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Highlights

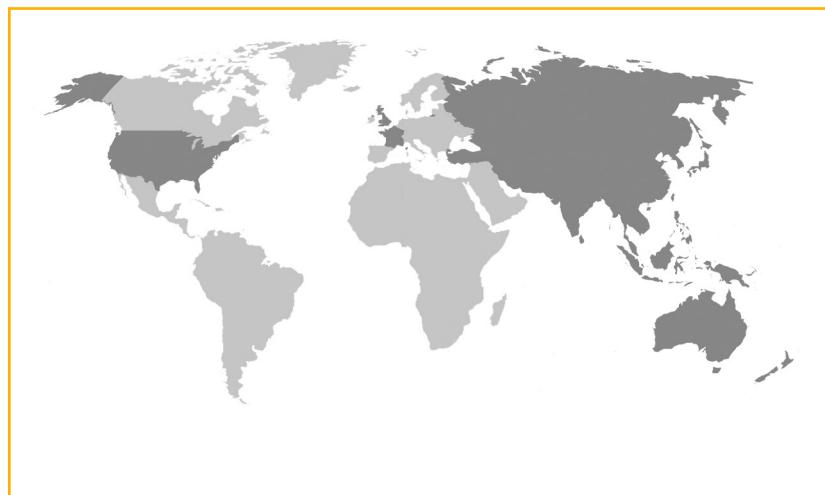
- Researchers monitor chocolate quality
- New chocolate to be made from Neera sugar
- Bananas with longer shelf-life
- Scientists convert coconut water to powder
- Cheese ripening packaging solution
- Vacuum packaging machine

**APCTT**Asian and Pacific Centre
for Transfer of Technology**UNITED NATIONS
ESCAP**
Economic and Social Commission for Asia and the Pacific

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

Cover Photo

Food processing equipment under investigation at the Food Safety Engineering Laboratory of Ohio State University, USA

(Credit: Food Safety Engineering Laboratory, The Ohio State University, USA)

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Vol. 3 No. 129

Jul-Sep 2016

VATIS* Update

Food Processing

is published 4 times a year to keep the readers up to date of most of the relevant and latest technological developments and events in the field of Non-conventional Energy. The Update is tailored to policy-makers, industries and technology transfer intermediaries.

Website: <http://www.techmonitor.net>

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Extreme weather increasing toxins in food

According to a new report by the United Nations Environment Programme (UNEP) crops, such as wheat and maize, are generating more potential toxins as a reaction to protect themselves from extreme weather. But these chemical compounds are harmful to people and animals if consumed for a prolonged period of time. "Crops are responding to drought conditions and increases in temperature just like humans do when faced with a stressful situation," said Jacqueline McGlade, at UNEP.

Under normal conditions, for instance, plants convert nitrates they absorb into nutritious amino acids and proteins. But prolonged drought slows or prevents this conversion, leading to more potentially problematic nitrate accumulating in the plant, the report said. If people eat too much nitrate in their diets, it can interfere with the ability of red blood cells to transport oxygen in the body, the report said. Crops susceptible to accumulating too much nitrate in times of stress include maize, wheat, barley, soybeans, millet, and sorghum.

"Some drought-stressed crops, when then exposed to sudden large amounts of rain that lead to rapid growth, in turn accumulate hydrogen cyanide, more commonly known as prussic acid, the report said. Prussic acid, one of the ingredients used in some types of chemical warfare, interferes with oxygen flow in humans. Even short-term exposure can be debilitating for people," said McGlade. Plants such as cassava, flax, maize, and sorghum

are most vulnerable to dangerous prussic acid accumulation, the report said.

Source: <http://www.foodqualityandsafety.com>

Meeting food safety and hygiene standards

At a session on Sri Lanka's cinnamon industry held at the WTO's headquarters on 21 June, the participants discussed about improving the capacity of traders to meet food safety and hygiene standards, which can help to boost exports and improve competitiveness. The session was organized by the Standards and Trade Development Facility (STDF) – a WTO-supported programme – and the United Nations Industrial Development Organization (UNIDO).

The STDF is a global partnership established by the WTO and four other international organizations – Food and Agriculture Organization (FAO), World Organisation for Animal Health (OIE), World Bank and World Health Organization (WHO) – to help exporters of agricultural goods improve their ability to meet international food safety and hygiene standards. In partnership with UNIDO, the STDF is working on a project to strengthen Sri Lanka's capacity in this area and to increase its competitiveness in the global market.

The joint STDF-UNIDO project is helping cinnamon producers in Sri Lanka overcome trading constraints by formulating national standards and a curriculum for vocational training. The STDF and its partners have also supported the establishment of a Cinnamon Training Academy for cinnamon processors. "The

project has really improved the conditions of families involved in the cinnamon industry," said Mr. Sarada De Silva, Managing Director of the Cinnamon Training Academy.

Source: <https://www.wto.org>

Food products growth in Bangladesh

According to data compiled by Bangladesh Agro-Processors' Association (BAPA), a trade body of processed food exporters, locally manufactured spices, biscuits, juices and drinks are fast gaining ground abroad thanks to a sizeable population of non-resident Bangladeshis. For instance, the case of spices. In fiscal 2009-10, food processors shipped \$3.93 million worth of cooking condiments. The amount swelled to \$60.42 million in fiscal 2014-15.

Similarly, shipments of biscuits rose almost six times to \$20.07 million in fiscal 2014-15 from five years earlier, and that of juice and drinks about five times to \$66.85 million. "This shows the rising popularity of Bangladeshi products. Our market is growing and this is expected to continue," said Khurshid Ahmad Farhad, at BAPA. The BAPA data shows the four items accounted for about 65 percent of the total export earnings of \$219.84 million in fiscal 2014-15.

There are 100 manufacturers engaging as exporters and nearly 250 firms involved in food processing, according to data from Bapa and Bangladesh Bureau of Statistics. The food processing sector in Bangladesh is a \$2.2 billion industry that grew at 7.7 percent on average a year between fiscal 2004-05 and 2010-11, said a US Department of Agriculture report.

Source: <http://www.thedailystar.net>

Rice production increased in Thailand

According to the U.S. Department of Agriculture's (USDA) Foreign Agricultural Service (FAS) report, Thailand's rice production forecast for market year 2016-17 remained unchanged at 17 million tonnes, which is an 8% increase from market year 2015-16 as recovery is anticipated in off-season rice production (3.2 million tonnes). The improved offseason conditions are expected to offset a reduction in the main-crop rice production which is expected to decline to 13.8 million tonnes due to the planting delays.

The government issued four tenders totaling 4.6 million tonnes from January-June, 2016. It has reportedly sold around 2.8 million tonnes. The government reported that it is still holding rice stocks of around 9 million tonnes, which consist of 3 million tonnes of food-grade rice and 6 million tonnes of industrial grade rice (including food processing and feed industries). Thailand announced that it expects to issue a new tender for 2.2 million tonnes of food grade rice on July 25. This tender will be contingent for export only as eligible bidders are required to have export orders from their foreign buyers.

The tender will mainly consist of 5% grade white rice and broken white rice (A1 Super grade) from carry-over stocks under the market year 2012-13 and market year 2013-14 pledging program. Presently, export prices of old-crop rice are 15%-20% cheaper than current crop. In addition to the tender above, the government expects an additional tender for industrial grade rice of around 400,000 tonnes on the same day. Thailand's Ministry of Commerce reported that its rice exports totaled 700,000 tonnes in May, down 23% from the same period last year.

