Nutritionals | Nutraceuticals | Functional Foods | Dietary Supplements

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A Decade of FSS Act

Bringing change

Ashish Bahuguna
Chairperson, FSSAII

'Any food law should deal with entire spectrum'

Pawan Agarwal
CEO, FSSAI

'Need to build a culture of food safety across the board'

Nutraceuticals and Placebo

Dr Sanjay Agrawal
Pharmaceuticals Consultants and Editor-in-Chief of IJMToday

Herbal medicines are often perceived by the general public as a 'soft' alternative to Western medicine, but the use of these substances can be risky since they can induce nocebo effect. In 1961 Walter Kennedy chose the term nocebo (Latin for I will harm) as the counterpart of placebo. This term was introduced a few years after Henry Beecher published his paper on placebo effect. Most clinical studies explored the beneficial effects of nutraceuticals and ignored their nocebo effects; the seeds/oil of Nigella sativa has anti-inflammatory, analgesic, antipyretic, antimicrobial, hypotensive, hypoglycemic, antiepileptic and antineoplastic activity.

Garlic, considered either food or herbal medicine, possesses antimutagenic and antiproliferative properties that can be used in anticancer interventions, hypoglycemic. Coenzyme Q10 (CoQ10) is an essential electron carrier in the mitochondrial respiratory chain and an important antioxidant. It exerts a beneficial effect on cognitive, digestive, cardiovascular and immune systems, and modulates inflammatory and degenerative processes in the body.

Nutraceuticals derived from such spices as turmeric, red pepper, black pepper, licorice, clove, ginger, garlic, coriander, and cinnamon target inflammatory pathways, thereby may prevent neurodegenerative diseases e.g., Parkinson's disease. On the other hand, most clinical studies ignored the subtle central effect of the nutraceuticals, therefore the aim of this study is to show the nocebo effects of nutraceuticals notably black cumin, garlic and CoQ10 on the integrative function of central nervous system and psychomotor performance in human using Leeds battery testing.

Research on the causes of placebo effect has made great advances in recent years. Proposed mechanisms include conditioning and expectation, with majority of experts favouring the latter as primary force.

Benedetti proposes that pain and mental state fit better into the expectation model, while classical conditioning may be an explanation for responses in immunological function, hormonal and respiratory responses (such as asthma).

Functional MRI conducted while a placebo treatment is administered confirms activity in brain regions involved in processing of perception, pain and emotion. Use of the opioid antagonist naloxone reverses placebo induced pain relief, suggesting production of endogenous opioids as a mechanism.

The mechanisms for nocebo (Latin: I shall harm) effects are also conditioning and expectation, in the form of anxiety. Anticipatory anxiety can increase production of cholecystokinin (CCK), resulting in an increased pain response. Much as the naloxone reduces placebo effects, CCK antagonists blunt nocebo effects. Schenk points out certain 'word traps' can function as conditioning aural nocebos.

This classification and few examples suggest role of nutraceuticals in disease healthcare condition.

1. Dietary fibres

These are the plant origin substances present in food which are not digested in gastointestinal tract and add bulk to the intestinal contents. Examples include fruits, barley, oats, lignin, cellulose, pectin etc. Generous intake of these fibres in diet is associated with low risk of CVD, hypertension, diabetes, obesity, and colon cancer and gastrointestinal disorders.

2. Probiotics

These are live microbial feed supplements which when administered in adequate dose help in improving the intestinal microbial balance of the host e.g. lactobacilli, bifidobacteria etc. There administration is reported to be associated with a decreased risk of allergy, asthma, cancer, infection of ear and urinary tract.

3. Prebiotics

These are the dietary ingredients that benefit the host by selectively altering the composition or metabolism of gut microbiota. These are, generally, fructose based oligosaccharides existing naturally or supplemented in the food and are not digested by human beings. Examples of such foods are chicory roots, banana, tomato and alliums, beans etc.

These are found to be beneficial in improving lactose tolerance, detoxification, and dyslipidemia, relief from constipation and in certain tumors.

4. Polyunsaturated fatty acids

These may be omega 3 fatty acids e.g. α-linolenic acid, eicosapentaenoic acid and docosahexaenoic acid found in fatty fishes, flaxseed, soybean etc. or omega 6 fatty acids e.g. α-linoleic acid and arachidonic acid found in corn, safflower, sunflower and soybean etc.

