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- Codex strengthens food safety standards
- Microdevice to evaluate food quality
- New microcapsule fabrication method
- Rapidly cooling eggs can double shelf-life
- Active packaging locks in food quality
- Machine to remove rind from tamarind
The Asian and Pacific Centre for Transfer of Technology (APCTT), a subsidiary body of ESCAP, was established on 16 July 1977 with the objectives: to assist the members and associate members of ESCAP through strengthening their capabilities to develop and manage national innovation systems; develop, transfer, adapt and apply technology; improve the terms of transfer of technology; and identify and promote the development and transfer of technologies relevant to the region.

The Centre will achieve the above objectives by undertaking such functions as:

- Research and analysis of trends, conditions and opportunities;
- Advisory services;
- Dissemination of information and good practices;
- Networking and partnership with international organizations and key stakeholders; and
- Training of national personnel, particularly national scientists and policy analysts.

The shaded areas of the map indicate ESCAP members and associate members.
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* Value Added Technology Information Service
ASEAN to address food safety issues

In preparation for the Association of Southeast Asian Nations (ASEAN) Economic Community (AEC), the 10 ASEAN nations have united with Bangladesh, Japan and Australia to come up with a food safety strategy in case of possible emergency situations. Thailand’s Deputy Public Health Minister Dr. Surawit Khonsomboon presided over the launch of a seminar of public health and agricultural experts and officials from the 10 ASEAN nations as well as Bangladesh, Japan and Australia, to jointly devise a regional plan on food safety in emergency situations. The seminar was jointly organized the Thai Public Health Ministry and the Asia-Pacific Regional Office of the United Nations Food and Agriculture Organization (FAO).

Dr. Surawit revealed that the Thai Public Health Ministry has set up the Bureau of Food Safety Extension and Support (BFSES) to be in charge of food safety issues in the country. BFSES will function as an International Food Safety Authority Network (INFOSAN) to coordinate with national and international agencies in times of emergency. Currently, a strategy concerning emergency food safety is being developed in line with the guidelines set by FAO and the World Health Organization (WHO), in order to strengthen the country’s food safety and emergency warning system. The plan is expected to be finalized within a few years, in time for the official launch of AEC in 2015, Dr. Surawit said.

Source: www.pattayamail.com

India to enforce label on packed GM foods

Soon, consumers in India will have the opportunity to know whether the packaged food that they are buying contains genetically modified (GM) organisms. A gazette notification issued by the Ministry of Consumer Affairs, Food and Public Distribution says that every food product containing GM food ingredients shall bear the word ‘GM’ on its packaging. The gazette notification, however, lacks clarity on the threshold for the presence of GM ingredients. It doesn’t mention any mechanism on how this will be monitored, and whether this is applicable to both primary and processed foods.

Will the move help? In India, where a majority of food is not processed or packaged, labelling on packaged food would hardly cover the huge population’s right to choose. The non-government organization Greenpeace India, while welcoming this step by the government, said that it would hardly make any impact. While labelling does give the consumer a chance to avoid GM food, it is impractical as more than 90 per cent of the food in the country’s marketplace is unprocessed and non-packaged, said Greenpeace’s

Source: thainews.prd.go.th

Nepal’s food testing labs adopt Codex

The Department of Food Technology and Quality Control of Nepal has commenced upgrading its food testing laboratories to comply with the Codex Alimentarius standard in a bid to help promote exports of edibles. Codex Alimentarius is a set of globally accepted food standards maintained by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). The Department’s Executive Director Ms. Jeevan Prabha Lama said that the Codex could help develop competitiveness and food security in least developed countries like Nepal. “Codex is an alternative for countries that cannot fulfil the strict criteria fixed by the World Trade Organization (WTO),” she added.

As part of the improvement effort, the Department has started upgrading its laboratories to test food products for heavy metals. Similarly, it is in the process of enhancing the testing system for more than 50 additives and preservatives. The Ministry of Commerce and Supply has supported the Department’s effort with NPRs 7 million to implement the Codex. The funding has been provided as part of the implementation of the Nepal Trade and Integration Strategy 2010. The five-year programme has identified seven agro foods including tea, cardamom, lentil and honey as the major exportable goods. After receiving the funding, the Department started improving the testing lab’s infrastructure to enable it to test for chemicals in these products, starting with tea, as per the Codex standard.

Source: www.ekantipur.com

Food safety campaign in Thailand

The Public Health Ministry of Thailand has held a meeting with provincial public health offices from 77 provinces across the country, with Deputy Public Health Minister Dr. Surawit Khonsomboon placing an emphasis on food safety issues. According to Dr. Surawit, all related organizations will integrate their works to ensure hygienic food production from farm to table. Fresh markets, wholesale centres, street stalls, and hospital and school canteens will be strictly monitored and checked on their safety standards. The Public Health Ministry reported over 1.4 million patients who suffered from digestive diseases in 2011, indicating that unclean food is a big problem the nation has to tackle.

Source: thainews.prd.go.th
China releases five-year plan to upgrade food safety

China, in another attempt to calm consumer fears, has released a five-year plan to upgrade its food safety regulations. According to the government, the new plan by the country’s Ministry of Health aims to revamp outdated standards, which includes “reviewing and abolishing any contradicting or overlapping standards” and writing new ones. The framework was announced on the heels of China’s Food Safety Week. The plan calls for co-ordination among 14 different government departments – including the Ministry of Health, the Ministry of Science and Technology and the Ministry of Agriculture – to complete review and revamping of the existing standards by 2015.

China is not lacking in regulations – the country has more than 2,000 national food regulations and more than 2,900 industry-based regulations. However, the problem is that many of the regulations are overlapping or contradict each other, since multiple government agencies were given the responsibility of compiling their own standards years ago, stated the government. The plan admits that the country “is still suffering from the absence of several major food safety regulations.”

“The government will prioritize safety standards for dairy products, infant food, meat, alcohol, vegetable oil, seasoning, health products and food additives in order to specify limits for dangerous ingredients in these foods,” according to the statement. “Moreover, the government will make special efforts to set standards for testing various contaminants, micro-organisms, food additives, and pesticide and animal drug residue in food production by 2015.”

Source: articles. timesofindia.indiatimes.com

Philippines ready for DNA barcoding fish products

The Philippines is now capable of DNA fingerprinting fish, which is critical in food safety and in ensuring that global markets can trace the origin of fishery products. The National Fisheries Research and Development Institute (NFRDI) is now utilizing DNA barcoding to reveal the genetic material of fish species. The country’s capability in ensuring fishery food safety and supply traceability is critical for the fisheries sector. Without accurate identification of fish species through DNA barcoding, mislabelling of fish species may occur. The Philippines is considered sixth in world fishery production.