Source: <http://www.world-grain.com>

Food safety knowledge initiative in India

The Food Safety and Standards Authority of India (FSSAI) has launched its new initiative, FSKAN (Food Safety Knowledge Assimilation Network), which would be a framework for scientific cooperation in the area of food safety and nutrition. "The network would facilitate the establishment of a scientific cooperation frame work by exchange of information and coordination of research activities across the country," said FSSAI. Earlier in response to an expression of interest, FSSAI had received about 90 research proposals from various scientific institutions for taking up R&D studies in the areas of food safety and nutrition.

"Out of the proposals received, 44 projects were identified in the first level of in-house screening. These proposals were discussed during the workshop in five groups with project investigators in each group making a presentation on their proposals. After detailed deliberations each group identified the projects which fell within the objective and responsibilities of FSSAI and therefore should be taken up for funding," FSSAI added. This would involve engaging scientists, experts, research institutions, research funding agencies and industry R&D through exchange of information and expertise, creation of affinity groups.

Source: <http://www.knnindia.co.in>

India to form policy on cold chain

The Indian ministry of agriculture & farmers welfare has agreed to evolve a new National Policy on Cold Chain to provide direction for the long-term approach for holis-

tic infrastructure creation in both agri and horticulture products. "The proposed policy would be evolved in due course of time in necessary consultations, with all concerned stakeholders including the chamber of commerce such as PHD Chamber," said Dr Shakil Ahammed of Mission for Integrated Development of Horticulture (MIDH).

In addition, Dr. Ahammed also declared that the Centre has decided to expand the capacities of storage facilities for onions in Maharashtra, Madhya Pradesh, Odisha and even Karnataka to ensure minimum wastages on onion in view of its recent production in which farmers had to virtually throw away their onion produce in the absence of storage facilities in certain pockets of Maharashtra and even Karnataka.

Dr. Ahammed indicated that the focus of the government of the day would be productivity and quality of the produce of both agri and horti products and that the policy for storing the agri and horti items would be designed keeping in view the two aspects of agri and horti produce so that the farmers do not loose on their produce and the consumer gets the best of the price in the entire supply value chain of the marketing of agri and horti produce.

Source: <http://www.fnbnews.com>

Codex General Standard for Food Additives (GSFA) Online Database

The GSFA sets forth the conditions under which permitted food additives may be used in all foods. This database provides, in a searchable format, all the provisions for food additives that have been adopted by the Codex Alimentarius Commission.

For more information, access:

<http://www.fao.org>

China's food safety work to target baby formula

According to a document issued by State Council of China baby formula, including imported products will be a priority for government action to improve food safety. As per a plan on this year's food safety operations, baby formula and supplementary food will stay on the list of commodities under close watch. The regulator will also tighten inspection of the recipes of baby milk powders registered by manufacturers and expose malpractice.

Baby formula is a touchy food safety issue in China, haunted by a series of scandals since 2008 when infant formula produced by Sanlu Group, China, a leading domestic dairy firm, was found to contain melamine. Farm produce will also be a priority, especially the use of pesticides and antibiotics.

Source: <http://www.news.xinhuanet.com>

China bans consuming protected wild animals

China's top legislature has adopted a revised law on wild animal protection, which outlaws production and purchase of food made from state-protected wild animals. The law was adopted after a third reading at a bi-monthly session of the National People's Congress (NPC) Standing Committee. It will come into effect from January 1, 2017.

The amended law bans the production and sale of food made from state-protected wild animals and products derived from them, as well as food made from those not under special state protec-

tion but lacking proof of legitimate sourcing. It also bans illegal purchase of state-protected wild animals and derived products for food. Offenders could face criminal penalties. Meanwhile, the law strengthens regulation of the use of wild animals and products derived from them.

It bans hunting, sale, purchase, and use of state-protected wild animals or derived products, unless for scientific research, captive breeding, population regulation, monitoring of disease, or other purposes. It mandates that permits should be obtained for the hunting, captive breeding, sale, purchase, and use of state-protected wild animals or derived products.

Source: <http://www.news.xinhuanet.com>

Import control of poultry eggs in Hong Kond

As per the Imported Game, Meat and Poultry Regulations (Cap. 132AK), it is now an offence to bring any poultry eggs or eggs into Hong Kong without a health certificate and the written permission of the Food and Environmental Hygiene Department (FEHD). In 2014 and 2015, there were outbreaks of highly pathogenic Avian Influenza (AI) in Europe, the American continents and different parts of Asia. Such outbreaks are expected to occur from time to time.

The World Organisation for Animal Health has recommended that an international veterinary certificate should accompany the import of poultry eggs for human consumption for control of AI. The same import requirement has been imposed in many jurisdictions, including the European Union (EU), USA and Singapore. To further protect Hong Kong from

the AI threat, the Government has amended 'Cap. 132AK' to control the import of poultry eggs for protecting public health.

Source: <http://www.cfs.gov.hk>

Update on food safety law in Nepal

National food safety laws are coming in for attention around the world and the latest to look at changes is Nepal. The Nepal government wants to amend its Food Safety Act to broaden the definition of food and define more types of malpractice in food trade. The changes in the law are being designed to control food adulteration. According to the Department of Food Technology and Quality Control (DFTQC), the changes will involve all types of edibles, but not tobacco or cosmetics.

Nepal law currently defines adulteration as that involving food. The changes will add chemical residues, microbes and toxins to the adulteration category. Government action will also come faster with the changes. Currently, DFTQC can only file violations. And fines will be increased by about 20 times current rates. It will also focus on customs entry points. It establishes four areas where misconduct could be found: selling contaminated food, selling sub-standard products, running a food business without a license and receiving compensation payments.

Source: <http://www.foodsafetynews.com>

ASEAN Food Composition Database

The database contains food and nutrient data compiled from six ASEAN national food composition tables.

For more information, access:
<http://www.inmu.mahidol.ac.th/asean-foods/>

Researchers monitor chocolate quality

Researchers from KU Leuven, Belgium, have now developed a quicker way to check whether the cocoa butter is crystallising correctly during the hardening process. The technique can be used 'online' to check the chocolate while it's still on the production line, potentially saving the industry both time and money. "Cocoa butter crystallises as the liquid chocolate hardens. Five types of crystals can be formed during this process, but only one of these has the qualities we want," explained Imogen Foubert from the KU Leuven.

"We've discovered that we can detect differences in the crystallisation of cocoa butter with ultrasonic waves," added Professor Koen Van Den Abeele from KU Leuven. The new technique involves sending transversal ultrasonic waves through the cocoa butter. The researchers then measure the reflection of these waves for information about the structure of the butter. The technique is similar to the ultrasound echography used to monitor the health and growth of foetuses in the womb.

"When the cocoa butter is liquid, the ultrasonic wave is reflected in its entirety. As soon as the butter crystallises, part of the sound wave penetrates the cocoa butter, so the amount of reflection we measure changes. This enables us to see how the different crystals stick together, which is important for the ultimate properties of the chocolate," said Professor Van Den Abeele. The researchers have designed a lab prototype, which now needs to be turned into a prototype for use in real chocolate production lines.

Source: <http://www.foodprocessing.com.au>

Technology to detect milk adulteration

The Council of Scientific and Industrial Research (CSIR)-Central Electronic Engineering Research Institute (CSIR-CEERI), India, has developed a new technology to detect adulteration in milk. "The new technology is based on acquiring electrochemical fingerprint coupled with multivariate data analysis technique. Globally, there is no system available based on similar methods. The technology will cost around Rs 70,000 to Rs 1 lakh. The milk detection process will take nearly 40-45 seconds and the cost of testing will be as low as Rs 0.05 to Rs 0.10.

