hit $14 billion by 2024. And thriving multi-level marketing companies have been founded on the ingredients. Young Living, based in Lehi, UT, was recently listed at No. 22 in the annual Global 100 list assembled by the publication Direct Selling News of the world's largest network marketing companies. DSN pegged Young Livings 2016 annual revenue at $1 billion. It's the largest MLM on the list that focuses on essential oils. Doterra, which is a member of the United Natural Products Alliance, is another Utah-based MLM in the essential oils space that is rumoured to be of similar size to Young Living (not all privately held MLMs choose to respond to the questionnaires sent out by Direct Selling News).

Divided in the regulations

But in the United States these products are often thought of separately from dietary supplements, even though botanical ingredient suppliers sell into both markets, and some of the active molecules are the same in both cases. This has to do with the regulatory definition of a dietary supplement in US law, which species these products are meant to be absorbed in the GI tract. The active constituents of essential oils are absorbed through the nasal mucosa, through the lungs, or, when properly formulated, through the skin.

The recent meteoric growth in essential oils is only the latest instalment in a very old story in the history of herbal products, said Mark Blumenthal, founder of the American Botanical Council. Essential oils were a starting point even for Blumenthal himself, who at one time several decades ago marketed a line of oils under the Flower Valley trademark (which is what Blumenthal means in German).

Part of the early history of herbalism

Blumenthal said the very name - essential oils - comes from the founding of Western herbal medicine. Paracelsus, an influential physician of the 1400s, postulated that these aromatic, volatile fractions of medicinal plants that exerted health effects were something beyond the elements of earth, water, air and fire.
"Paracelsus believed they contained a fifth element, which became the origin of the word 'quintessence.' And from that we get the term essential, too," Blumenthal told NutraIngredients-USA.

Safety margins differ

Another way in which essential oils differ from dietary supplements is in their safety outlines. Essential oils are super-concentrated lighter fractions distilled from the plant, and in some cases do not enjoy the huge safety margin that some supplements do. Most dietary ingredients used in supplements have safety margins that are an order of magnitude or more in sie. In other words, once you reach the efficacious dosage level, huge additional quantities of that ingredient would need to be ingested to approach toxicity. While a blanket statement can't be made for essential oils given that there hundreds if not thousands on the market, this same huge spread does not always apply.

"My lower alley products were packaged in a display case with an information booklet. You opened the booklet up and the very first page was a warning. Among the things it said was that you should not put an undiluted essential oil directly on your skin. Some of the retailers didn't like it because they thought the warnings scared customers away. But I said I didn't want the kind of customer who wouldn't take the time to educate themselves," Blumenthal said.

Mindy Green, a member of the Alliance of International Aromatherapists, was at one time an expert in the category for Aveda, the natural cosmetics giant founded by the late Horst Rechelbacher. "We were at one time said to the largest buyer of essential oils in the world, " Green said. She now consults and teaches through her own firm called Green Scentsations.

Chemistry differs between oils and extracts

Green said the chemistry of the oils - only molecules with a molecular weight below 300 can be extracted via the method - means that the active constituents will be different from that of many extracts used in dietary supplements. Polyphenols, which figure large in many dietary supplement extracts, have molecular weights between 500 and 4,000. But there is some crossover, particular in case of lavender preparations marketed in association with depression. German company Schwabe has a capsule product as does Nature's Way.

"I think that's a really unique product in the dietary supplement world. Euromedica makes one, too, but they only sell to doctors," Green said.

Cavalier crossover

In the case of these lavender preparations, there is a long history of internal use and human clinical trials have been conducted on the ingredients. Green said where she takes issue with this formulation crossover is when it is done in a cavalier fashion.

"Some people in network marketing companies are telling consumers to put a few drops of an essential oil in their bath, and then they can put a couple of drops in their tea. You really can't market a product as a cosmetic and an ingestible product at the same time," she said.

"There has been considerable concern among professional aromatherapists because a lot of the essential oils that have been marketed for internal use. Their concern is to make sure that consumers are micro dosing in a responsible manner (one or two drops might be good, four or five might be too much, in other words). With that being said, I'm not aware of any spate of adverse event reports connected to the internal use of essential oils, " Blumenthal said.