Source: www.foodsafetynews.com

Australia, India join hands to protect food grains

A joint research project by Australia and India is in the offing to protect grain harvests from insect pests. The project ‘Ensuring food security: harnessing science to protect food grains from insect threats’ will aim at developing sustainable strategies for enhancing the efficacy of phosphine, a fumigant for controlling insect infestation in stored food grains. The chief Indian institution in the three-year research partnership will be Tamil Nadu Agricultural University (TNAU), which will collaborate with Central Food Technological Research Institute (CFTRI), Indian Agricultural Research Institute (IARI) and Indian Institute of Crop Processing Technology (ICPT). University of Queensland and the Department of Employment, Economic Development & Innovation (DEEDI) will be the Australian counterparts.

The outcome is expected to assist India modernize its post-harvest management and research capability, and enable rational management of fumigant resistance, a major issue for the large-scale grains storage. The project is expected to benefit farmers and industrial partners involved in storage and processing of grain and grain products.

Citing a World Bank report, Dr. E.I. Jonathan, Director of TNAU Centre for Plant Protection Studies (CPPS), said that post-harvest losses owing...
Pakistan proposes labelling policy for GM foodstuff

The Government of Pakistan has decided to introduce labelling that shows whether or not foodstuffs are genetically modified (GM). There are suggestions that the move is not about the government’s own perceptions of food safety, but to offer choice to consumers. Different options for GM food labelling are being considered by stakeholders in the country, says a concept paper on “Genetically Modified Organisms (GMO) and Food Labelling”.

At this juncture, it has not been decided whether the labelling will be mandatory – as in the European Union – or voluntary, as it is, for instance, in Canada. The worry with mandatory labelling is the costs involved for the producer. “Nevertheless, in the absence of industry action,” states the concept paper, “the government may be pushed by consumers and lobby groups to impose mandatory labelling to ensure firms are held accountable for product-specific uncertainties.”

Source: www.freshplaza.com

Australia-Malaysia free trade pact to boost food industry

A Free Trade Agreement, signed in Kuala Lumpur in May 2012 by the Australian Trade and Competitiveness Minister Mr. Craig Emerson and the Malaysian Minister of International Trade and Industry, Mr. Mustapa Mohamed, is expected to improve trading conditions for the farmers and processed food producers in both countries. Once it enters into force, the agreement will guarantee tariff-free entry for 97.6 per cent of recent goods imports by Malaysia from Australia, which will increase to 99 per cent by 2017. Malaysia is an important regional market for Australian agriculture. It is currently ranked among Australia’s top five markets for dairy, horticulture products, wheat and sugar.

The pact will improve co-operation on food regulatory issues such as halal certification and abattoir accreditation, food standards, quarantine, labelling requirements and Customs clearance times. While many key Australian commodities already enjoy zero or low applied tariffs, some products continue to face significant tariff barriers. The new Free Trade Agreement aims to eliminate these remaining barriers.

Malaysia’s aim of becoming a regional hub for halal food processing may provide opportunities for more Australian investment in Malaysia’s food processing industries. Malaysian aim of modernizing its agriculture sector could also stimulate greater commercial opportunities for Australian businesses, as Malaysia looks to adopt new technologies and modern management systems and encourage greater participation by the private sector. Foreign investment in Malaysian agriculture could be an important driver of this modernization.

Source: www.ausfoodnews.com.au

Republic of Korea, China, Japan to unite on food security

Republic of Korea, China and Japan have agreed to work together to ensure food security and enhance their trade of agricultural products. The three Asian countries signed the agreement at a trilateral meeting of their agriculture ministers held recently on Jeju Island, the Republic of Korea. A joint statement signed by the three ministers at the end of the meeting said that the three countries agreed to strengthen cooperation on food security at both regional and international levels.

The three countries also agreed to share data on bird flu and foot-and-mouth disease, and to further discuss the feasibility of setting up a joint office to tackle possible outbreaks of the two highly contagious animal diseases. They will conduct joint studies of agricultural projects and increase exchanges of experts in the agricultural field. In this first trilateral meeting of the agriculture ministers, the three countries also decided to enhance trade of food and agricultural products, and make efforts to promote sustainable development in agriculture and fishery. The ministers will meet again next year in Japan.

Source: www.bt.com.bn

Food Safety Cooperation Forum Partnership Training Institute Network (FSCF PTIN)

FSCF PTIN specifically addresses the need to engage the food industry and academics with the regulators, to strengthen capacity building in food safety. For more information please contact:

E-mail: website@fscf-pton.apec.org
Website: fscf-pton.apec.org
Codex strengthens food safety standards

The Codex Alimentarius Commission, jointly managed by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO), has agreed on new regulations to protect the health of consumers across the world. New food safety standards on baby food, seafood, melons, dried figs and food labelling and among the products that the measures adopted cover. Codex standards are meant to serve as a basis for national legislation, and provide the food safety benchmarks for international food trade. The new standards that the Commission has set include:

- A maximum limit of 0.15 mg/kg for melamine in liquid infant milk;
- A safe maximum limit of 10 µg/kg of aflatoxins for dried figs, along with details on how test sampling should be conducted;
- Pre-cut melons should be wrapped or packaged and refrigerated as soon as possible and distributed at temperatures of 4°C or less;
- A set of preventive hygiene measures recommended to control foodborne viruses in seafood, with the Commission emphasizing on the seawater quality of growing areas; and
- The need for food manufacturers across the world to label nutritional content on their products to ensure that consumers are better informed.

The July 2012 meeting of the Codex Alimentarius Commission was attended by 600 delegates from 184 countries and the European Union. Contact: Mr. Glenn Thomas, WHO, Avenue Appia 20, 1211 Geneva 27, Switzerland. Tel: +41 (22) 791 3983; Fax: +41 (22) 791 31 11; E-mail: thomastg@who.int.

Source: www.who.int

China amends rules on nutrition enhancers

China’s Ministry of Health has released an amended regulation on the use of nutrition-enhancing food supplements. The new amendment, which will take effect on 1 January 2013, strictly abides by the formulation procedures stipulated under national food safety laws, a statement from the Ministry said. The amended regulation summarizes and updates national requirements for nutrition enhancers to ensure that they are compliant with the relevant Chinese laws and standards. The ministry will work to promote industry knowledge of the amendment with the help of other departments and industry associations in order to ensure that the amendment is properly followed.

Source: www.shanghaidaily.com

India’s labelling guidelines on imported food

The Food Safety and Standards Authority of India (FSSAI) has issued guidelines on the labelling requirements for different kinds of packaged foods being imported into the country. The guidelines will hold till necessary amendments are made to the Food Safety and Standards (Packaging and Labelling) Regulation, 2011. The minimum labelling requirements for pre-packaged food and pre-packed food with multi-piece packaging are: name of food; list of ingredients (if more than one ingredient); nutritional information; name and address of the manufacturer; net quantity; lot/code/batch number; date of manufacture; use by date, expiry date or best before date; non-vegetarian or vegetarian logo; and name and address of the importer.