5. Antioxidant vitamins

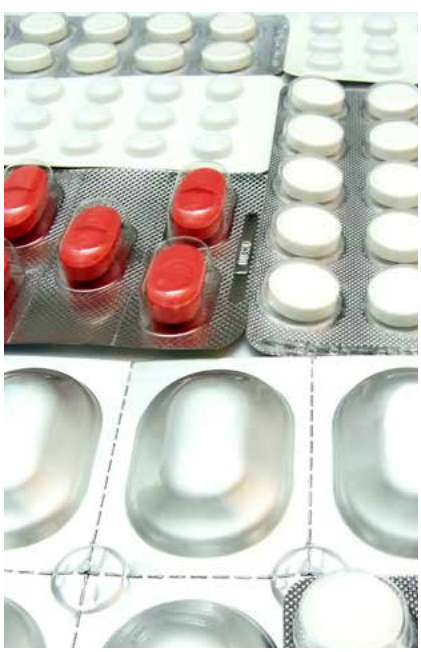
These include Vitamin C, Vitamin E and carotenoids. These vitamins are abundant in many fruits and vegetables and possess singlet oxygen quenching and lipid peroxidation preventing properties. Regular intake of these helps in prevention of a number of diseases.

6. Polyphenols

These phytochemicals are produced by plant for protection against photosynthetic stress and reactive oxygen species e.g. flavonoids, anthocyanin and phenolic acids. These possess anti-inflammatory and antioxidant properties and are found in foods like legumes, tea and soybean etc.

7. Spices

These are esoteric foods adjuncts used to enhance sensory quality of foods. Most of the components of spices are terpenes and other constituents of essential oils. Minute quantities of dietary spices have antioxidant, chemopreventive, antimutagenic, anti-inflammatory and immune modulatory effects.



Another most proven example of methylcobalamine in diabetic neuropathy. It is needed for regeneration of myelin sheath of nerve fibres which reduces pain in this chronic debilitating condition.

Nutraceutical is not placebo but it helps in preventing and curative aspect as well. NS

INGREDIENTS

DSM showcases its range of milk testing solutions

DSM Food Specialties will present its range of milk testing solutions for the dairy industry at the 30th edition of SPACE in France. Its broad-spectrum test, Delvotest T, helps to identify a variety of antibiotic residues in milk, with a particularly high sensitivity for tetracyclines. The test is adopted by many national labs, including CNIEL and is the standard in many dairies to ensure milk is compliant and safe for consumption.

French farming operations has increased year-on-year and has now reached around an annual average of more than 2,50,000 liters of milk. This is due to an increasing number of cows per farm. However, this also implies more treated cows, increasing the risk of residues in milk.

Antibiotic residues, if left undetected, can cause numerous allergies to consumers, increase chances of antibiotic resistance and can hamper processing milk into cheese or fermented dairy products. Therefore, it is important to be able to identify any antibiotic residues as early as possible in the production chain, such as the farm level.

By using Delvotest T at either individual cow or tank level, farmers are able to reduce the risk of contamination, prevent unnecessary product losses and provide more milk to dairy processors. By taking the initiative to test the milk they produce, farmers also benefit from a reduced risk of fines imposed by dairies or national authorities, if milk is contaminated.

Visitors are invited to the DSM booth to learn more about Delvotest T and DSM portfolio of tests that highlights its commitment to enable better food for everyone. Visitors will have the unique chance to win a Delvotest T starter kit for 25 deliveries of either cow, goat or sheep's milk.

Caldic announces establishment of Caldic India

Caldic, distributor and producer of food ingredients and chemicals, is continuing its growth in emerging markets will focus on chemical as well as food distribution handling as a full service distributor for mainly the chemical, pharmaceutical and food markets.

This move allows Caldic's principals access to a new customer base alongside a trusted partner in chemical and food ingredient distribution. According to OC van Caldenborgh, "Caldic looks at India as an important and strategic growth market and it is with this belief that we have decided to have a direct presence with the establishment of Caldic India, headquartered in Mumbai, the commercial capital and chemical hub of India."

The Indian economy is one of the fastest growing economies in the world. A large demanding domestic market and a highly skilled workforce are factors for the company to open up a new market beyond its current core strengths in Europe, Asia and North America.

