CSIR in Media

Platinum Jubilee 1942-2016

75 Years of

CSIR Touching Lives

A Daily News Bulletin
8th to 11th September 2017

Produced by Unit for Science Dissemination, CSIR, Anusandhan Bhawan, 2 Rafi Marg, New Delhi

CCMB to host International congress of cell biology

CSIR-CCMB

8th September 2017

Being held first time in India

Advanced cell biological solutions and developments will be debated and discussed by over 1,000 scientists coming from across the world at the International Congress of Cell Biology 2018 to be held in India for the first time from January 27 to 31 next year.

The CSIR–Centre for Cellular and Molecular Biology (CCMB) will host the conference with the theme "The Dynamic Cell: From Molecules and Networks to Form and Function." Nobel Laureate Martin Chalfie will deliver the opening address.

International bodies

This major international meeting features the combined participation of three leading life science organisations, International Federation for Cell Biology (IFCB), Asian Pacific Organization for Cell Biology (APOCB) and Indian Society of Cell Biology (ISCB), CCMB Director Rakesh Mishra and V. Radha, one of the conference organisers, said at a press conference here.

Dr. Mishra said the meeting also gives a unique opportunity to focus the attention of the international community on how government and industry in India are using the truly transformational possibilities of applied cell biology in medical innovation.

India leads

He said many countries bid for the opportunity but India was selected given the contributions made by cell biologists in India to the field. A galaxy of leading researchers from around the world will provide an excellent platform for researchers, industry and students to interact.

A special synergy session between Industry heads and scientists engaging in translation will be held where Information Technology Minister K. T. Rama Rao will be the chief guest.

A special session on "Supporting the Biological Sciences: International policy and opportunities" will highlight how enabling basic science is critical today more than ever, for translation as well as advancing the frontiers of knowledge.
Dr. Mishra said that registrations are on and can be done till September 30. More information is available on www.ccmb.res.in.

Published in:
TheHindu.com

CSIR capsule exhibition begins at NIO

CSIR-NIO

7th September2017

Panaji: The Council of Scientific and Industrial Research (CSIR) launched a nationwide capsule exhibition on Wednesday as part of its platinum jubilee celebrations. The exhibition highlights research and development works conducted by 38 premium institutes across the country; one of which is the Goa-based NIO..

Held at NIO's premises in Dona Paula, the exhibition was inaugurated by the institute's director Sunil Kumar Singh, and will be open for public viewing till Friday.

The exhibition comprises exhibits on CSIR's achievements in the areas of social intervention, nurturing human resources, intellectual property and entrepreneurship, chemical and petrochemical, water, ecology and environment, leather, materials and minerals, energy, healthcare and generics, aerospace and strategic sector, engineering and infrastructure, agriculture and floriculture, and food and nutrition.

Published in:
Timesofindia.indiatimes.com

NAL starts taxi trials of improved Saras

CSIR-NIO

9th September2017

The 14-seater light plane was grounded after 2009 mishap

Saras, one of the first attempts at making small, short-haul planes in the country, is rolling on its wheels after eight years, warming up before it tests its wings again.

A modified prototype of the 14-seater transport aircraft started making low-speed taxi trials in early August. Air Force pilots have completed five runs of around 45 minutes each and will next move on to high-speed taxi tests, according to Jitendra Jadhav, Director, National Aerospace Laboratories, under the Council for Scientific & Industrial Research (CSIR).

Dr. Jadhav said, "We plan to fly the aircraft in the first week of October after the high speed taxi trials are completed. We made more than 10 modifications since the accident. The performance of the plane's systems after the modification will be evaluated during the flights."

About 25 flights are planned in the first set of the modified prototype, the PT1N, he recently told *The Hindu*. By the end of 2019, NAL plans to fly a production-standard version for air-worthiness certification.

Except for minimum maintenance engine runs, the 14-seater aircraft has not taxied or flown since one aircraft version crashed near Bengaluru in 2009 killing all three crew members. In February this year, the Minister of Science & Technology — in whose purview NAL and other CSIR labs fall — said the government was intent on completing the plane's development and making it flight worthy.

The revival activities started with five ground-runs of its two Pratt & Whitney engines

followed by the taxi trials. A few more LSTTs [low speed taxi trials] are due.
The 10-odd modifications were made to make it more pilot-friendly, agile, or easy to control; and to enable it to fly higher. The final Saras is planned to be able to cover 1,600 km at a maximum speed of 425 kmph, have a service ceiling of 9-10 km and fly continuously for five hours.

Dr. Jadhav outlined the roadmap: "After the trial flights, the design configuration of Saras is targeted to be frozen by March 2018 as production standard. By then we should have reduced the weight and drag issues. We would have made improvements in avionics, glass cockpit, environment control systems, cabin pressure control systems and a few changes in flight control systems. We then go in for funding [from the government] for two limited series production vehicles and a static specimen.
"The current plan is that we start flying the LSPs by December 2019 for final certification," he said.