Source: www.fssai.gov.in

Hong Kong proposes to control pesticide residues in food

Hong Kong, China, has proposed a new regulation to control pesticide residues in food to better safeguard public health. Although Hong Kong has general provisions that all food sold for human consumption must be wholesome, unadulterated and suitable for consumption, there is no regulation that controls the level of pesticide residues in food. The government is proposing Pesticide Residues in Food Regulation under the Public Health and Municipal Services Ordinance. The new regulation will define pesticides and other related terms in line with Codex Alimentarius, and also adopts Codex’s classification of foods, thus making the nomenclatures similar to those used in international trade.

The regulation outlines the maximum residue limits (MRLs) and extraneous maximum residue limits (EMRLs) for certain pesticide-food pairs. It also lists exempted pesticides, which includes natural pesticides and their residues that are identical to or indistinguishable from natural food components.

Besides the exempted pesticides, the import and sale of food containing pesticide residues with no MRLs/EMRLs will be permitted only if the consumption of the food is safe for health. The Director of Food & Environmental Hygiene will perform the required risk assessment. The new regulation will come into effect on 1 August 2014. To allow sufficient time for the industry to follow the regulation, the government has set a grace period of two years, during which the Centre for Food Safety will provide briefings, training and guidance for different sectors.

Source: www.foodprocessing-technology.com
Micro-device to evaluate food quality

Researchers at the Fraunhofer Institute for Photonic Microsystems (Fraunhofer IPMS), Germany, have developed a new micro-device to help consumers evaluate the quality of food before its purchase. The spectrometer is 30 per cent smaller than a sugar cube, more compact spectrometer is 30 per cent smaller in size and can be installed in smartphones in the future. Consumers could hold the smartphone near the food product, launch the corresponding app, select the food type from the menu, and get the device to measure the amount of water, sugar, starch, fat and protein present.

The new infrared spectrometer is capable of screening several centimetres below the surface of the food product and can also take measurements even if a thin packaging film is present on the food product. The device works by focusing a broad bandwidth of light on the food product and, based on the product composition, different wavelengths of light are reflected in the near infrared range with various intensities. By examining the resulting spectrum, scientists can know the quantities of various substances present in the product. The Fraunhofer IPMS researchers also said that new device, which has a volume 2.1 cc, is inexpensive to produce and is suitable for mass manufacture.

To develop the spectrometer, the researchers used a technology called micro-electromechanical systems (MEMS), which eliminates the need for assembling individual components. The production process involves manufacturing the individual gratings and optical gaps directly on silicon wafers, which are capable of holding components of hundreds of spectrometers and makes it possible to produce hundreds of spectrometer systems simultaneously.

Source: www.foodprocessing-technology.com

Biological sensor that detects toxins

In Israel, researchers from Tel Aviv University (TAU) and the Hebrew University (HU) of Jerusalem have developed a biological sensor that can detect toxic chemicals. Prof. Yosi Shacham-Diamand, Vice Dean of TAU Faculty of Engineering and Prof. Shimshon Belkin of the HU Institute of Life Sciences called the new biosensor device a “Dip Chip.” The biosensor contains microfluids designed to exhibit a biological reaction to toxic chemicals in much the same way that humans or animals do. The chips are based on genetically modified microbes that were developed in the laboratory of Prof. Belkin. When exposed to toxic materials, they produce a measurable biochemical reaction, which is then converted into an electronic signal that can be interpreted by the device as “toxic” or “not toxic”. Eventually, such a chip might be plugged into a mobile device to be used to measure toxicity in one's personal environment, Prof. Shacham-Diamand said.

Dip Chip is designed to alert the user to overall toxicity, the scientists said. Eventually, it might also be used in the cosmetics or pharmaceutical industry. It could be utilized to detect the toxicity of new compounds, thereby minimizing the use of animals in experimental laboratory. Using the same technology,
Researchers develop in-field approach to aflatoxin problem

In the United States, plant pathologists at Delta Research and Extension Centre of Mississippi State University (MSU) are researching new ways to reduce fungal aflatoxin in infected corn. Strains of the fungus that do not produce aflatoxin have been obtained by Mr. Gabe Sciumbato at MSU and Mr. Hamed Abbas and Mr. Mark Weaver at the Agricultural Research Service (ARS) of the United States Department of Agriculture (USDA). The rejection levels for aflatoxin in corn that the USDA has set is 20 parts per billion or greater. An individual corn kernel can contain 400,000 ppb aflatoxin, and so one infected kernel in 20,000 could lead to the rejection of the shipment.

Aflatoxins are naturally occurring chemicals produced by the fungi Aspergillus flavus and A. parasiticus. The fungi appear as yellow-green or grey-green moulds on corn in the field or in storage. Aflatoxin levels are not normally high in corn, but hot, humid climate encourages the growth of the fungus that produces the toxin. “We are applying granules of Aspergillus flavus that don’t produce aflatoxin but do compete with the native Aspergillus flavus. In essence, we are using a good fungus to fight a bad one,” Mr. Sciumbato said.

To date, methods of reducing aflatoxin infection have included crop management techniques, such as planting early, irrigating, avoiding infected areas and sanitizing equipment. In spite of these techniques, grains of many Mississippi farmers have been rejected because of high levels of aflatoxin. Onsite screening is done two ways: black light or ultraviolet light tests, and commercial test kits indicate aflatoxin presence using chemical analyses to test for specific proteins.

New method detects trace veterinary drugs in baby food

Researchers from the University of Almería (UAL), Spain, have developed a system to find quickly and precisely traces of veterinary drugs in milk powder and meat-based baby food. Antibiotics, such as tilmicosine, or antiparasitic drugs, such as levamisole, given to livestock can remain in food. UAL scientists have confirmed this, while checking new methodology to identify the minute quantities of these substances that remain in baby food preparations.

“The concentrations detected have been generally very low. On the one hand, this suggests they are not worrying amounts, but on the other hand, it shows the need to control these products to guarantee food safety,” said Mr. Antonia Garrido, Professor of Analytical Chemistry. With this objective, the team has developed a ‘multi-residue’ method, which allows several drugs in baby food to be detected simultaneously. Chromatographic techniques are used to separate the compounds and mass spectrometry to identify them.

The “precise, simple and fast” methodology has been validated by analysing twelve meat products (cow, pig or poultry) and nine milk powder samples. Data indicate that concentrations of veterinary drugs vary from 0.5 to 25.2 µg/kg in the former and 1.2 to 26.2 µg/kg in the latter. Sulfonamides, macrolides and other antibiotic traces have been found, besides anthelmintics and fungicides. In total, five veterinary drugs were found in milk powder and ten in meat products, especially poultry.