The Indian subsidy would leverage on its global partnerships and knowledge in the chemical and food sectors and bring unique products and innovative services to Indian customers. The focus is to add value for our suppliers and customers and being a reliable partner respecting group principles of Responsible Care, Quality, Health, Safety and Environment.

The managing director of Caldic India, D Grover said, "As a result of increased globalisation, both customers and suppliers are looking out for a professional and responsible partner in India. Caldic India is committed to long term market development and growth of our Indian operations by developing partnerships with customers and suppliers that are looking for added value services and sufficient growth opportunities for their products."

Naturex unleashes range of natural food colours

While the trend is undeniable and with many manufacturers already onboard, some are starting to see it as a chance to innovate rather than an additional, often costly, constraint. Capitalising on Naturex's extensive botanical expertise, clients can now seize this opportunity to create, innovate and rethink products, using natural colors as a source of inspiration.

From intense reds to soft pinks, pale yellows and luscious greens, nature offers limitless colour possibilities. Micro-algae can be used to create vibrant blues, while luscious fruits can be transformed into colorful powders, each with their own unique set of characteristics. At this year's IFT show, visitors will be able to experience nature's potential firsthand, answering consumer demand for both authenticity and visual appeal. Guests will be invited to put their imagination to work at the booth's ice cream parlor where they will have the opportunity to create their own personalised ice cream.

With botanical expertise across several markets, Naturex is able mix and match nature's resources into a wide range of creative solutions that benefit from a full array of plant properties. "It's about more than just colour, by using our knowledge across different industry sectors, we can naturally improve performance or add functional or organoleptic benefits to products. And because of our range of processing capabilities, our colours can also take on another dimension, with new shapes and sizes such as sparkles and flakes for the decoration of various confections. We can help customers get creative to meet the ever-changing needs of consumers." said Naturex category manager Nathalie Pauleau.

DuPont delivers new range of 'packaged roti' solutions

DuPont Nutrition & Health sets a new direction for India's flat bread market with the launch of its array of solutions for Indian rotis in packaged format. The new concept of 'packaged roti' is inspired from the growing need for convenience food by the Indian household. Rich in healthy carbs from whole wheat grain, the concept targets consumers who are turning their back on traditional homemade rotis and demand for a semi-cooked or ready-to-eat format with home cooked freshness and taste.

"Indian flat bread, popularly known as roti is an integral part of the Indian diet. A majority of them are made at home with a very limited shelf-life. But in this fast paced world and changing consumer trends, there is an increased need to change the way rotis are made. At DuPont Nutrition & Health we have put in years of research to develop products that would transform the way rotis are produced, consumed and distributed," commented Parth Patel, Business Head, South Asia, DuPont Nutrition & Health. "Roti is an essential part of our diet and our aim is to extend the reach of this product across India; keeping intact the freshness and textural attributes closer to a homemade roti. We are committed to providing innovative solutions to the local Indian food palette and therefore will continue to explore all possible opportunities to add value to this segment," says Sunil Nair, Senior Application Specialist, DuPont Nutrition & Health.

Recent scientific studies at the company's largest research and development centre for food ingredients in Brabrand, Denmark, have explored fundamental mechanisms and flour components that contribute to flat bread quality. The findings shed new light on the effects of functional ingredients in roti recipes including soy proteins. Keeping this in mind, DuPont Nutrition & Health scientists have developed a versatile range of fresh-keeping solutions to improve softness, taste and shelf-life of this Indian staple.

Ingredion to come up in rice starch and rice flour businesses

US-based ingredient provider Ingredion has entered into an agreement to acquire the rice starch and rice flour business of Thailand-based Sun Flour Industry. The acquisition is part of Ingredion's global strategy to increase its higher-value specialty ingredients business. The transaction is subject to approval by Thai government authorities as well as to other customary closing conditions. Ingredion Asia Pacific and EMEA senior Vice-President and President Jorgen Kokke said: "Rice is an on-trend ingredient. It is non-GMO, hypoallergenic and gluten free. Plus, its superior functionality makes it ideal for a variety of uses, including baby foods, dairy products, snacks and gluten-free bakery.

"This acquisition enhances our global supply chain and leverages other capital investments we've made in Thailand to grow our specialty ingredients and service customers around the world." Following the completion of the acquisition, Ingredion will have four manufacturing facilities and 870 employees in Thailand. Currently, Sun Flour employs 120 people.