The technology has been transferred to two industries – Rajasthan Electronics and Instrument, Jaipur and Alpine Technologies, Surat. The adoption and deployment of this technology in as many villages and milk societies as possible would be a step forward in enhancing the standards and quality of milk. Besides, it will also help in generating employment. According to a FSSAI (Food Safety and Standards Authority of India) survey in 2011, the most common adulterants in milk are addition of water, glucose, skimmed milk powder, urea, detergent, caustic soda, which are very hazardous to life.

Source: <http://www.bgr.in>

Food allergy testing device

People with serious and potentially deadly food allergies could eat out safely with a handy new tool developed at the University of Guelph, Canada. The device can detect allergens such as peanuts or gluten, allowing diners to learn in just minutes if the foods they're eating are safe. The wallet-sized device's technology uses microfluidics and nano-equipment, requiring only a

very small sample to test. Not only can it detect the type of allergen but also the concentration.

Reagents in the coated cartridge bind to the toxins and "the allergen starts glowing," said Suresh Neethirajan, director of the BioNano Laboratory that developed the apparatus. Travelling through a beam of light, a specialized camera picks up the telltale glow in the solution. The device can now test for peanuts and gluten and the researchers are working to expand that to other food allergens, such as shellfish and shrimp and tree nuts. The device also connects with a mobile app, making it easy for the user to access and record the results.

Source: <http://www.therecord.com>

Marker compound for genuine Manuka honey

A team of scientists from University of Auckland, Comvita NZ Limited, Ruakura Research Centre, New Zealand, have developed a way to distinguish between Manuka honey and lower-quality substitutes. Using fluorescence spectroscopy, the team was able to detect genuine Manuka (*Leptospermum scoparium*) honey – called leptosperin – that is only found in trace quantities in other honey types. Real Manuka honey is traded at a premium because it has been attributed with health and nutritional benefits that outperform common-or-garden honey varieties.

As a result, Manuka honey has become a notorious target for food fraud, with consumers duped into paying well over the odds for mislabelled regular honey. Genuine Manuka can cost up to ten times the price of regular honey and is hard to distinguish by taste alone. Add in a rapid increase in demand, and all the ingredients are in place for fraudsters to try to make an illicit profit. Figures from 2014 have

suggested that total production of Manuka was 1,700 tonnes, with total sales in that year estimated at 10,000 tonnes worldwide.

Scientists are already using a number of chemical marker compounds (e.g. DHA and MGO) to try to differentiate between Manuka and other honeys, but this is a challenge as many of the best candidates have their levels dramatically altered when the honey is processed and stored. Moreover, in some cases the markets are available commercially, so can be added to honey to disguise the adulteration. Leptosperin concentrations stay fairly constant and could be used to distinguish between New Zealand Manuka honey and products made from nectar.

Source: <https://www.securingindustry.com>

Gluten-free meals

Researchers from Massachusetts Institute of Technology (MIT), the United States, have developed a gluten detector called 'Nima', that can determine if there is as little as 20 parts per million (ppm) of gluten in food. According to the U.S. Food and Drug Administration (FDA), any food or beverage containing 20ppm of gluten or less is considered gluten-free. Using these parameters, Nima displays a smiley or sad face for the owner to have a guarantee that their food is acceptably gluten-free.

To determine the amount of gluten in a given meal or beverage, pea-sized samples are placed in the Nima sensor's disposable capsule. The user then screws on the top and inserts the capsule into the device. The food mixes into a solution that can detect gluten. In just two or three minutes, the hungry or thirsty person will know if they can eat or drink what

has been offered. The solution is an immunoassay containing antibodies highly sensitive to gluten molecules.

The antibodies bond to gluten and change the color of the immunoassay. The color change is captured by an optical reader and allows the sensor to display whether gluten content is acceptable or not with a smile or a frown. There is also an app developed that sends test results automatically to record information about where and what users ate and whether the food contained gluten. That way, repeating the test when the diner returns may not be necessary, unless the restaurant decides to cook their food differently.

Source: <http://www.engineering.com>

Biosensors to detect *E. coli*

A research team, led by Yuehe Lin at Washington State University (WSU), the United States, has developed a portable biosensor that makes it easier to detect harmful food bacteria such as *E. coli*. The key to a better sensor is maintaining a large amount of enzyme activity for detecting antigens in a sample.

To address this issue, the researchers developed a particle at the nanoscale that includes organic and inorganic components and looks like a tiny flower. Smaller than a speck of dust and made up of a group of molecules, the nano-sized flower and petals provide a large surface area for immobilizing the highly active enzymes that are needed to detect the bacteria at low levels.

The nanoflower is able to recognize the bacteria and amplify its signal so that it can be seen with a simple handheld pH meter or pH indicator paper strip. The researchers have filed a patent for the handheld device concept and are working to switch out components of the nanoflower to detect

disease markers as well as other pathogens such as salmonella.

Source: <http://www.foodingredientsfirst.com>

UV light oven kills foodborne pathogens

Professor Haiqiang Chen, a researcher of food science at the University of Delaware's College of Agriculture and Natural Resources (CANR), the United States, has developed an ultraviolet (UV) light oven that can decontaminate fresh produce. Combining UV light with water, the device is designed to look like a domestic microwave oven and will be suitable for use in the home and well as restaurants, cafeterias, hospitals and commercial kitchens.

Chen has developed the technology, which will be simple to use, offering a fixed UV intensity and a simple control panel that allows users to adjust treatment time. To test the decontamination efficacy of the oven, Chen compared it to that of simple tap water washing under two simulated *Salmonella* pathogen contamination scenarios: spot-inoculation, where a piece of produce was contaminated in a particular spot, and dip-inoculation, which is the worst-case scenario and involves the entire piece of produce being contaminated.

Using lettuce, spinach, tomato, blueberry and strawberry samples, Chen found the UV light oven decontaminated fresh produce much more effectively than tap water washing. In the case of the dip-inoculated lettuce, the oven could kill 99.7% of the *Salmonella* population while the tap water washing could only kill 59.3%. Despite being described as an 'oven', the device will not heat the produce in any way and will not have a negative effect on its sensory properties.

Source: <http://www.foodprocessing.com.au>

Supplement to switch off junk food cravings

Scientists at the Imperial College London, the United Kingdom, have developed a supplement that can reportedly switch off cravings for high-calorie foods, such as a pizza and doughnuts, while leaving the healthy appetite unaffected. After testing the new supplement, called inulin-propionate ester, with 20 volunteers, they showed that it not only resulted in less cravings for junk food, it also made them eat smaller portions. The supplement is based on a molecule produced by gut bacteria that tells the brain when you've eaten enough, and follows on from years of work into the feedback pathway.

The team had already shown that eating a type of fibre called inulin can increase the production of the molecule propionate in the intestine, which is made by gut bacteria when you're full, and signals to the brain to stop eating. But they'd also shown that, by modifying inulin to contain propionate – a compound they've called inulin-propionate ester – they could trigger gut bacteria to produce as much as 2.5 times more propionate. To test how that affects appetite, in this latest research, the team gave 20 volunteers either a milkshake containing 10 grams of inulin propionate ester, or regular inulin on its own, which acted as the control.