Electrostatic spraying to keep off E. coli

Escherichia coli O157:H7 has been associated with several outbreaks in minimally processed foods. Spinach and lettuce pose higher food-safety hazards, and recurring food recalls suggest the insufficiency of current disinfection strategies. At the University of Arkansas in the United States, researchers investigated whether using electrostatic spraying to evenly distribute natural antimicrobials could offer a more efficient and effective solution.

Spinach and lettuce samples were sprayed electrostatically with malic acid, tartaric acid, lactic acid and grape seed extract, alone and in combinations, and for comparison, with phosphoric acid and pH controls with deionized water. During a 14-day storage period, malic acid/lactic acid and grape seed extract combinations had the greatest decontaminating effect.

The researchers concluded the use of malic acid and lactic acid with or without grape seed extract can serve as effective antimicrobials when these are sprayed electrostatically, lowering the risk from post-contamination issues with spinach and iceberg lettuce. The application technology can be extended to improve the safety of commercial food, other produce, fruits, poultry and meat.
Appetite suppressant food ingredient

The Korea Food Research Institute, Republic of Korea, has applied for patenting an appetite suppressant food composition consisting of a specific compound as the active ingredient. The appetite suppressant ingredient in the food composition is selected from the group consisting of hesperetin, hesperidin, ginsenoside-Rb1, 3-hydroxyflavone, ginsenoside-Rg1, alpha-D-glucan, rutin, flavanone, naringin, melatonin, quercetin and ascorbic acid. The ingredient subdues appetite by suppressing the activity of the appetite-stimulating hormone ghrelin. **Contact:** Korea Food Research Institute, 516 Baekhyeondong, Bundang-guSeongnam-si, Gyeonggi-do 463-746, Republic of Korea.

Source: www.sumobrain.com

New range of milk proteins for low-salt cheese

Arla Foods Ingredients, an arm of Swedish-Danish co-operative Arla Foods, has introduced a new range of milk proteins that allows food producers to cut down the salt content in processed cheese. The company said that its novel functional milk protein range could help reduce salt content in spreadable, sliced and block processed cheese as well as cheese sauces. The new functional milk proteins also remove the need for creaming, while reducing processing times by about an hour. They also offer fat simulation properties, resulting in an end product that is not just lower in salt but also in fat. Arla Foods Ingredients’ Manager for Cheese Application Group, Mr. Claus Andersen, said: “Apart from reducing salt, our solutions enable natural cheese content to be cut from 65 per cent to somewhere between 20 per cent and 40 per cent. Dairy fat may be replaced with vegetable fat, and the high water-binding capacity allows a reduction in protein content.”

Source: www.ingredients-insight.com

New microcapsule fabrication method

Currently, producing microcapsules is labour-intensive and difficult to scale up without sacrificing efficiency and functionality. Researchers at the University of Cambridge, the United Kingdom, have developed a new, one-step method of fabricating microcapsules, which has potential commercial applications in food and nutrition, including flavours, scents, live cultures and bioactive ingredients industries.

Microcapsules are often made using a mould covered with layers of polymers, similar to papier-mâché. The challenge with this method is dissolving the mould while keeping the polymers intact. The new one-step technique for manufacturing ‘smart’ microcapsules in large quantities uses microdroplets of water. The microdroplets, dispersed in oil, are used as templates for building up supramolecular assemblies, which form highly uniform microcapsules with porous shells. The technique uses co-polymers, gold nanoparticles and tiny barrel-shaped molecules called cucurbiturils (CBs), to form the microcapsules. CBs act as miniature ‘handcuffs’, bringing the materials together at the water-oil interface.

“This method provides several advantages over current methods, as all of the components for the microcapsules are added at once and assemble instantaneously at room temperature,” said lead author Mr. Jing Zhang, a PhD student. “A variety of ‘cargoes’ can be efficiently loaded simultaneously during the formation of the microcapsules. The dynamic supramolecular interactions allow control over the porosity of the capsules and the timed release of their contents using stimuli such as light, pH and temperature.”

Source: www.ingredientsnetwork.com

Gluten-free teff flour for nutritional biscuit

Researchers from Universidad Politécnica de Madrid (UPM), Spain, have patented biscuits made using teff flour. Teff flour is suitable for celiac patients and, thanks to its nutritional properties, ideal for diabetics, sportspersons and people with anaemia. The biscuit was prepared by researchers at the Department of Food Technology of UPM’s
E.T.S Agronomics Engineering. The researchers added small amounts of natural ingredients and avoided any type of fat or artificial thickener, unlike other gluten-free food.

Teff flour is made from the gluten-free cereal *Eragrostis tef*, which is rich in complex carbohydrates and fibre, and is cultivated in Ethiopia and Eritrea. The flour from this small cereal has a high capacity to absorb water and doesn’t require any binder in the dough, alleviating the problems deriving from the absence of gluten. Teff flour has high nutritional value. For example, 100 g of teff flour has 9-15 g of proteins, 73 g of carbohydrates, 2 g of fat and 3 g of fibre. The essential amino acids content is also remarkable. It is rich in zinc and iron, and has a low glycemic index resulting in a slow digestion of its carbohydrates.

The biscuit – patented by UPM professors Mr. Jesús Callejo and Mr. Wendu Tesfaye – contains teff flour, skimmed milk, non-fat plain yoghurt, brown sugar, defatted cocoa powder, orange zest and hazelnuts. The researchers avoided including exogenous fat in order to reduce its caloric intake. According to the result of a tasting carried out by expert judges, the biscuit has unique sensory properties (smell and taste) at a lower price than other products marketed for diabetics, sportspersons, and people with anaemic and celiac disorders.

Source: www.foodingredientsfirst.com

### Cancer-fighting ingredient from soybeans

Soybeans soaking in warm water could become a new “green” source for production of a cancer-fighting substance now manufactured in a complicated and time-consuming industrial process, report a group of United States researchers from University of Missouri and the Agricultural Research Service (ARS) of the United States Department of Agriculture (USDA). Mr. Hari Krishnan and colleagues explain that the substance, Bowman-Birk Protease Inhibitor (BBI), has shown promise for preventing certain forms of cancer in clinical trials. The trials resulted from evidence of BBI’s beneficial effects, including indications that BBI derived from the large amounts of soybeans in traditional Japanese diets might underpin low cancer mortality rates in Japan.

The current method of extracting BBI from soybeans is time-consuming and involves harsh chemicals. The scientists therefore set out to see if there might be a greener and more environmentally friendly way of obtaining BBI. They found that soybeans incubated in water at 50°C naturally release large amounts of BBI that can easily be harvested from the water. The protein appeared to be active, with tests showing that it stopped breast cancer cells from dividing in a laboratory dish. “The abundance of BBI in soybean seed exudates by incubating the seeds in warm water provides a simple and alternative method to isolate this low molecular weight protein,” the researchers said.