Potential for market synergies

While direct internal use of an essential oil is rarely called for, the conditions for which they are marketed do provide a lot of overlap. Both Green and Blumenthal said there could be more marketing synergy for these categories of products than currently exists in the marketplace. An essential oil marketed for its calming properties could be recommended in the same breath as an adaptogenic herbal dietary ingredient like ashwagandha, for example.

"I do classes on that all the time. From my background as an herbalist I can see that there is a tremendous amount of potential crossover. If you have someone who is self medicating for a cold with echinacea or black elderberry, you could also recommend to them to also take a bath with some eucalyptus oils diluted in the bath water, or use frankincense with a diffuser," Green said.

But that regulatory divide has also affected the knowledge base of the companies in the market, she said. Essential oil companies tend to focus on what they do, and dietary supplement formulators do the same, and to some extent never the twain do meet.

"Aromatherapy is a little younger than is the clinical practice of dietary supplements," Green said. "They each have each been living in kind of a vacuum. I am doing a lot of classes in both of those communities, and what I have seen in a lot of the companies marketing herbal products is that they are not as well educated about aromatherapy as they ought to be.

REGULATORY NEWS

Image © iStock.com/Tonkovic

Increasing CO2 levels may lead to protein, zinc deficiencies

IFT Weekly Aug 16, 2017

If carbon dioxide levels continue to rise as projected, the populations of 18 countries may lose more than 5% of their dietary protein by 2050 due to a decline in the nutritional value of rice, wheat, and other staple crops, according to new findings published in Environmental Health Perspectives.

The researchers estimate that an additional 150 million people may be placed at risk of protein deficiency because of elevated levels of CO2 in the atmosphere.

"This study highlights the need for countries that are most at risk to actively monitor their populations' nutritional sufficiency, and, more fundamentally, the need for countries to curb human-caused CO2 emissions," said Samuel Myers, senior research scientist in the Dept. of Environmental Health, Harvard T.H. Chan School of Public Health.

Globally, 76% of the population derives most of their daily protein from plants. To estimate their current and future risk of protein deficiency, the researchers combined data from experiments in which crops were exposed to high concentrations of CO2 with global dietary information from the United Nations and measures of income inequality and demographics.

They found that under elevated CO2concentrations, the protein contents of rice, wheat, barley, and potatoes decreased by 7.6%, 7.8%, 14.1%, and 6.4%, respectively. The results suggest continuing challenges for Sub-Saharan Africa, where millions already experience protein deficiency, and growing challenges for South Asian countries, including India, where rice and wheat supply a large portion of daily protein. The researchers found that India may lose 5.3% of protein from a standard diet, putting a predicted 53 million people at new risk of protein deficiency.

A companion paper co-authored by Myers and published in GeoHealth, suggests that CO2-related reductions in iron content in staple food crops are likely to also exacerbate the already significant problem of iron deficiency worldwide. Those most at risk include 354 million children under the age of 5 and 1.06 billion women of childbearing age-predominantly in South Asia and North Africa-who live in countries already experiencing high rates of anemia and who are expected to lose more than 3.8% of dietary iron as a result of this CO2 effect.

Calculating the nutrient density of common snack foods

By Cheryl Tay
04-Jul-2017 - NutraIngredients Asia

Most Americans aged 2+ eat at least one snack a day and receive roughly a quarter of their daily energy from snacks.

Nutrient density scoring, or calculating a numeric score for foods based on their nutrient

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profiles, could be an important metric to include on the front of food packages to help consumers identify more healthful products. A study published in the Journal of Food Science examines the nutrient density of commonly consumed snacks using two measures—Nutrient Rich Foods Indices 9.3 (NRF 9.3) and 15.3 (NRF 15.3).

First, the researchers identified common categories of snack foods consumed in the United States and then identified specific snacks to analyze within each category. The categories examined were: cakes/cookies/pastries, sweets, vegetables, alcohol, milk desserts, crackers/salty snacks, soft drinks, other grains, whole fruit, coffee/tea, and miscellaneous. Next, the researchers calculated NRF 9.3 and 15.3 scores for the specific snacks selected within each category. Finally, they calculated an average nutrient density score and standard deviations for each category of snacks with both NRF 9.3 and 15.3.

The researchers found that vegetables and coffee/tea received the highest category scores (most nutrient dense) on both indices, while cakes/cookies/pastries and sweets had the lowest category scores. NRF 9.3 scores for individual snacks ranged from -46 (soda) to 524 (coffee). NRF 15.3 scores ranged from -45 (soda) to 736 (coffee).