When ready, Saras, initiated in 1999 as a civil light transport plane, will first get certified for military use. The Indian Air Force has indicated a need for 15 of them. A civil variant is to follow.
Full-scale production is scheduled to be taken up in 2020 at the Kanpur facility of Hindustan Aeronautics Ltd - where HAL produces its Dornier-228 transport aircraft.
The project has used up around ₹ 500 crore. Dr. Jadhav said, "We need around ₹ 550-660 crore to produce two LSP versions. We will move the necessary papers after the first flight."

Published in:
The Hindu

IGIB team discovers skin bacterium with antimicrobial activity

CSIR-IGIB

10th September 2017

7 peptides (From right) Bhupesh Taneja, Rohit Kumar & Rakesh Sharma sequenced the bacterial genome, identifying seven peptides with possible antibacterial activity.

Synthetic peptides with antimicrobial activity make microbe culturing redundant

Bacteria found on the skin are known to harbour a large repertoire of antimicrobial agents. A new bacterial strain of *Staphylococcus capitis* identified by scientists at Delhi's CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) has a strong antibacterial activity against Gram-positive bacteria, including *Staphylococcus aureus*. The work reconfirms the growing understanding that bacteria found on the skin may be a "rich source" of novel antimicrobial molecules. The results of the study were published in the journal *Scientific Reports*. The bacteria were isolated from the skin surface of a healthy human foot; the bacteria are specifically found near the toes. Different bacteria are found in different niches of the skin. For instance, bacteria found in the arm pit are different from those found on the feet. The antimicrobial activity helps the bacteria to secure their niche environment by preventing other bacteria, including pathogenic bacteria, from colonising. "The new bacterial strain identified by us and *S. aureus* are closely related and can thrive in the same niche on the skin. And this drives the competition between the two bacteria," says Dr. Rakesh Sharma from CSIR-IGIB and one of the corresponding authors of the paper. Staphylococci are common colonisers of human skin and the third largest genera identified in human skin microbiome.

Seven new peptides

The team led by Dr. Bhupesh Taneja and Dr. Sharma sequenced the genome of the bacteria and identified all the possible peptides that have antibacterial activity. In all, the new strain of bacteria has nine antimicrobial peptides, of which two (epidermicin and gallidermin) have already been characterised from other bacteria. "The other seven new peptides have been found to have antimicrobial activity," says Dr. Sharma. "To be absolutely certain about the antimicrobial activity that we see is from the peptides and not from any other biological material as a result of contamination, we tested the seven purified synthetic peptides against a set of select microbes. It was a qualitative test," says Dr. Taneja from CSIR-IGIB and other corresponding author of the paper.

Synthetic peptides

Synthetic peptides with sequences identical to the natural ones isolated from the bacteria were synthesised by the team. The synthetic peptides were found to possess antibacterial activity, opening the window to developing new antimicrobial compounds. "Since the purified synthetic peptides are inhibitory, it not only confirms the antimicrobial activity but also shows that the synthetic peptides can be used directly without actually culturing the microbes," says Dr. Taneja. The researchers would next study the minimum inhibitory concentration (the lowest concentration of an antimicrobial that will inhibit the visible growth of a microorganism) required by the peptides and test it against more species of Gram-positive bacteria and specifically against drug-resistant *S. aureus*.

Besides isolating the peptides responsible for antimicrobial activity, the researchers have identified the genes responsible for other functions such as adhesion, acid stress tolerance, colonisation and survival on human skin. "We studied the bacteria to understand the different adaptation strategies and unique features that allow them to thrive on the skin," says Dr. Sharma. The team has been isolating bacteria from the skin and studying their roles. The researchers had earlier reported another bacteria from human skin with antimicrobial activity. And in a paper published in May this year, they reported the discovery of a new Gram-positive bacterial genus — *Auricoccus indicus*. The bacteria were isolated from the external ear lobe of a healthy individual.

Published in:
The Hindu

VITILGO: Doctors for early treatment for better results

CSIR-IGIB

10th September 2017

Early treatment of vitiligo—an autoimmune disorder that occurs when the immune system misfires against its own melanocytes (the cells that give our skin its color), causing white patches— can deliver better and quick results, dermatologists have said. According to an estimate, of the 1 per cent of world's population suffering from vitiligo, 8.8 per cent of the cases i.e. around eight crore are recorded in India, 25 per cent of them are children. And, since, vitiligo can leave a patient under immense emotional stress — feeling isolated and depressed as the disease is often equated with leprosy, early treatment becomes all the more necessary, they said. In vitiligo, colour-producing cells are lost from areas of skin, leaving behind white spots. The spread of de-pigmentation is unpredictable, ranging from days to years. Since, there are no accurate treatment for the disease, mostly therapeutics are available to address this unmet medical need, said dermatologist Dr Devesh Mishra.