They then had them lie in an MRI scanner while they were shown various pictures of low or high calorie foods, such as salad and fish, or chocolate and cake. The study showed that volunteers who'd drunk the inulin-propionate ester supplement had less activity in the reward regions of their brain – the caudate and the nucleus accumbens – than the control group, but only when they looked at the high-calorie foods. The findings have

been published in *The American Journal of Clinical Nutrition*.

Source: <http://www.sciencealert.com>

New chocolate to be made from Neera sugar

Central Arecanut, India, and Cocoa Marketing and Processing Cooperative (Campco) Ltd., India, has launched a chocolate that will have sugar made from 'neera' or sap of coconut palm, which will be safe for consumption even for diabetics. Neera sugar, prepared using a technology developed by Central Plantation Crops Research Institute (CPCRI), India, has low glycemic index and, hence, can be consumed by those having high sugar levels. "We are introducing milk chocolates and chocolate beverages using Neera sugar," said M Suresh Bhandary, at Campco.

Palakkad Coconut Producers Company Limited (PCPCL) in Kerala makes neera using the 'ice box' technology. Its current production is 500 litres a day and it is one of the suppliers shortlisted for supply of neera sugar to Campco. "We make sugar and honey. The sugar is costly, selling at Rs 400 per kg and, hence, is difficult to sell in the market. But during Christmas time, we had orders from lot of cake manufacturers," said Vinod Kumar P, at PCPCL.

CPCRI has developed the technology for extracting unfermented neera from coconut palm. Usually, neera gets fermented soon after extraction, making it unsuitable for producing sugar. CPCRI's technology uses a container with ice cubes for keeping neera unfermented in a cold state for a longer time.

Source: <http://economictimes.indiatimes.com>

Ingredient makes desserts healthier

Mida+, Italy, has created a unique olive oil-based product, called Cremoli. "It's a real raw material dedicated to industrial and artisan confectionery and bakery, both for sweet and savory snacks, biscuits, cakes and ice-cream, which can replace commonly used fats like butter, margarine and other unhealthy vegetable and animal fats," explained Filippo Pompili Ferrari. Named after King Midas from Greek Mythology which turned everything he touched into solid gold, Mida+ is an Italian startup with the goal to develop new and healthy fats.

Cremoli is available in two variants: virgin olive oil-based, recommended for the confectionery industry due its light flavor, and extra virgin olive oil-based for more savory products, where the stronger taste can add value. There is a line recommended for cakes, biscuits, pastry, bread sticks, crackers, pizza and ice-cream, and another one perfect for puff pastry.

Source: <http://www.oliveoiltimes.com>

Modified sugar with fewer calories

DouxMatok, an Israeli start-up which means double-sweet in Hebrew, has engineered a new form of the sugar that offers the same sugar experience in up to half the calories. It's the same sugar, but it's physically altered to maximally satiate our tongues, so we consume less and protect our health.

This greatly increases the particle's surface area, so when the sugar dissolves on the tongue, the taste buds are exposed to more of the sweet taste, and we feel satisfied. The technology would allow us to continue to consume the chocolate and cakes we love, while experiencing fewer of sugar's pernicious

side effects, the most common being unwanted weight gain, obesity, and type 2 diabetes.

Source: <http://www.theepochtimes.com>

Ingredients to lower fat in fried snacks & meat

Dow Food Solutions, the United States, has developed two suites of plant-based functional ingredients, developed to help manufacturers reduce fat and offer healthier products to their consumers. The Wellence fat reduction food gums and Methocel portfolio for meat applications create a broad offering to help manufacturers differentiate their products for health-conscious consumers, with Americans said to be "continually seeking new ways to improve their eating habits and reduce fat and calorie intake".

According to Dow, this would be made "even easier with the upcoming implementation of the US Food and Drug Administration's required calorie labelling". Wellence fat reduction gums can be added to a batter or coating system to reduce fat, and lower the associated calories, by as much as 35%. This is achieved by reducing the oil uptake during frying while still maintaining the sensory profile, meaning it has minimal impact on the full-fat flavour and crisp texture.

The Methocel portfolio for meat applications is a highly versatile suite of tailored ingredients designed to help food manufacturers create convenient, healthier and more cost-effective meat products and meat analogues. The ingredients help improve stability, bite and texture at high and low temperatures – from production to consumption.

Source: <http://www.foodbev.com>

Simple food ingredients to prevent cancer

Scientists from Moscow Institute of Physics and Technology (MIPT), Russia, have discovered two common ingredients that could prevent tumours. Now new evidence suggests their cancer fighting potential after Russian researchers obtained glaziovianin A from parsley and dill. The same chemical is currently harvested from the leaves of the Brazilian tree *Ateleia glazioviana* Baill and is an 'antimitotic' – meaning it inhibits the growth of tumours by disrupting the process of cell division or mitosis.

"Both improvement of existing therapies and search for innovative approaches are essential components of a quest to treat cancer. "Our combined team developed a simple method of producing glaziovianin A and its structural analogs – which inhibit the growth of human tumour cells – using feasible building blocks from nature," said Professor Alexander Kiselev, at MIPT.

The scientists said the new cancer-treating method proposed is cheaper than the existing ones as it involves commonly available materials and also requires minimal number of steps in its synthesis. They hope glaziovianin A from parsley and dill could help develop new medicine that can be used as anti-cancer drugs in future. The study is published in the *Journal of Natural Products*.

Source: <http://www.mirror.co.uk>

Novel techniques to ensure delicious food

European Union (EU) researchers have developed tools and guidelines to help protect Europe's spice and herb commodity chains from deliberate, accidental and natural biological and chemical contami-

nation. The EU-funded SPICED project aims to mitigate these vulnerabilities by implementing best practices specifically geared to ensuring the safety of our spices and herbs. This is a novel approach to food safety, as traditionally experts have focused on major food ingredients, thus failing to properly identify contaminated spices and herbs as the cause of many food-borne infections and intoxications.

To accomplish this, project researchers focused on the spices most susceptible to contamination, such as pepper, paprika, nutmeg, vanilla, parsley, oregano and basil. First, they developed tailored tools for both detecting and preventing deliberate, accidental and natural contaminations, such as *Salmonella* and *E-coli*. This included characterising the heterogeneous matrices of spices and herbs, implementing on-site and high throughput diagnostic methods for detecting contamination, studying their intra- and inter-plant production and supply chains within the context of biological and chemical hazards.

Based on this initial work, the project team created innovative processes for reducing chemical alterations and ensuring the authenticity of spices and herbs. For example, the project demonstrated how sampling strategies that use non-targeted fingerprinting methods provide better hazard detection. Likewise, an exemplary spice and herb production and processing chain was developed, thus closing the door to key vulnerabilities. For spices like paprika and pepper, whose production and trade has been stagnant for decades, the project evaluated the entire value chain and made recommendations for updated best practices.

Source: <http://www.phys.org>

Bananas with longer shelf-life

Scientists from Agricultural Research Organization, Israel, have developed transgenic banana plants with longer shelf-life by reducing expression of two transcription factors, MaMADS1 and MaMADS2. Based on previous studies about ripening genes of tomatoes, the researchers characterized similar genes in bananas known as the MADS box genes, MaMADS1 and MaMADS2. When the expression of these genes was repressed using genetic modification, the banana plants exhibited delayed ripening and extended shelf-life characteristics. The results are published in *Plant Physiology*.

The delayed ripening characteristic was linked to the production of ripening hormone, ethylene. In fact, the plants where the gene was repressed the most did not produce ethylene and therefore the ripening was the most delayed in these plants. In addition, the researchers found that the taste and quality of the transgenic bananas remained the same. Fruits of plants in the genus *Musa*, including bananas and plantains, represent staple foods for millions of people, especially in developing countries, and are an important carbohydrate and nutrient source for billions more.