The researchers concluded that if added to food labels, NRF scores could help consumers identify more nutritious choices. However, given the different scores generated for the same foods between NRF 9.3 and 15.3, careful consideration is needed as to which nutrient density measure to include on food labels. In addition, consumer education is key as their understanding and likelihood of using nutrient density scores has not yet been evaluated.


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FDA approves qualified health claim for soybean oil

IFT Weekly Aug 2, 2017

The U.S. Food and Drug Administration (FDA) has approved a qualified health claim linking consumption of soybean oil to reduced risk of coronary heart disease.

Bunge independently filed a petition with the FDA that included a summary of human clinical studies from nutrition researchers demonstrating the heart health potential of soybean oil. Upon review, the FDA will allow companies to communicate that soybean oil may reduce coronary heart disease risk and lower LDL-cholesterol when replacing saturated fat and not increasing calories.

"The FDA's decision provides opportunities for food companies eager to develop heart healthy products, consumers looking to improve heart health, and soybean farmers who thrive when demand for their crop increases," said Mark Stavro, senior director of marketing, Bunge North America.

Based on the newly permitted soybean oil and heart health claim, food providers are allowed to make heart health claims when food and menu items include at least 5 g of soybean oil per serving and meet applicable criteria for saturated fat, trans fat, cholesterol, and sodium content. In order to be deemed heart healthy, soybean-oil-containing food products, including margarine, margarine substitutes, and margarine products must also be a good source of one of six beneficial nutrients identified by the FDA. Soybean oil, soybean oil blends, salad dressings, and shortenings can carry the claim without having to be a good source of one of these six nutrients, but must meet criteria for saturated, trans fat, cholesterol, and sodium content.

Brazil approves astaxanthin microalgae ingredient for use in food

IFT Weekly Aug 2, 2017

Algatech has received Brazilian Health Regulatory Agency (Anvisa) approval for its all-natural astaxanthin AstaPure to be used as a food ingredient. Approval was said to be granted due to the high quality and purity of the product.


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This approval makes Algatech the first astaxanthin supplier to start marketing its clean label astaxanthin under the AstaPure brand in Brazil. AstaPure is sourced from the Haematococcus pluvialis microalgae, cultivated in a proprietary fully controlled closed system of glass photo-bioreactors energized by the abundant natural sunlight of the Arava desert.

"Brazil holds the leading supplement market in South America, and we strongly believe this approval will create further possibilities in the region," said Gary Brenner, project development manager for Algatech. "Collaborating with our distributor Ayalla, Sao Paulo, we aim to increase our sales and promote our products in cooperation with the leading brand customers in the food, cosmetics, and dietary supplements segments."

"Microalgae is expected to be one of the most important nutrition sources of the 21th century. We are proud to be among just a few companies internationally that have cracked the code for commercial-scale production of natural microalgae, at the highest standards," said Hagai Stadler, CEO of Algatech. "We are pleased to bring the Algatech product line to Brazil, and to be able to provide for the first time in Brazil all-natural astaxanthin AstaPure."

DNA identification method that can work on extracts detailed in study

By Hank Schultz 21-Aug-2017 - NutraIngredients - USA

A new technology building on genetic information as the basis of botanical identification has been demonstrated in a recent research paper dealing with a common TCM ingredient.

In the paper, written by researchers from two Chinese research institutes along with Steven Newmaster, PhD, and Subramanyam Ragupathy, PhD, of the University of Guelph in Canada, the authors detailed the development of an identification method for Lonicerae japonicae Flos . The botanical, which goes by common names such as Japanese honeysuckle or Jinyinhua, is a common component of many Chinese patent medicines (CPMs). In general, the authors noted that traditional medicines are suffering from a rising tide of adulteration. The authors cite research that shows that 30% of TCM preparations sold in China may be adulterated, whereas another source showed that more than 70% of traditional medicines sold in Brazil were adulterated in some way.