Source: portal.acs.org

### Microalgae-based food ingredients

Solazyme Roquette Nutritional, the United States, has developed a proprietary cultivation and preparation process that harnesses the nutrition and functional power of microalgae for use in food service applications and much more, from baked goods to beverages to frozen desserts. Almagine™ HL Whole Algalin Flour is an all-natural, lipid-rich, whole food ingredient loaded with dietary fibre, protein, antioxidants and micronutrients. It enables product developers to formulate with superior nutrition, taste, reliability and flexibility.

“Our whole food ingredients are designed to perform differently depending on the food system and intended application,” says Mr. Leslie Norris, Senior Director of Innovation. “For example, we can modify Almagine to be more lipid-rich when aiming for a healthy lipid alternative to oil, eggs and butter, or we can cultivate a protein-rich product when more protein is desired in the formulation.” Contact: Mr. Philippe Caillat, Senior Director, Marketing, Solazyme Roquette Nutritional LLC, 225 Gateway Boulevard, South San Francisco, California 94080, United States of America. Tel: +1 (650) 416 5197; Fax: +1 (650) 989 1284; E-mail: contact@srnutritional.com.

Source: www.srnutritional.com

### Polyunsaturated fatty acid patented

Fluxome Inc., the United States, has been granted a new patent by the Japanese patent office on a production technology for polyunsaturated fatty acids (PUFA), also called omega-3 oils. Fluxome® PUFA is currently a product under further development as a source of high-quality, eco-friendly and safe vegetarian ingredient. PUFA is part of a growing market, a growth expected to be accelerated by the growing nutrition needs of consumers along with dwindling natural fish supplies.

Contact: Fluxome Inc., 400 Northampton Street, Suite 600, Easton, Pennsylvania, PA 18042, United States of America. Tel: +1 (484) 546 0321; Fax: +1 (484) 546 0323; E-mail: info@fluxome.us.

Source: www.fluxome.com
Microbes-free food through irradiation

The Philippine Nuclear Research Institute (PNRI) is developing pre-packed food made germ-free through irradiation. Tests have shown that a tetra-packed adobo – a popular dish in the Philippines – on irradiation was free of micro-organisms, stated Mr. Juan Miguel Recto from PNRI’s Atomic Research Division and Irradiation Services. People who are immuno-compromised – those with illnesses that have weakened their immune system and therefore are vulnerable to infections – may soon be able to have ready-to-eat food that is free of micro-organisms. Irradiation retains the taste, texture, colour and quality of the adobo, Mr. Recto said.

PNRI has been pushing irradiation as a process of food preservation in the country. Food irradiation, a process of exposing food to high-energy ionizing radiation such as gamma rays, is gaining recognition as a method of food preservation in many countries worldwide. It also prolongs the shelf-life of many agricultural products and can disinfest grains.

Food irradiation can be carried out on items that are either pre-packed or in bulk in an enclosed and heavily shielded area for a pre-determined time to receive prescribed radiation dose. The technology is a cold process – it does not involve any heat being applied. It does not leave any harmful toxic residues in food. In addition, it can be used to treat pre-packed commodities, and can treat food without causing changes in the freshness and texture of the food and food products. Moreover, irradiation does not affect or reduce the nutritional contents of food during processing.

Source: businessmirror.com.ph

Coriander for enhancing shelf-life of bread

The common breakfast bread has been elevated to a nutrient-packed wheat product by researchers at Jadavpur University, India, who decided to go green and fortify it with coriander (Coriandrum sativum). “We have studied the effects of supplementing the general bread flour with herbs such as coriander, which has had a substantial effect in improving shelf-life and nutrient levels,” said Mr. Utpal Raychaudhuri, Senior Scientist at the Department of Food Technology and Biochemical Engineering. The research showed that coriander remarkably delayed the bread’s going stale, while the microbialic property of the herb extended its shelf-life. The leaves, stem and seeds of coriander are rich in antioxidants, minerals, micronutrients, dietary fibres, and essential oils that may have microbialic properties against food-borne pathogens such as the Salmonella.

In addition, the coriander supplement helped retain moisture and improved the quality of the bread. In terms of nutrients, antioxidants content shot up by 50 per cent in coriander-fortified bread as compared with the unfortified sample.

Source: www.preparedfoods.com

Doubling the shelf-life of fresh vegetables

Trials of an innovative wrapping from Sirane Ltd. of the United Kingdom have revealed doubling of shelf-life of produce including the notoriously problematic Brassica vegetables. In the trials, cauliflower and broccoli – which following transportation had been deteriorating after just one day on the shelves – were still in good condition after five days when using Sira-Flex Resolve®, Sirane’s unique new film for packaging fresh produce. The trials showed an additional two days shelf-life for cabbages, leeks and carrots, and a remarkable shelf-life extension of more than 20 days for green beans.

The film was developed to have the optimum balance between humidity control and oxygen (O₂) and carbon dioxide (CO₂) permeability. The permeability is dependant on temperature so that the ideal atmosphere is maintained inside the pack. The film, which is a natural biopolymer, is sustainable and fully compostable. The permeability is controlled by the property of the film itself. The unique structure of the film material makes the permeability to humidity, O₂ and CO₂ different in each case. This has allowed Sirane’s team of scientists to balance the permeability of each component to achieve the optimum result. Contact: Mr. Mark Lingard, Marketing Manager, Sirane Ltd., European Development Centre, Stafford Park 6, Telford, Shropshire, TF3 3AT, United Kingdom. Tel: +44 (1952) 230055; Fax:
Use of ergothioneine as food preservative

Entia Biosciences Inc., the United States, has received a patent from Canada covering the use of ergothioneine as a preservative in foods and beverages. Ergothioneine is an amino acid that is made in few organisms, notably filamentous fungi (mushrooms), and is considered a “master antioxidant”. As an electron donor, it neutralizes free radicals and the oxidation processes that lead to cell death and the introduction of harmful toxins into foods and beverages. The addition of ergothioneine can slow the rate of spoilage and extend the shelf-life of a wide variety of products.

Entia says that its 100 per cent Organic ErgoD2™ mushroom-based whole food formulation also enhances flavour of the food when used. In addition to being one of the primary natural sources for ergothioneine, mushrooms are also one of the few foods that stimulate the “umami”, a deliciously savoury fifth taste quality. Entia believes that its ErgoD2 formulations can be a cost-effective and healthier alternative to chemical additives that are currently being used for flavour enhancement.

The patent claims include a method of preserving a food, beverage or medicine with L-ergothioneine, where the amino acid replaces an antioxidant composition, antimicrobial composition, and/or sulphite preservatives. The use claims apply to preservation of canned, frozen, dried or fresh fruits, vegetables, red and white wine, beer, baked goods, fruit juices, butter, meats, pet food, cosmetics, medicines, and even the preservation of petroleum and rubber products. L-ergothioneine may be used as a replacement for all or part of the antimicrobial/preserve sulphur dioxide or other sulphites traditionally used in the wine making process, Entia claims. Contact: Mr. Devin Andres, Vice President, Entia Biosciences Inc., 13585 SW Tualatin-Sherwood Road, Sherwood, OR 97140, United States of America. Tel: +1 (503) 334 3575; Fax: +1 (503) 610 1876; E-mail: info@entiabio.com.