The researchers concluded that, "Delayed ripening and extended postharvest shelf-life with minimal inputs have great potential to increase banana value, increase effective yield, and promote food security, absent additional environmental pressure (i.e., the need to increase production area). As the Cavendish banana is parthenocarpic and vegetatively propagated, there are limited options for genetic improvement. Identifying

key ripening genes to promote genetic modification via gene editing, transgene integration, or breeding (when possible) is a key route to banana improvement."

Source: <http://www.naturalproductsinsider.com>

Method to keep meat fresh for one week

The Indian Defence Research and Development Organisation (DRDO), laboratory has developed a simple technology to extend the shelf-life of mutton to up to a week without cold storage facilities. Scientists from the animal products division at the Defence Food Research Laboratory (DFRL) have developed a special extract from pomegranate peels that can be injected or applied to the meat and kept out without bothering about the meat rotting due to harmful bacterial action. And it can remain fresh for a week without affecting the meat's natural taste or flavour.

DFRL scientists said while the research was mainly focussed on mutton, the beneficial effects of the pomegranate peel extract could similarly protect chicken meat and pork too. At present no technology is available for the preservation of fresh mutton without any chemical preservatives that can improve the shelf-life beyond 20 hours. DFRL addressed the problem by identifying and applying a natural edible preservative – the pomegranate peel extract – and carried out sustained experiments. They discovered that it significantly enhanced the shelf-life of fresh mutton to seven days at ambient conditions.

"Pomegranate peels are powerful antioxidants (substances that inhibit oxidation that supports bacterial action and are used to counteract the deterioration of

stored food products) with antimicrobial properties. This prevented bacterial action on the meat even when kept out at room temperature," said PE Patki, at DFRL. Primarily, the research aimed at finding a way to use natural preservatives to extend the shelf-life of meat supplied to Indian Army jawans posted at the forward posts.

Source: <http://www.bangaloremirror.com>

Process to improve milk's shelf-life

According to a study done by researchers at Purdue University, the United States, a rapid heating and cooling of milk significantly reduces the amount of harmful bacteria present, extending by several weeks the shelf-life of one of the most common refrigerator staples in the world. Bruce Applegate and other collaborators from Purdue and the University of Tennessee, the United States, have published their findings in the journal *SpringerPlus*, where they showed that increasing the temperature of milk by 10°C for less than a second eliminates more than 99% of the bacteria left behind after pasteurization.

The low-temperature, short-time (LTST) method in the Purdue study sprayed tiny droplets of pasteurized milk, which was inoculated with *Lactobacillus* and *Pseudomonas* bacteria, through a heated, pressurized chamber, rapidly raising and lowering their temperatures about 10°C but still below the 70°C threshold needed for pasteurization. The treatment lowered bacterial levels below detection limits, and extended shelf-life to up to 63 days. Sensory tests compared pasteurized milk with milk that had been pasteurized and run through MST's process. Panelists did not detect differences

in color, aroma, taste or aftertaste between the products.

Source: <https://www.purdue.edu>

New flavor technology launched

PLT Health Solutions, the United States, has launched PhytoShield, a new flavor technology that it says offers "broad-spectrum anti-microbial activity" for extended shelf-life and enhanced flavor in a broad range of food and beverage products. The new technology incorporates components frequently used to develop natural flavors, making it a cleaner-label solution than many synthetic preservatives. Developed by Flavor Solutions Inc., the United States, PhytoShield derives its anti-microbial effect from the "synergistic" reaction of bioflavonoids, polyphenols, flavor components, and other organic acids.

According to PLT, PhytoShield's preservative defense against gram-positive and gram-negative bacteria, molds, fungi, and yeast is comparable to or better than synthetic technologies. All of the components in the PhytoShield line are free of GMOs, and organic-compliant grads are available, says PLT. PhytoShield ingredients are also designed to be effective across a pH range of 2-10 and to remain heat stable up to 130°C.

"For companies who have moved away from preservatives altogether or who use nature-based preservatives, we see the opportunity to protect product quality and extend the shelf-life of their formulations. For companies who are using artificial preservatives, PhytoShield offers the opportunity for a cleaner label while safeguarding the important organoleptic aspects of their brand," said Shadi Riazi, PhD, at PLT.

Source: <http://www.nutritionaloutlook.com>

Corrugated trays extend fruit shelf-life

In a recent study, conducted by the University of Bologna, Italy, researchers have found that contamination by spoilage bacteria is significantly lower when fruits are packed in corrugated trays. Researchers calculated that the shelf-life of fruits packed in corrugated fruit trays is between one to three days longer than the shelf-life of fruits packed in returnable plastic crates (RPCs). During the study, Professor Rosalba Lanciotti and her team packed hundreds of sterilised peaches into an equal number of corrugated trays and plastic crates that they had deliberately contaminated with microorganisms, including the spoilage bacteria.

The researchers measured the peaches' microorganism levels at the 'time of sale', then again after 48 and 72 hours. They analysed the data collected to determine how long it would take for the fruits to deteriorate to a level where they would no longer be fit for consumption. Factors such as storage temperature, time on shelf and superficial damages also affect fruit shelf-life. However, the study determined that the shelf-life of fruits packed in corrugated trays is between one to three days longer than for those packed in returnable plastic crates.

With such an important role in reducing levels of spoilage bacteria levels, turning to corrugated packaging instead of returnable plastic crates to slow the deterioration and increase the shelf-life of their fresh produce should be a clear priority for companies looking to increase consumer satisfaction, sustainability credentials and, ultimately, profitability.

Source: <http://www.esmmagazine.com>

Nanoparticles to revolutionise shelf-life of food

Iranian researchers have discovered how to improve polymeric materials in packaging by manipulating nanoparticles of clay and iron oxide. The research conducted by member of the Islamic Azad University of Saveh has led to the technology now being produced on an industrial scale.

The maximisation of shelf life has long been a priority for manufacturers and retailers and if we are to consider the specifics, the defence of products against heat, light, moisture, oxygen, microorganisms, insects and dust represents in essence, what the packaging industry fundamentally considers to be the means in which to do so. Creating the right conditions within a product's packaging is of essential importance and recently, the industry has seen several diverse methods and opinions on how best to achieve this.

Gholamreza Khalaj directed the Iranian research project and outlined that "the plan aimed to improve various properties of polymeric materials used in food and pharmaceutical packaging by taking advantage of clay and iron oxide nanoparticles.

"The use of this nanocomposite packaging can cause a marked increase in shelf-life of the products it contains," he continued. "These two types of nanoparticles offer two different mechanisms to prevent passage of oxygen from the package; simultaneous use of clay and iron nanoparticles brings about synergic effects to further boost the shelf life of food and pharmaceuticals."

Source: <http://www.newfoodmagazine.com>

Scientists convert coconut water to powder

The Department of Science and Technology (DOST), Philippines, has tapped the expertise of scientists from the University of the Philippines Mindanao (UP Mindanao) to develop coconut water and turn it into powder. Using a spray dryer developed by the Industrial Technology Development Institute and the Metals Industry Research and Development Center, a team of food scientists from UP Mindanao has completed the process of converting coconut water into powder.

"We are still doing further research to determine the nutrient retention capacity," said Anthony Sales, at DOST. The project aims to help coconut water become more conventional for the benefit of thousands of coconut farmers and coconut product manufacturers. Coconut powder can be used in baking biscuits, snack bars, cakes, pastries as well as in making jams and jellies and flavoring for ice cream and has a much lower price compared with the ready-to-drink version, thus, making it more affordable for more consumers.