Seemal R Desai, clinical assistant professor of dermatology at the University of Texas Southwestern Medical Center, in his blog says that the advantage of catching this early is when the skin is just lighter and not fully depigmented. Vitiligo treatment goals are to stabilise the disease process, add pigment back and maintain this effect. Certain steroid creams cool inflammation and ointments containing tacrolimus or pimecrolimus (calcineurin inhibitors) may also be effective, he says. In some cases, therapy can lighten the unaffected skin so that it blends better. Light therapy and/or surgery is also options, he added. Much hopes are also from the National Chemical Laboratory and Institute of Genomics and Integrative Biology (IGIB), both labs of the Council of Scientific and Industrial Research (CSIR) which in June inked a patent licensing pact with Pune-based Ahammune Biosciences for developing the drug to arrest the progress of Vitiligo and to induce repigmentation of depigmented patches.

Pharmaceutical companies are also promoting herbal products for treatment of vitiligo. The poly-herbal drug, 'Lukoskin', developed by the scientists of the Defence Research and Development Organisation (DRDO) under the Union Defence Ministry is now under marketing and commercial production by Delhi-based AIMIL Pharmaceuticals India Ltd. The ointment has seven herbal ingredients having properties such as skin photo sensitizer, anti-blister, anti-irritation, anti-septic, wound healing and copper supplementing properties while the oral dose has been formulated to check the emergence of new spots, said KK Sharma of AIMIL Pharma. While in medical science, vitiligo is an autoimmune disorder, ayurveda categorises it as kustha. The most common causative factor is inappropriate food combinations or 'opposite diet' which is the result of our fast-paced lifestyle, according to the ayurveda experts. Gaurang Joshi, an ayurveda skin specialist and the Director of the Atharva Multispeciality Ayurveda Hospital, Rajkot said vitiligo is caused by the aggravation of pitta dosha, an Ayurvedic humor which symbolizes heat or fire, and is manifest in the skin. Aggravated pitta leads to accumulation of ama(toxins) in deep layers of the skin, leading to the condition of leucoderma. Treatment consists of pacifying imbalanced body energies, cleansing the blood and administrating herbs that restore the skin's natural color. An essential part of treatment is restoring digestion through correct diet and lifestyle adjustments to prevent recurrence of the disorder, says Joshi. Dr Ravish Kamal, of Ayurhealthline said that ayurveda is a herb based treatment which basically acts on the root cause of the disease and there is much possibility of successful vitiligo treatment. The herbs acts on pigment producing cells to get colouration over white patches, he added. Unani researcher Dr MA Waheed with his team at the Central Research Institute of Unani Medicine (CRIUM), a premier research body of the Union Ayush ministry has developed Unani formulation which is drawing huge response. According to Dr Waheed, "Gujarat and Rajasthan have the highest prevalence in terms of patients seeking treatment. But if the patients, who do not seek medical attention, are also included then the incidence of leucoderma is very high in the coastal areas of Kerala, Tamil Nadu, Andhra Pradesh, West Bengal and Gujarat."

Published in:
Daily Pioneer

CSIR

11th September 2017

Panel studying cow derivatives gets 54 proposals

PTI ■ NEW DELHI

A Government panel set up to carry out "scientifically validated" research into cow derivatives, including its urine, and their benefits has received 54 proposals, committee co-chairman Vijay Bhatkar has said.

He said of these, 27 were selected and clubbed into 17 broad proposals under five thematic areas of research — uniqueness of indigenous cows, medicine and health, agriculture applications, food and nutrition and the scientific validation of Panchagavya-based utility products.

Panchagavya is a concoction of cow dung, cow urine, milk, curd and ghee.

"We have decided to go for more projects and invite institutes working on the subject," Bhatkar said.

The proposals, focusing on different aspects of cow research, have come from laboratories under different Ministries of the Central Government.

Bhatkar, who is the president of Delhi-based Vijnana Bharati, an RSS-affiliated science body, said the committee had decided to widen its ambit and look at research on "cow ecology," which could include aspects such as energy and indigenous breeds.

The national programme SVAROP (Scientific Validation and Research on Panchagavya) is being conducted by the Department of Science and Technology, Department of Biotechnology and the Council for Scientific and Industrial Research (CSIR) of the Ministry of Science and Technology, in collaboration with IIT-Delhi.

The committee has decided to widen its ambit and look at research on 'cow ecology,' which could include aspects such as energy and indigenous breeds

VIJAY BHATKAR, PRESIDENT OF VIJNANA BHARATI

The 19-member National Steering Committee, headed by Science and Technology Minister Harsh Vardhan, will decide the course of SVAROP.