TCM preparations can often be highly complex, and the adulteration picture for Lonicerae japonicae Flos is complex, too. The popularity of the herb, which is rich in chlorogenic acid (CGA), means it suffers from widespread adulteration, according to the authors. Some unethical suppliers use cheaper species that also contain CGA but which have different chemical properties in other regards, according to the paper. The authors said Lonicerae japonicae Flos can be adulterated with, " Eucommiae Folium (E. ulmoides Oliv; Duzhongye) or Lonicerae Flos (Shanyinhua). Eucommiae Folium is derived from a completely different genera, and Lonicerae Flos can be derived from 4 different species including L. marantha (syn. L. fulvotomentosa), L. confusa, L. hypoglauca, and L. macranthoides. Lonicerae Flos is much cheaper than Lonicerae japonicae Flos. According to the theory of traditional Chinese medicine characteristics, Eucommiae Folium and Lonicerae japonicae Flos have totally different pharmacology, so the two herbal materials should be clearly distinguished. "

DNA barcoding has been put forward as a method for positive botanical identification, but the authors, in concert with many other experts in the industry, noted its drawbacks in that it relies on relatively intact strands of DNA, which may be difficult to find in materials after they have been processed and is not present in sufficiently intact form or in sufficient quantity in most extracts.

Spiking with cheaper CGA sources

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Follow-on to DNA barcoding
The newer technology, which is being developed through the NHP Research Alliance centered at the University of Guelph, builds on two components: Using a ‘nucleotide signature’ that is unique to the target species but is much shorter than a common DNA, and an easy to use device that should make uptake of the approach in industry easier.

“We are developing standard operating protocols (SOPS) at the NHP Research Alliance that will be validated, published, and shared with the NHP (natural health products) community. We have a very good working relationship with USP who is interested in receiving these SOPs and the co-development of robust standard biological reference materials (SBRM) for NHPs. We are developing this technology to run on biotechnology that is relatively cheap and can deliver results on-site in real time (TRU-ID certified via a cellular connection) in less than an hour,” Newmaster told NutraIngredients-USA.

Newmaster said more information on the technology will be presented at the American Herbal Products Association’s upcoming Botanical Congress. The one-day event will take place on Friday, Sept. 29 in Las Vegas after the conclusion of the SupplySide West trade show.

Approach successfully identies widespread adulteration
“Our research presented here is focused on developing a contemporary molecular diagnostic tool for testing authentic Lonicerae japonicae Flos (L. japonica Thunb.; Jinyinhua) ingredients in NHPs. The goal of this study was to develop a short nucleotide signature for E. ulmoides and a SNP double peak detection method for Lonicerae Flos to distinguish the adulterant in the Lonicera extracts and CPMs, ” the authors of the study wrote.

The study authors tested 24 extracts and 47 CPMs. Only 17% of the extracts and 22% of the CPMs were found to be free of adulteration. Furthermore, the paper added to the verification of the nucleotide signature method which was detailed for identification of American ginseng in a paper written by some of the same Chinese authors in 2016.

Newmaster said it is still very early days for the new ID technology, and much work still needs to be done for its wider application and acceptance. But he said that it does help fill in some of the gaps and criticisms of standard DNA barcoding.

“Barcoding is older technology of which we published numerous seminal scientific papers and book chapters between 2003-2013. This research provides a good stepping stone for more advanced molecular diagnostic tools that overcome many of the previous problems associated with testing NHPs. Although we do need to do this type of research for every species, we can attain this goal with a focused R&D team and that is the goal of the NHP Research Alliance,” Newmaster said.