Source: <http://www.filipinotimes.ae>

Scientists use seaweed to make beverages

A team of food scientists from National University of Singapore (NUS) Science's Food Science and Technology (FST) Programme has devised a novel technique using eucheuma, a species of seaweed, which can be used to produce a range of beverages and food products. The team also came up with precise heat processing technology used to preserve the nutrients while extending shelf-life, thus eliminating the need

for preservatives. The researchers combined traditional oriental dietary practices with modern food and nutrition knowledge to devise the right mix of food ingredients and make the drink taste home-brewed.

This involved evaluating the physicochemical properties of potential ingredients and utilising natural sugars from things such as honey, red dates, longan fruit and goji berries in place of artificial sweeteners. These natural foods also interacted with other components in the beverages in an innovative method used by the food scientists to "stabilise" the product, to ensure the ingredients are evenly distributed. The eucheuma-based bottled drinks currently come in six different flavours comprising other natural ingredients such as bird's nest, roselle and water chestnut.

The drinks contain no chemical additives, added sugar and preservatives. "This project enables our team to apply our knowledge in eucheuma and strong expertise in food processing to create novel products that benefit consumers," said Yang Hongshun from the FST Programme. He added that students also benefitted from being able to apply their food science knowledge while gaining insights into industry practices and the entire value-chain of food and beverage development.

Source: <http://www.atimes.com>

Rice milk makes for a healthy beverage

The Philippines Department of Science and Technology (DOST) has developed the rice milk, offering a healthy alternative to soya, almond, and cow's milk drink, and a new addition to the beverage industry's product line. Led and motivated by Industrial Technology Development Institute (ITDI) Director, Dr. Maria Patricia V. Azanza, the research team

is relentless in exploring the many benefits of our country's agricultural produce, one of which is rice. Using one of the DOST – developed food processing equipment called the water retort, the team was able to process rice into milk drink and shake.

"These newly developed rice milk drink and shake products are among the many food product prototypes being developed under the DOST Food Innovation Centers (FICs) established nationwide starting April 2015. And we also hope to recognize the most innovative products," Azanza explained. She added that the project also aims to train food product development teams and develop at least 2,000 product prototypes using the DOST – designed and developed food processing equipment.

The DOST rice milk is made from the cultivars/base of red, brown, black and glutinous (malagkit) rice. To prepare, the rice is mixed with water, boiled, blended, homogenized, bottled, and pasteurized at 80 to 90 degrees Celsius using water retort. To add a twist and perk up the taste of rice milk, the team added other flavors such as mango (e.g., ripe carabao and pico); banana (saba, cavendish, latundan, lakanan, senyorita); coffee (cappuccino, mocha); and chocolate. Contact: Engr. Norberto Ambagan, Chief of the Food Processing Division, Industrial Technology Development Institute, Tel: +837-2071-2187.

Source: <http://www.science.ph>

Antioxidant capacity of a novel refresher drink

Researchers from Aurea Biolabs Pvt Ltd, India, and Aurous Health-Care Research and Development India Private Limited, has formulated a novel refresher drink made of a natural matrix that contains spice extracts of turmeric, ginger, black

pepper and green tea. In addition to the spice component, this drink contained sucrose, citric acid and sodium chloride. The antioxidant activity of such a drink was determined by an oxygen radical absorbing capacity (ORAC) assay, utilizing a trolox equivalence method. A trolox standard curve was established.

Determinations of the antioxidant capacity of this refresher drink involved five samples of 4 different levels used. Results showed trolox equivalency values of various concentration of refresher drink are 0, 0.289 ± 0.02 , 0.564 ± 0.05 and 0.827 ± 0.06 µg/ml for the concentrations of 0, 125, 250 and 500 µg/ml, respectively. It is proved that the antioxidant property of refresher drink is highly dose dependent. The high ORAC value of this drink indicates that it can be considered as an oxidative stress reliever, with favorable effects on human health.

Source: <http://www.scientiaricerca.com>

Researchers develop bean beverage

In a study, researchers from Lunds University, Sweden, have explored different methods of producing a beverage based on Lantmännen's Swedish grown white beans. A flour was milled from beans that had been soaked and boiled in order to inactivate antinutrients such as lectins, trypsin inhibitors and phytic acid, and subsequently dried and milled. A water-based beverage with 8% bean flour was boiled for 5 min. 1.5% of rapeseed oil was added and the beverage was mixed with a high shear mixer for 1 hour.

This basic beverage then underwent different treatments and was analysed for protein content, Raffinose Family of Oligosaccharides (RFO) content, pH and viscosity

as well as sensorial properties such as taste and sandiness. The treatments included fermentation with *Lactobacillus plantarum* 299v, centrifugation to exclude insoluble components, as well as treating the beans with sodium bicarbonate in order to increase pH and thereby increase solubility of proteins and dietary fibers.

The fermentation process produced an acidic (pH 5), probiotic beverage with an unique flavor and a shear-thinning behavior. Centrifugation gave a milk-like beverage both in color and consistency with a protein content of around 0.3 g/100 g beverage. Increasing pH of the beans could give a centrifuged beverage with a protein content of up to 0.9 g/100 g beverage. The sensory analysis showed that this treatment gave a decreased sensation of sandiness due to higher solubility of dietary fibers, and that there was a greater general liking of the centrifuged beverages compared to the non-centrifuged.

Source: <https://www.lup.lub.lu.se>

Drink developed for military

A drink that provides energy for the body in the form of ketones, rather than sugar or fat, helped competitive cyclists ride farther during a half-hour ride, according to a new study. In the new study, researchers found that when ketones are provided in a drink, the body will use them for muscle fuel. Ketone-powered workouts resulted in less lactate, a byproduct of breaking down sugar that causes muscle cramps and soreness. Ketosis, or production of ketones by the liver, "is a natural response to energy crisis and is of vital importance to us as it allows us to survive 'insults' such as starvation and

even the first few hours after birth when fuel levels are low," said lead author Pete J. Cox of the University of Oxford in the UK.

The researchers studied 39 high-level athletes, including former Olympic cyclists, to see how their metabolism changed after consuming the ketone drink and exercising. Ketone uptake in the muscles increased as exercise got more intense. In long-distance workouts, muscles used more ketones as fuel rather than breaking down glucose. But in short bursts of high-intensity work, like sprints, muscles work anaerobically – without oxygen – and can't use ketones as fuel, since ketones can't be broken down without oxygen.

To examine athletic performance, eight athletes fasted overnight before completing two bicycle exercise trials of one-hour steady-state cycling and a 30-minute time trial. For one trial, the cyclists drank a carbohydrate drink, and for another they had a drink with carbohydrates and ketones. After the ketone drink, the cyclists traveled an average of 411 meters further in the half-hour time trial than after the carbohydrate drink, as reported in *Cell Metabolism*. A University of Oxford company is now developing the ketone fuel to be commercially available later this year and the authors of the study may receive royalties from its sale.

Source: <http://www.reuters.com>

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

FSCF PTIN addresses the need to engage the food industry and academic food safety experts with the regulators, to strengthen capacity building in food safety in the Asia Pacific region.