Source: www.entiabio.com

Rapidly cooling eggs can double shelf-life

Taking just a few seconds to cool freshly laid eggs would add weeks to their shelf-life, says a study by Purdue University, the United States. The rapid cooling process, developed by Mr. Kevin Keener, a food science professor, uses liquid carbon dioxide (CO2) to stabilize the proteins in egg whites so much that they could be rated AA, the highest grade for eggs, for 12 weeks. Eggs cooled under current methods lose the AA grade in about six weeks, Prof. Keener said. “There is no statistical difference in quality between eggs as measured by Haugh units (measure an egg white’s protein quality) just after laying and rapidly cooled eggs at 12 weeks,” he said.

Prof. Keener’s results also show that membranes surrounding the eggs’ yolks were maintained for 12 weeks with the new process. That membrane is a barrier that keeps harmful bacteria from reaching the yolk, which bacteria could use as a food source. “The structural integrity of the yolk membrane stays strong longer, which may provide a food safety benefit,” he said. “The membrane being stronger would be another defence against bacterial invasion, such as Salmonella.”

The rapid-cooling technology takes liquid CO2 and turns it into a “snow” to rapidly lower the eggs’ temperature. Eggs are placed in a cooling chamber and CO2 gas at -79°C is generated. The cold gas is circulated around the eggs and forms a thin layer of ice inside the eggshell. After treatment, the ice layer melts and quickly lowers an egg’s internal temperature to below 7°C, the temperature at which Salmonella can no longer grow. Prof. Keener’s previous research showed that the CO2 in bicarbonate form significantly increases the activity of lysozyme, an enzyme in the egg white that has bactericidal properties. Contact: Mr. Keith Robinson, Agricultural Communication, Purdue University, 615 West State Street, West Lafayette, IN 47907, United States of America. Tel: +1 (765) 494 8396; robins89@purdue.edu.

Source: www.purdue.edu

Extending fresh foods’ shelf-life

Wapo Corporation from the Taiwan Province of China has developed a nylon vacuum pack for storing fresh foods at room temperature, while extending their shelf-life. Produced using plastic materials from Japan’s Unitika Ltd., the new packaging has high gas barrier properties that allow moderate oxygen transpiration so that the fresh food products are not attacked by gases or exposed to premature oxidation. When vacuum-sealed, the bags resist puncture and moisture. The bags, by reducing moisture loss, extend freshness of the product, in addition to shelf-life. Even if the vacuum bags are stored in refrigerated conditions, the packaging material does not become brittle or do the bags burst from expansion after freezing.

Source: www.worldpackagingnews.com
**Ginseng-fortified milk**

The challenges of incorporating ginseng into food are twofold: it has a bitter taste, and food processing can eliminate its healthful benefits. A group of scientists in Spain has formulated low-lactose functional milk that maintained after processing the benefits of American ginseng in aging, central nervous system disorders, and neurodegenerative diseases. “Our goal was to develop low-lactose milk that could be consumed by the elderly to improve cognitive function,” said lead researcher Dr. S. Fiszman from Instituto de Agroquimica y Tecnologia de Alimentos (IATA) under Consejo Superior de Investigaciones Cientificas (CSIC). An exploratory study found the product was readily accepted by a niche group of consumers.

After adding American ginseng, the low-lactose milk developed was sterilized by ultra-high temperature (UHT) processing to prolong shelf-life. To diminish the bitter taste of American ginseng, the researchers developed samples with vanilla extract and sucralose. Analysis found that sufficient levels of ginseng remained in the milk after treatment to improve cognitive function as reported in the literature.

In a preliminary study, 10 tasters compared the low-lactose UHT milk without any additives (the control) with: the control with ginseng extract, vanilla and sucralose; the control with ginseng extract; the control with vanilla and ginseng extract; and the control with ginseng extract, vanilla aroma and sucralose added before UHT treatment. The addition of ginseng significantly increased the light brown colour in both flavoured and unflavoured samples, and was highest in the low-lactose milk with ingredients added before the UHT treatment. Bitterness was clearly noted in the samples containing ginseng, but less in flavoured samples, indicating that the vanilla aroma and sucralose masked the bitter taste of ginseng extract to a certain extent.

*Source: www.eurekalert.org*

**Process for natural fruit juice-based beverages**

Krones AG, Germany, has developed a twin-flow procedure to fulfil, as reliably and economically as possible, the production requirements of juices and milk-based beverages with natural fruit content. The system produces first-class juice-based beverages refined with natural fruit constituents. The juice and fruit pieces are fed through two different channels in the twin-flow system to ensure that each component receives precisely the treatment it needs.

The twin-flow concept begins with the manufacture of the components and is followed first by the complete product treatment and then by the product filling process. The two component flows do not meet until they reach the bottle, where they combine to form the end product with a high level of consistency. The procedure is suitable for the production and hot-filling of beverages with fruit content. It is suitable for different types of fruit constituents with different consistencies: complete juice cells taken from citrus fruit pulp; fruit pieces measuring up to $10 \times 10 \times 10$ mm; fibres; and pulp.

The twin-flow procedure was designed as a complete solution and, as such, comes with uniform materials, recurring components and a software solution. The entire production line contains individual features that ensure the efficient use of raw materials, media and energy during production. The process and filling technology complement each other to form a perfectly tuned production and filling line. *Contact: Krones AG, Böhmerwaldstraße 5, 93073 Neutraubling, Germany. Tel: +49 (9401) 706 050; Fax: +49 (9401) 916 050; E-mail: info@krones.com.*

*Source: www.krones.com*

**Shelf-stable pummelo beverage**

Pummelo (*Citrus grandis* Linn.) is a fruit that has the potential for commercial exploitation, but the bitterness of its juice is a major handicap in its utilization. Led by Ms. Pooja Bohra, researchers at University of Agricultural Sciences, Bangalore, India, investigated the preparation of a cost-effective, palatable, shelf-stable, blended beverage from pummelo juice. To overcome its bitterness, pummelo was blended with mango ginger (*Curcuma amada*) and kokum (*Garcinia indica*) juice in the ratio of 65:30:5 for the preparation of syrup. The product was stored for 120 days in ambient conditions of storage and analysed for changes in its physicochemical constituents.