‘Smart label’ could tackle fraud, bolster food safety

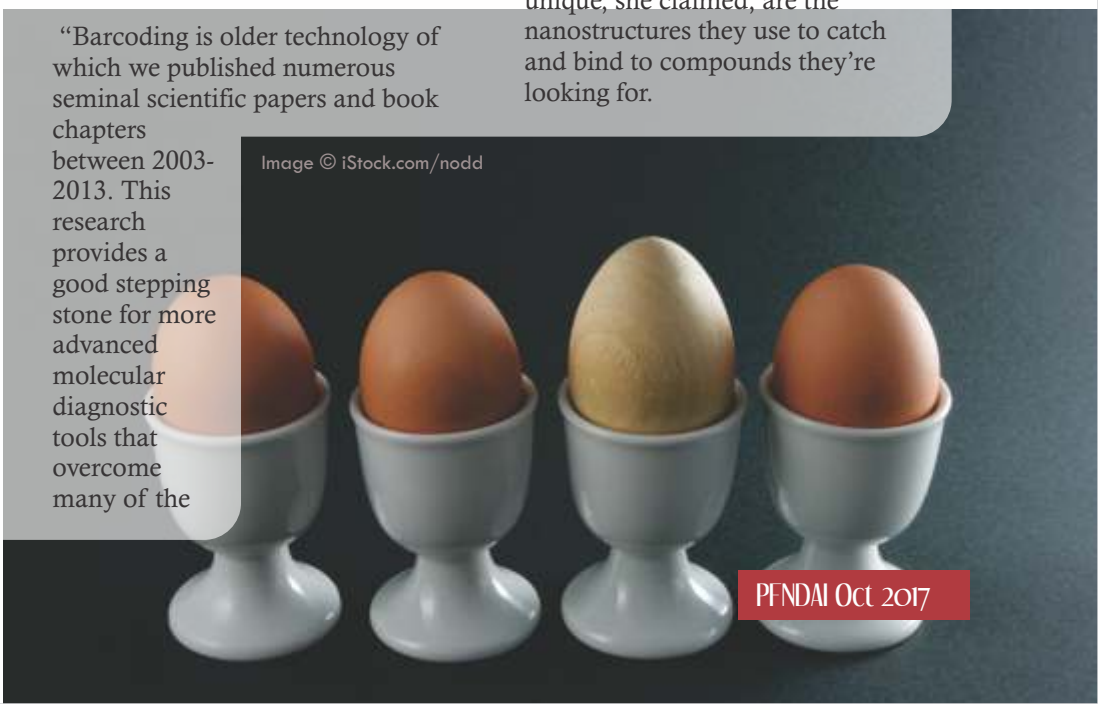
By Katy Askew 20-Aug-2017 – Food Navigator

Scientists have developed what they describe as a low cost, portable, paper-based sensor that could be used produce smart labels that detect food spoilage and contamination.

"My lab has built a versatile sensing platform that incorporates all the needed reagents for detection in a piece of paper. At the same time, it is adaptable to different targets, including food contaminants, antioxidants and free radicals that indicate spoilage,” Dr Silvana Andreescu, the lead scientist behind the development, explained.

Dr Andreescu, who works at Clarkson University, said that the work reflects her interest in technologies that “are accessible to both industry and the general population" .

What makes Dr Andreescus sensors unique, she claimed, are the nanostructures they use to catch and bind to compounds they’re looking for.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"Most people working on similar sensors use solutions that migrate on channels," she said. "e use stable, inorganic particles that are redox active. When they interact with the substances we want to detect, they change colour, and the intensity of the change tells us how concentrated the analyte is." Because all of the reagents needed to operate the device are incorporated in the paper, users don't need to add anything other than the sample being tested.

The research team said that the potential applications for the tech are "wide-ranging".
Much of the sensor work to date has focused on detecting antioxidants in tea and wine. Dr Andreescu and her team found these products have unique antioxidant "fingerprints" that can be used for authentication purposes to combat food fraud.

The researchers have also extended their work to look at food contamination and environmental pollutants. One sensor prototype can spot ochratoxin A, a fungal toxin commonly found in a range of products, including cereals and coffee. She noted this direction could be expanded further to look for salmonella and E. coli.

Fighting food fraud, contamination and waste
Dr Andreescus next focus is the development of paper-based devices that change colour when food spoils. These sensors bind to the reactive oxygen species that products accumulate as they age and eventually go bad. Although testing for this application is still ongoing, Dr Andreescu said this technology could one day be incorporated into smart labels that would tell consumers when to throw a product out.

Combating food waste is an important issue as the food sector looks to develop more sustainable models and ensure production will be sufficient to feed the worlds growing population, which is forecast to hit 9bn by 2050. According to the Food and Agriculture Organization of the United Nations, 30% of the world's cereals, 20% of dairy, 35% of seafood and 20% of meat is currently wasted.

Annual World Food Safety Day moves step closer

By Joseph James Whitworth 03-Aug-2017 Food Quality News

Food safety could soon have an annual dedicated day after a vote at a recent FAO Conference. The 40th session of an FAO Conference adopted a draft resolution last month with a view to having the General Assembly of the United Nations consider, at is next session in September to declare 7 June as World Food Safety Day.