For more information, access:

<http://fscf-ptin.apec.org/>

Plant-based food packaging

Researchers from SINTEF, Norway, have developed plant-based food packaging that extends the shelf-life of food and also lets consumers know it is no longer fresh enough to eat. Researchers are ready to demonstrate the packaging which they have made from PLA (polyacetic acid) and bio-PET (polyethylene terephthalate). "The packaging is made of biopolymers to which we have added nanoparticle components", said Åge Larsen at SINTEF.

"This provides the packaging with new and improved food preservation properties. It is designed mainly to protect the contents from their surroundings and thus extend shelf-life. We achieve this by means of improved oxygen barriers. Standard plastic packaging allows the entry of air which places restrictions on shelf-life. Moreover, the new approach considerably reduces the carbon footprint," added Larsen.

Larsen said plant-based food packaging is an expanding field. Four packaging designs are currently being made using PLA and bio-PET. These include a blow-moulded bottle, a pot that can be used to hold seafood, bowl-like containers made with a three-layer coating, and a blow-moulded film (similar to plastic) that can be used for making bags and oxygen-protective coverings. In addition the researchers have developed sensors that will let consumers know when the product is no longer suitable to eat.

Source: <https://www.foodmag.com.au>

Cheese ripening packaging solution

DSM, the Netherlands, the global life sciences and materials

sciences company, has developed Pack-Age®, a revolutionary cheese ripening solution that not only offers complete protection for all cheeses, but also allows them to ripen to the perfect flavour. There are two conventional processes for the ripening of hard to semi-hard cheeses. The most traditional way, known as 'natural ripening', involves air drying the cheeses during ripening, and applying a coating to protect them from external factors.

As some mould growth cannot be prevented, in addition to cheese coatings containing mould inhibitors like natamycin, washing the surface with different cleaning agents can be used as an alternative to clean the cheeses during and after ripening. The other process, used to obtain young cheese, involves packing the cheese in a seal-tight film straight after brining. This film-packed cheese has a typical flat taste, and is soft and rind less. With Pack-Age® – the newly developed packaging solution for ripening cheese – you can now ripen your cheese 'naturally' by covering it with a membrane.

The oxygen barrier properties of the Pack-Age® membrane opens up opportunities for clean label cheese, however when combined with Delvo®Cid (a natural mold and yeast inhibitor) the selective gas permeability of the membrane offers the best possible protection against yeast and mold growth. Pack-Age® can be used to ripen semi-hard to hard cheeses and obtain a natural taste, texture and dry rind. When applied to Gouda cheese, the new ripening solution has resulted in moisture loss falling by as much as 50 percent.

Source: <http://www.fmtmagazine.in>

Packaging extends shelf-life of pasta and cheese

Plastics research institute Aimplas, Spain, has developed a new type of sustainable packaging that significantly extends the shelf-life of cheese and fresh pasta. Conducted within the framework of the European project Bio4Map, the result of the research has been a new generation of barrier, multi-layer and transparent packages with a cost 25% lower than conventional pack types, and with an environmental impact and carbon footprint reduced by up to 29%.

The material uses PLA, an easily recyclable material with excellent mechanical properties, as well as PVOH, which provides barrier to gases and is water-soluble so it disappears in the washing process. Both layers are joined by innovative biodegradable adhesives, while a wax coating made from olive leaves provides water vapour barrier. This coating, Aimplas said, which does not disappear in the washing process, acts like a plasticiser for PLA, thus improving its flexibility.

They are materials that, together, have a carbon footprint 57% lower than the footprint of materials traditionally used in packaging manufacturing to contain this kind of food. The packaging innovation has been developed as part of a €1.5 million research project, funded by the European Union's Seventh Framework Programme and managed by the European Commission's Research Executive Agency, based in Brussels.

Source: <http://www.foodbev.com>

Graphene-infused packaging

Scientists from the Indian Institute of Science (IISc), Bangalore, have

developed a new kind of packaging that incorporates a single layer of graphene. Their material reduces by a million fold how much water can get through. And this permeability to moisture can limit the lifespan of a product. To better protect goods such as electronics and medicines, scientists have developed a new kind of packaging that incorporates a single layer of graphene. The research findings have been reported in the journal *ACS Nano*.

The researchers synthesized a single layer of graphene by chemical vapor deposition and using a simple and scalable process, transferred the graphene to a polymer film. Water vapor permeated the material at the target rate of less than 10-6 grams per square meter per day. An accelerated aging test showed that an organic photovoltaic device wrapped in the graphene-infused film would have a lifetime of more than 1 year compared to less than 30 minutes if packaged in the polymer without the graphene.

Source: <https://www.sciencedaily.com>

Flexible food packaging

Tipa Corp., an Israeli start-up company that develops biodegradable films has launched a new range of sustainable packaging to the UK market. TIPA has created a bio-based and fully compostable flexible packaging solution, which has the same end-of-life organic waste properties as the food it wraps, whilst being as transparent, durable and impermeable as ordinary plastic packaging.

The company says that, unlike conventional plastic packaging, its film biologically decomposes in just 180 days and becomes a fertilizer for soil, behaving similarly to an orange peel. TIPA products currently comprise standalone and printed coextruded

transparent and high-transparent cast films, which are sealable and printable on both sides and typically used for the packaging of fresh produce, bakery and grain-mill products.

In addition, its transparent and non-transparent laminate series is offered for a variety of food segments and packaging applications including stand-up pouches, bags and pillow packs amongst others for food segments such as granola bars, potato chips and other snacks, grains and dried foods and vitamins capsules. Contact: Tipa Corp., 3 Hanagar st., Hod Hasharon, 4501306, Israel. Tel: +972-9-7796-000; Fax: +972-9-7715-828.

Source: <http://www.britishplastics.co.uk>

Nanotech extends shelf-life of fresh fruit

A team of researchers from Canada, India, and Sri Lanka is developing nanotechnology-based applications of hexanal, a natural plant extract that extends the storage life of harvested fruit. Researchers point to a promising innovation: nanotech applications of a natural plant extract called hexanal can be used to delay fruit ripening. Hexanal inhibits a plant enzyme that is responsible for breaking cell membranes during a fruit's ripening process.

In initial research in India and Sri Lanka, scientists used a hexanal-impregnated formula to test the product on mangoes. Spraying orchards with a low concentration of the compound slowed fruit ripening by three weeks. These applications can boost farmers' incomes.

In field trials, farmers were able to earn up to 15% more for their crop. Once harvested, the sprayed mangoes remained fresh for up to 26 days in cold storage and 17 days at room temperature. Together with

institutions in Kenya, Tanzania, and Trinidad and Tobago, researchers are looking at hexanal applications with other fruits under different growing conditions. The research teams are testing a variety of sprays, coatings and packaging on bananas, citrus, papayas and even some Canadian tender fruits and berries.

Source: <https://www.idrc.ca>

New packaging research

A new packaging research by the Indian Institute of Packaging (IIP) has increased the shelf life of 'Joynagar Moa', a popular Bengali sweet, from two days to 28 days thereby creating export potential for this product, according to a release. "Traditionally, the shelf life of Joynagar Moa used to be a maximum of 2 days. However, by working on this research, we have been able to increase the shelf life from 2 days to 28 days," N C Saha, IIP Director, said. 'Joynagar Moa' is prepared with the help of nolen gur (date palm jaggery), kanak-chur khoi (puffed rice from special paddy variety), khoya (milk sweet), ghee, cardamom and dry fruits.

"In a year-long research, we have minutely understood the whole manufacturing process and sites of bacteria formation etc, leading us to create a packaging that prevented the food product from getting spoiled due to bacteria formation."