Total soluble solids (TSS) and total sugar were found to have increased during storage, while titratable acidity and ascorbic acid content decreased slightly. Organoleptically, the best recipe was 25 per cent juice, 70° Brix TSS and 1.5 per cent acidity with a score of 6.3 out of 7.0 for overall acceptability. Mango ginger juice suppressed the bitter after-taste of pummelo juice and lent its characteristic taste and flavour to the product. The product was shelf-stable and contained constituents with important medicinal properties. *Contact: Ms. Pooja Bohra, University of Agricultural Sciences, GKVK Campus, Bangalore 560 065, India. E-mail: poojabohra24@gmail.com.*

*Source: journals.cambridge.org*
Barrier against mineral oil residues

The Germany-based BASF is offering two highly effective barrier solutions – Ultramid® for paper coating and Ecovio® FS Paper – to prevent mineral oil residues from migrating from cardboard packaging into food. The BASF polyamide Ultramid, an aroma and oxygen-barrier, offers robust multilayer packaging systems to maintain meat and cheese fresh. Specially developed Ultramid grades are suitable for barrier coating of cardboard packaging. Multi-layer pouches containing Ultramid layer also provide an oil migration barrier.

Ecovio FS Paper is a biodegradable plastic suitable for manufacturing coatings both for cardboard and biodegradable film packaging systems. It complies with European standard EN 13432 for compostable packaging, offering an alternative disposal pathway for certified paper and cardboard packaging in addition to recycling. BASF packaging solutions are available for every type of food packaging, including paper, cardboard and film.

Active packaging locks in food quality

Multisorb Technologies, the United States, offers customized sorbent solutions for the removal of oxygen, moisture and volatiles, as well as for maintaining specific moisture content within food packaging. Multisorb’s products are available in several formats providing flexibility in packaging.

FreshPax® oxygen absorbing packets are easily placed directly into a package, greatly reducing oxidation that can impair flavour, colour and the nutritional profile. In the FreshPax system, the packet is paired with its dispenser, which integrates into nearly all packaging lines. FreshMax adheres firmly onto the inside of the packaging, naturally preserving food and extending its shelf-life.

Multisorb also provides functional oxygen absorbers. FreshCard™ is a multifunctional oxygen absorbing card that doubles as a backer card for snacks and baked goods. It can also be printed in up to 4 colours with promotional or required information.

Contact: Multisorb Technologies, 325 Harlem Road, Buffalo, New York, NY 14224, United States of America. Tel: +1 (716) 824 8900; Fax: +1 (716) 824 4128; E-mail: info@multisorb.com.

Source: www.multisorb.com

Sustainable packaging extends food shelf-life

In the United Kingdom, UK Materials Technology Research Institute of Pera Technology is leading a European consortium in the development of fully sustainable packaging that will extend food shelf-life by more than 50 per cent. The ISA-PACK project anticipates improving shelf-life by developing two novel biopolymer materials to fulfil the needs of two different food groups – stretch wrap film and gas barrier film. The novel ISA-PACK PHB copolymer stretch films will be suitable for the packaging of most food produce where conventional PVC stretch films are used. Gas barrier sheets and films are suitable for the manufacture of modified atmosphere packaging (MAP), including vacuum packaging. Contact: Ms. Marie Cook, Pera Technology Ltd., Nottingham Road, Melton Mowbray, Leicestershire, LE13 0PB, United Kingdom. Tel: +44 (1664) 501501; E-mail: marie.cook@pera.com.

Source: www.peratechnology.com

Nanotech packaging keeps food fresh

In the United States, a project funded by the National Aeronautics and Space Administration (NASA) is examining the use of nanoparticles to develop new plastic food packaging materials that could be even lighter, cheaper to produce, and provide a better gas barrier. Dr. Melvin Pascall, a scientist in Ohio Agricultural Research and Development Centre (OARDC), says that nanoparticles can be fibres, sheets or spheres that do not exceed 100 nm in at least one dimension. Dr. Pascall has improved the barrier properties of polyethylene terephthalate (PET) by 40 per cent, and expects to double that figure. The end result would be higher-quality packaging providing a longer shelf-life at a lower cost. Dr. Pascall is also examining some other advanced technologies such as smart packaging, which detects changes in the environment and responds to those changes by altering its colour or other properties to signal risks, and the use of antimicrobial compounds incorporated into packaging materials.

Source: oardcreport.cfaes.ohio-state.edu
Automatic milking rotary

DeLaval, a Swedish company which produces dairy and farming machinery, has developed the world’s first commercial robotic milking rotary, called the automatic milking rotary (AMR). The first unit was installed at the Gala dairy farm in northern Tasmania, Australia, and unveiled in May 2012. For the development of AMR technology, DeLaval collaborated with the FutureDairy project in Australia, a national programme promoted by DeLaval, Dairy Australia, the University of Sydney and the New South Wales Department of Primary Industries (DPI).

The AMR features an internal, herringbone rotary platform, with robots put up in the centre and cows facing outwards. The commercial installation has 24 milking points with two to five robots. The tasks performed by the machine include nipple washing and drying, attaching the milking cups, cup removal, nipple disinfection and cup flushing. The system also monitors milk output and quantity. In the two-robot system, one robot performs the task of nipple washing and drying, while the other robot applies the milking cups. The five-robot installation has two dedicated robots for nipple cleaning, two for applying cups and one for nipple disinfection. The robot engaged for nipple preparation employs a laser guided camera to detect the exact location of the nipple. The nipples are then washed individually with a special nipple cup containing water and are also dried.

The platform then rotates to the next stop position where another robot is used to put on the milking cups on the nipples via a magnetic gripper. Automatic milking starts once the milking cups are secured onto the nipples, with sensors monitoring the cups’ vacuum levels. Cups are individually pulled back once the milk flow ends. The last move of the platform will take the cow to a dedicated nipple spray robot for disinfection. The cows move out of the platform via an exit lane. Once the individual cow is done with milking, the cup is rinsed on both sides with water.

Enhanced vision for improved sorter performance

Key Technology Inc., the United States, has introduced an enhanced vision capability for its popular Tegra in-air colour sorters. Featuring twice the number of cameras as other Tegra sorters with the same width, the new Tegra 7755E offers unprecedented line-of-sight for better all-around viewing with virtually no hidden areas. This sorter’s full-object view increases detection and removal of foreign material and defects — particularly small defects. It removes approximately 20 per cent more defects that are 1-2 mm in size than standard Tegra sorters, says Mr. Steve Johnson, Director of Marketing.

Tegra 7755E is suitable for a wide range of sliced, diced, and whole fruits and vegetables, as well as many nuts, potato products, snack foods, candies, etc. Half-wide Tegra (750 mm) sorts up to 7.5 t/h, while the full-wide version (1500 mm) sorts up to 15 t/h, depending on the product. The company can equip the unit with red-blue-green, visible infrared and ultraviolet colour cameras, and program the sorter to operate at a scan rate of 4,000 or 8,000 to meet specific application needs.