"World Food Safety Day will raise awareness of the global threat posed by food-borne diseases and reinforce the need for governments, the food industry and individuals to do more to make food safe and prevent these diseases," said Ren Wang, director FAO department of agriculture and consumer protection.

The Joint FAO/WHO Codex Alimentarius Commission made the proposal to create such a day on a permanent basis at its 39th Session in Rome in 2016. Food safety was the theme of World Health Day in April 2015.

Awilo Ochieng

Pernet, chairperson of the Codex Alimentarius Commission, said it would enhance consumer health protection and lead to a reduction in food-borne diseases. "The World Food Safety Day will contribute to raising awareness about the importance of food safety among all relevant stakeholders including the public and private sectors and all actors in the food chain, from primary producers to consumers."

Costa Rica, one of the original sponsors of the proposal, stressed the 'significant threat' to health worldwide and obstacles to socio-economic development posed by food-borne disease. Argentina, speaking on behalf of the Latin American and Caribbean Group (GRULAC), said those suffering most from hunger and malnutrition often consume contaminated and adulterated food and that as complexity of the chain increases so will public concern on food safety.

Estonia, speaking on behalf of the 28 EU Member States, highlighted the importance of standards for consumer health and ensuring fair practices in food trade. Once the FAO Conference report is adopted, discussions will take place with WHO for a similar resolution to be passed by its governing body. Should that be successful the proposal will go to the United Nations General Assembly.


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Does Europe need a legal definition of natural food?

By Niamh Michail 30-Jul-2017 – Food Navigator

With the US considering a legal definition of 'natural' food, does Europe need one too? It would increase clarity for a complex concept, but defining 'degrees of naturalness' for origin, ingredients and processing may be better, say the researchers of a review covering 85,000 consumers in 32 countries.

What is natural, can we measure it and how important is it to consumers anyway? Three researchers attempted to answer these questions by sifting through the results of 72 existing studies involving 85,000 consumers across 32 (mainly European) countries.

"This study is a starting point from where the industry, consumer groups and authorities can get together to agree on a definition," said Dr Luisma Manuel Sánchez-Siles, director of innovation at Swiss food manufacturer Hero's infant nutrition R&D department, who partnered with Professor Sergio Román from the University of Murcia and Professor Michael Siegrist from ETH Zürich for the review.

Three is the magic number: Origin, ingredients and processing

They found that three key elements shape consumers' understanding of natural food.

The first is the origin of the raw materials used, including how the crops are grown and whether they are natural. Given that the use of organic or non-GMO ingredients is a key indicator of naturalness, certification is an effective way to be perceived as a natural product. "Certification of some of these attributes could significantly improve consumers trust in the food industry," said Sánchez-Siles.

The second relates to the ingredients used – banishing artificial flavours and colours, preservatives, additives, hormones, pesticides and GMOs will increase a product's natural credentials – and the authors note that many manufacturers are already moving in the right direction here thanks to the clean label movement.

The third is the level of processing, which should be kept to a minimum. "This means the processing involved should maintain the integrity of raw natural products as much as possible"
For processing, however, it's all about striking a balance.

"Consumers often have conflicting interests," write the authors."They want to save cooking time and buy convenience food at the same time; they like to eat unprocessed and natural foods. This issue also poses an opportunity for the food industry Production processes, ingredients, packaging, and marketing need to be combined in a way that consumers perceive the products as natural foods that have similarities with traditional ones.

Towards a legal definition for Europe?

So does Europe need a legal definition of what's natural? The USA's Food and Drug Administration (FDA) is considering one. After inviting stakeholders to send in their proposals and comments (it received 7,690) it is now trawling through the results.

Sánchez-Siles told FoodNavigator: "e believe that a clear definition of food naturalness for the industry to share a common understanding would definitely be of value to consumers. A legal definition can only add transparency and clarity into this complex topic, which consumers deserve. "Still, as evidenced in our study, this is indeed a very complex and abstract concept, and therefore it is not a question of being natural or not.

"Rather, the opportunity would be to establish a degree of naturalness for food products that takes into consideration the ingredients in a product, how they are processed and how they are finally offered to consumers. The authors also found that the definition of natural varies according to the country and region, meaning a single definition for the EU's 28 member states could be challenging.