The Institute has already submitted the final report to the West Bengal Khadi and Village Industries Board for the implementation of this new type of packages for 'Joynagar Moa' and the same can be sold at the retail showroom of Biswa Bangla, a unit under the Government of West Bengal, to promote products of Bengal for the world market, the release said.

Source: <http://www.business-standard.com>

Bakery automates wrapping

Schwob's Swiss Bakery, Australia, has automated its packaging process with the installation of a PFM Hurricane Servo flow-wrapper from Emrich Packaging Machinery, Australia. The high-speed Hurricane servo-controlled horizontal flow-wrapper can achieve a maximum speed of 100 mechanical cycles/min. Crucially for Schwob's, the Hurricane allows for a rapid product changeover time of just 3 min, assisted by 24 pre-programmed set-ups.

This adaptability means the machine can be rapidly changed from wrapping a large bread loaf to an individual roll. The wrapper produces packs that are sealed lengthwise and crosswise on three sides from a roll of heat-sealable packaging film, with or without support trays. It also provides features such as no product-no bag and misplaced product detection, eliminating film wastage and product damage.

Source: <http://www.foodprocessing.com.au>

Vacuum packaging machine

Cryovac, Italy, has launched 'VS2X' machine which not only provides technological and functional improvements to increase operational efficiency, but also offers a total approach in strengthening the customer's business and brand. And, with Sealed Air's expertise in the total value chain of fresh red meat (FRM), smoked and processed dairy solid processors, the machine has been tailor-made for small or medium producers of products that require packing in vacuum shrink bags.

This is controlled by PLC programmable logic system that monitors

and controls the operating sequences through a touch screen control panel and operating software with six different programs for customized packaging.

A variable speed drive (VSD) controls the conveyor motor lung, while the belt is run by an electrically-operated servo. Only one operator is needed for a maximum production capacity of up to 2.5 cycles per minute. The machine's design allows easy access for cleaning and meets European regulations on safety and hygiene.

Source: <http://www.italianfoodmaterialsandmachinery.com>

Machine that stops avocados going brown

Naturo Technologies, Australia, has created a technology that slows down the browning process of avocados, without the use of chemicals. Called the Natavo Zero, the inventor of the technology is agricultural engineer Jeff Hastings. He was frustrated at the amount of wastage when it comes to consuming and processing avocados, since they go brown easily. "It's one of those fruits that you buy and eat where you inherently suffer disappointment, because it's already gone brown or it goes to waste," said Hastings.

Hastings explained that the technology works by "turning off" a particular enzyme in the avocado fruit, which causes it to turn brown when it's exposed to oxygen. All one would need to do is feed the "avocado time machine" open avocados – whether it be sliced, diced or halved – onto the conveyor belt where it will be treated for 5-6 minutes. The company claims avocados will stay fresh for 10 days after the process.

Contact: Naturo Pty Ltd, U9 / 2 Focal Ave, Coolum Beach Qld 4573, Australia. Tel: +61-468-4888-00; E-mail: enquiries@naturotechnologies.com.

Source: <http://www.mashable.com>

Machine to reduce post-harvest losses

Philippines Center for Postharvest Development and Mechanization (PhilMech), an attached agency to the Department of Agriculture, has developed a machine that will help reduce postharvest losses in the country's root crops at the same time improve the quality of its production. PhilMech has launched a prototype machine that can wash and dry carrots and other root crops which can eventually reduce the drudgery of traditional washing.

In collaboration with the Bureau of Agricultural Research, Donald Mateo, a PhilMech engineer, developed the carrot washer with main parts consisting of the stainless steel frame, tumbler, cover, washer, inlet conveyor, discharge conveyor and dryer. "This was created to help reduce postharvest losses by 20 percent," said Mateo. Through the machine, farmers will be able to sell better quality produce.

The mechanical washer is capable of washing 1 to 2 tons of carrots per hour and 3 tons of potatoes per hour. It can also wash different root crops of any size. With a cost of P1 million each, the biggest machine prototype is made of stainless materials and measures 6.5 meter x 1.25 meter x 2 meter. It costs P1 million, while the smaller model made of Polyvinyl chloride (PVC) only costs P200,000.

Source: <http://www.mb.com.ph>

Packaging for Sustainability Handbook

This handbook is concise and readable for practitioners who are trying to implement sustainability strategies for packaging. The book draws on industry case studies to illustrate possible applications and scenarios, bringing together the expertise of researchers and industry practitioners to provide information on business benefits, environmental issues and priorities, environmental evaluation tools, design for environment, marketing strategies and challenges for the future.

Contact: Australian Institute of Packaging, 34 Lawson St, Oxley, QLD 4075, Australia. Tel: +61-7-3278-4490; Fax: +61-7-3009-9916

Handbook of Food Processing: Food Preservation

This book presents the information necessary to design food processing operations and goes on to describe the equipment needed to carry them out in detail. The book covers every step in the sequence of converting raw material to the final product. It also discusses the most common food engineering unit operations and food preservation processes, such as blanching, pasteurization, chilling, and freezing to aseptic packaging, non-thermal food processing, and the use of biosensors. The book helps you keep up with diverse consumer demands and rapidly developing markets.

Contact: CRC Press. Tel: +561-994-0555; Fax: +561-989-9732; E-mail: international.orders@taylorandfrancis.com

Handbook of Food Processing Equipment

This book covers the design of food processing equipment based on key unit operations, such as heating, cooling, and drying. In addition, mechanical processing operations such as separations, transport, storage, and packaging of food materials, as well as an introduction to food processes and food processing plants are discussed. It is an essential reference for food engineers and food technologists working in the food process industries, as well as for designers of process plants.

Contact: Springer Customer Service Center, Haberstr. 7, 69129 Heidelberg, Germany. Tel: +49-6221-345-4301; E-mail: customerservice@springer.com

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WorldFood – Int'l Exhibition for Food, Drink Products and Technology
Contact: Aloyna Aprosimova
Project Manager
Tel: +7-727-258-5526
Fax: +7-727-258-3444
E-mail: alena@iteca.kz

7-9 Nov
Shanghai,
China

FHC China
Contact: China International Exhibitions Ltd
LRoom 2402A, Singular Mansion No.318-322,
Xian Xia Road,
Shanghai 200336,
China
Tel: +86-21-6209-5209
Fax: +86-21-6209-5210
E-mail: cie@chinaallworld.com
Web: <http://www.chinaallworld.com>

19-22 Nov
Chandigarh,
India

CII Agro Tech 2016
Contact: Trade Fairs Department
Confederation of Indian Industry
Northern Region Headquarters,
Sector 31-A, Chandigarh, India
Mobile: +91-81465-39278
Fax: +91-172-2606-259
E-mail: agrotech@ciit.in
Web: <http://www.agrotech-india.com>

2017**20-22 Mar**
Karachi,
Pakistan

11th Food Technology and Machinery Show
Contact: Ecommerce Gateway Pakistan
(Pvt) Ltd
8, Kokan Society, Dr.
Azhar Hussain Road,
Near Kokan Park,
Shaheed-e-Millat Road,
Karachi-74000, Pakistan
Tel: +92-21-3453-6321
Fax: +92-21-3486-0830
E-mail: info@foodtechnologyasia.com
Web: <http://www.foodtechnologyasia.com>

13-15 Sep
Bangkok,
Thailand

FI FOOD INGREDIENTS ASIA 2016
Contact: UBM ASIA (Thailand) Co Ltd.
503/23 K.S.L. Tower
14th Floor Sri Ayuthaya Road
Kwaeng Thanon Phayathai
Khet Rajathewee,
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