Featuring proprietary cameras and a unique metal-mesh catenary C-Belt for positive product positioning, Tegra 7750E views product’s top and bottom while “in air” to remove foreign material and defects. The unit combines shape and size sorting with excellent colour and spatial resolution, whole-object processing, intelligent ejection, superior product stability and data reporting capabilities. Contact: Ms. Anita Funk, Key Technology Inc., 150 Avery Street, Walla Walla, Washington 99362, United States of America. Tel: +1 (509) 529 2161; Fax: +1 (509) 527 1331; E-mail: afunk@key.net; Website: www.key.net.

Machine to remove rind from tamarind

The Agricultural Engineering College and Research Institute of the Tamil Nadu Agricultural University, India, has developed a machine that can de-shell tamarind fruit faster, more effectively and hygienically than the manual method. For a feed rate of 100 kg/h, a maximum hulling efficiency of 92.35 was obtained with a moisture content of 10 per cent. The machine consists of a feed hopper, beater assembly, sieve and outlets. The 2.5 kg feed hopper is made of 20 gauge mild steel (MS). The 20-beater assembly has a shaft made of 25 mm diameter, 1,000 mm long MS rod. The shaft is mounted on ball bearings at both the ends. A screw of 230 mm diameter and 600 mm length is mounted on the shaft. Power is transmitted by 1 hp single-
phase electric motor through a V-belt and pulley. The feed rate can be varied using an adjustable gate provided at the entry point of the beater. The operating speed can be varied by changing the pulley. The shells fall on a welded mesh while the de-shelled fruits are collected at the end of the shaft. The cost of the machine is Rs 9,800 (US$189) and the cost of operation works out to Rs 1.00/kg (US$0.02), while the manual operation costs Rs 2.50/kg.

Source: www.freshplaza.com

New chicken deboning robot

At Georgia Tech Research Institute (GTRI), the United States, researchers have developed the prototype of a robot that can debone chicken and other poultry products, using a robotic cutting arm and imaging technology. GTRI, which is currently trialling the system to determine the yield of the precision cuts, says that the system can adapt to any size and shape of a bird. If successful, the machine could save millions of dollars for the poultry industry, the researchers claim.

With the help of 3D imaging and sensor-based technology, the system identifies where to precisely cut the bird in order to optimize the yield and lower the risk of causing any bone fragments in the final meat product. The system has two robots: a six-degree-of-freedom robot arm with a 3D vision system and a fixed two-degree-of-freedom robot that debones the bird. The vision system collects the 3D measurements of different points on the bird, and based on this data, custom algorithms in the system determine the positions of internal structures such as bones and ligaments, and define a proper cut. The robot also uses a force-feedback algorithm, which can differentiate meat and the bone, and then the fixed two-degree-of-freedom robot debones the bird according to its exact size and shape.

Source: www.foodprocessing-technology.com

Mill for wet and dry ingredients

The new Quadro® HV-Emulsifier and Wet Mill from Quadro Engineering, Canada, protects food ingredients against the effects of oxidation. The two-in-one mill is available in two configurations: the HV-Emulsifier for submicron emulsions or the HV-Wet Mill for micronizing suspensions and slurries. The equipment overcomes difficulties in processing docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA) additives by creating submicron emulsions that manipulate light and avoid photo-oxidation.

The HV-Emulsifier machines create, without the use of thickening agents, stable and homogeneous products, improves ingredient fortification efficiency, and offers manufacturers the potential to expand their range of functional food applications. Other benefits of submicronized emulsions include improvements to taste and odour reduction in foods and beverages based on Omega-3 fatty acids. The high-speed design of the emulsifier series enables accelerated rotor-stator velocities and an exponential increase in available shear energy. At the maximum rotational speed equivalent to 70 m/s, it produces more than 55 times the high shear energy of a conventional rotor-stator mill, the company reports. Contact: Quadro Engineering, 613 Colby Drive, Waterloo, Ontario, N2V 1A1, Canada. Tel: +1 (519) 884 9660; Fax: +1 (519) 884 0253; E-mail: qecsales@idexcorp.com.

Source: www.foodmanufacturing.com

Twin screw extruder for producing flour from plantains

The ZSK 54 MEGAvolume PLUS twin screw extruder, a twin screw extruder built by Coperion GmbH, Germany, will soon go into service in Uganda’s Presidential Initiative for Banana Industrial Development project for the production of pre-gelatinized flour from non-storable plantains, also known as cooking bananas.

The ZSK MEGAvolume PLUS twin screw extruder is equipped with 54 mm diameter screws and a seven-barrel process section. A solids conveying and metering system feeds the plantain flour into the extruder, while a fine jet of water is injected into the second barrel of the process section. A solids conveying and metering system feeds the plantain flour into the extruder, while a fine jet of water is injected into the second barrel of the process section. The cooking extrusion process now commences and the plantain flour is extruded at a typical temperature of 140° to 150°C into a modified, pre-gelatinized flour. Downstream of the extruder’s process section is a modified version of the Coperion ZGF 70 centric pelletizer, which is axially displaceable to allow the knife rotor to be attached to the die plate while the extruder is in operation. The pelletizing system produces a directly expanded extrudate that can then be readily milled into soluble plantain flour after it has been dried.

Source: www.coperion.com
Progress in Food Preservation

This book presents a wide range of new approaches aimed at improving the safety and quality of food products and agricultural commodities. Each chapter provides in-depth information on new and emerging food preservation techniques including those relating to decontamination, drying and dehydration, packaging innovations and the use of botanicals as natural preservatives for fresh animal and plant products. The 28 chapters, contributed by an international team of experienced researchers, are presented in five sections, covering: Novel decontamination techniques; Novel preservation techniques; Active and atmospheric packaging; Food packaging; Mathematical modelling of food preservation processes; and Natural preservatives.

Modified Atmosphere Packaging for Fresh-Cut Fruits and Vegetables

This volume provides comprehensive coverage of all aspects of modern Modified Atmosphere Packaging (MAP) technologies for fresh-cut fruits and vegetables. Coverage begins with the general MAP concept and application by introducing the concept of MAP, how MAP works for fresh-cut produce and the benefits and shortfalls of MAP in its application. The book then discusses the fundamental aspects of MAP, both materials and machinery. In these sections, the book provides not only the general information about MAP materials, but also examples to introduce the new packaging films and their successful application in produce and fresh-cut fruits and vegetables. Chapters and sections in the book include relevant patents for MAP, commercial practices and MAP packaging machinery. Generally, packaging machinery is covered only in books on packaging engineering. Coverage of this important aspect is included in the book since fresh-cut manufacturers spend much more time in the day-to-day operations on packaging machinery and systems as compared to packaging film materials. In the final section, Modified Atmosphere Packaging for Fresh-cut Fruits and Vegetables highlights the latest developments in the packaging industry and how they could impact the fresh-cut industry.

For the above two publications, contact: John Wiley & Sons Singapore Pte. Ltd. CWT Commodity Hub, 24 Penjuru Road, #08-01, Singapore 609128. Tel: +65 63029838; Fax: +65 62651782; E-mail: asiacart@wiley.com.
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