Lessons to learn

Hero, which initiated the study but did not fund it, said it would use the results to bring its portfolio in line with consumer expectations. The technology used for its Coldpuree baby food range sold under its Beech Nut Nutrition brand, for instance, already reduces processing to the bare minimum required to puree fruit and vegetables, retaining the colour, nutrients and texture of the ingredients, it said.

As well as baby food and infant nutrition, Hero also manufactures cereal bars under the brand names Semper in the Nordic region, Corny in Germany and Hero Muesly in Spain, as well as jams, gluten-free breads and cake decoration kits.

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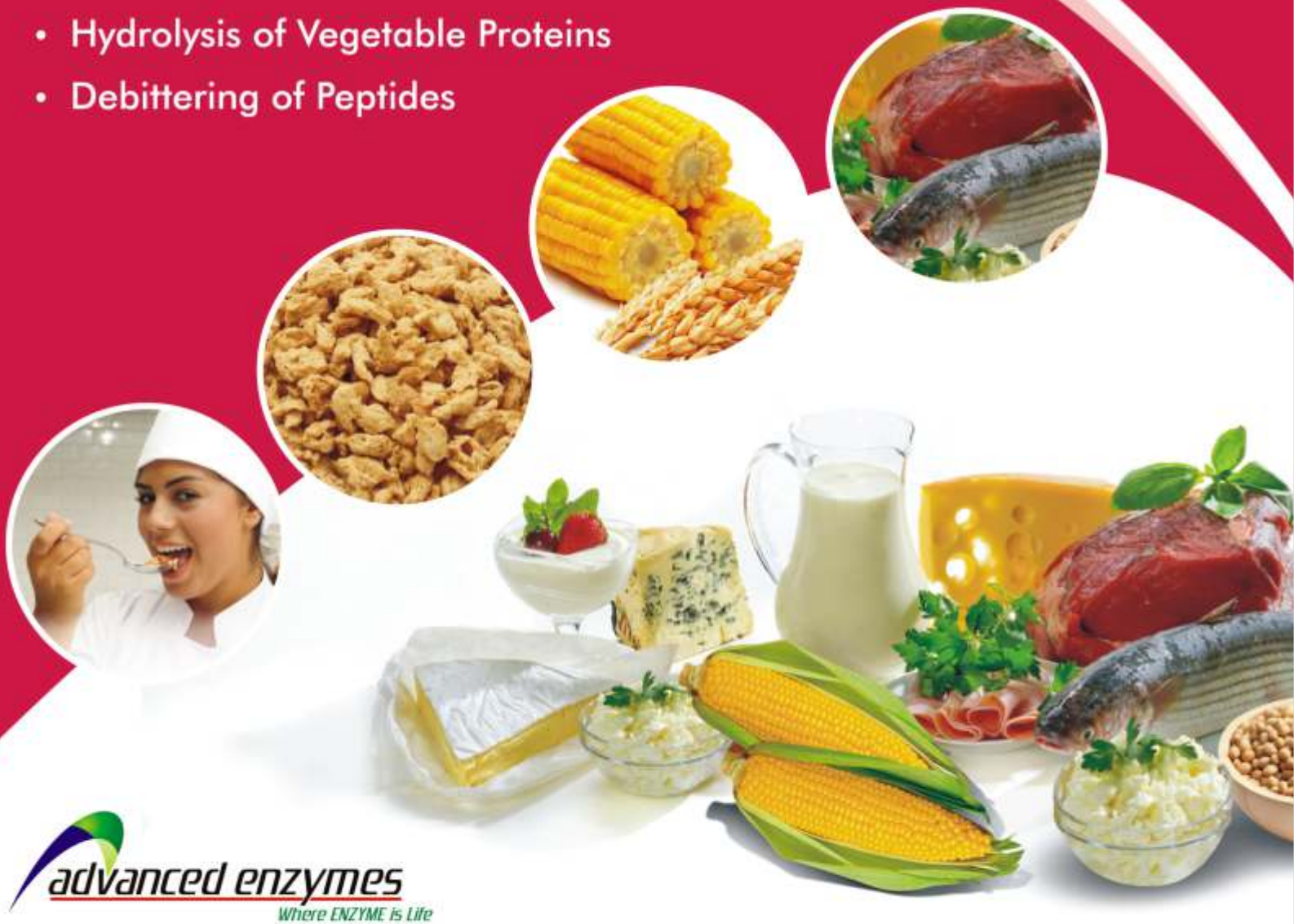

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