A committee member, who requested anonymity as panel members are not authorised to speak to the media, said a decision has been taken to form joint committees under different Ministries covering the five themes.

"The word Panchagavya is being widely misconstrued and this was discussed during the meeting. Steps will be taken to address the perception problem by the Minister himself," the panel member added.

Apart from Bhatkar, the panel also has two members linked to the RSS and the Vishva Hindu Parishad.

The two members are Jaykumar, the secretary general of Vijnana Bharati, and Sunil Mansinghka, whose Nagpur-based Go Vigyan Anusandhan Kendra is affiliated to the VHP.

Published in:

The Pioneer, Page no. 5

Also published in:

Financialexpress.com

Indianexpress

CSIR-NEERI starts Jigyasa programme in KVs of Vidarbha

CSIR-NEERI

9th September 2017

Nagpur: With Council of Scientific and Industrial Research (CSIR) and Kendriya Vidyalaya Sanghatan signing a memorandum of understanding, the CSIR-National Environmental Engineering Research Institute (Neeri) will implement the 'Jigyasa' programme in all the KVs of Vidarbha.

A student-scientist connect programme, Jigyasa aims at connecting school students and scientists to extend classroom learning to research and laboratory-based learning. Neeri recently participated in the social science exhibition-cum-national integration camp that was organized by Kendriya Vidyalaya, Ajni. The students of seven Kendriya Vidyalayas of Vidarbha had participated.

A team of Neeri scientists, led by chief scientist JS Pandey, evaluated the various projects based on themes like plastic — a new and powerful enemy of environment, malnutrition, globalization and role of women in freedom struggle. The scientists interacted with students and guided them in environmental science and engineering.

Published in:
Times of India

‘Concrete surface laid Mumbai low during deluge’

CSIR-NEERI

11th September 2017

MUMBAI: Scientists studying the August 29 deluge in Mumbai have concluded that a major reason was concretization of over 75% of the city's surface, which prevented rainwater from seeping into the ground. A set of four satellite maps covering much of the Mumbai Metropolitan Region's land use pattern over a 90-year period shows that concretization increased from 12% in 1925 to 24% in 1967 to 52% in 1994. The sharpest increase has been since then, caused by rapid construction activity and urbanization in the post-liberalization decades. At the same time, the proportion of forests, agricultural land and wetlands has steadily reduced from 88% in 1925 to under 25% now. Sample this: while 10-40% of rainfall on green areas is converted into run-off, the rest percolating into the ground, 70-95% of rainfall on paved or concreted areas becomes run-off, contributing to flooding, says professor Kapil Gupta from the department of civil engineering, IIT-Bombay. Given the extent of development in the region, the only solutions to guard against another flood are boosting drainage and creating artificial rainwater seepage mechanisms in housing societies and commercial complexes, scientists say. The increasing incidence of short spells of intense rainfall has experts studying measures that can be adopted at a very local level to prevent flooding. IIT's civil engineering department is conducting research into bio-retention-cum-detention ponds for reducing urban flooding. These structures can be set up in housing complexes, said Professor Gupta. "We are also about to study the efficiency of green

roofs for reducing overflow," he said. On why urban flooding has become a serious issue today—as evidenced not only by Mumbai, but also the Houston deluge—senior scientist Rakesh Kumar of the National Environmental Engineering Research Institute (NEERI) said, "Open areas on the ground have been paved off, and slopes of structures are not right, making rainwater run-off move very fast, causing floods. There is a need for urban flood modelling scenarios for small areas."

As per Mumbai's Existing Land Use-2012 document prepared by the BMC, 65% of Mumbai is built upon (scientists say the figure now is above 75%), 35% is undeveloped, including 27% of natural areas (the last two figures are now much lower, as per scientists). Gupta said proper cleaning of nullahs is a must to ensure water flows unhindered. The widening and deepening of rivers and drains must be done scientifically, based on knowledge of hydrology and hydraulics of river and drainage systems. The sizing of pumping stations should also be done similarly, he said. "These should be able to pump out rainwater to the sea at the same rate it falls over the catchment. For instance, in Mumbai, the machines should ideally be able to pump out rainwater received at 100 mm per hour for three hours (thus, 300 mm in three hours)."

If adequate pump capacity or drain size is not available, holding ponds or other storages, such as bio-retention structures, detention ponds, green roofs, porous pavements, and rainwater storage tanks on building premises must be provided to store water that will be in excess of pump capacity for subsequent release.

Published in:
The Times of India

Also published in:
DNA India

CSIR-CFTRI announces five weeks Skill Development Programme on Baking Technology

CSIR-CFTRI

11th September 2017

Mysuru, September 09:- In tune with the successful existence of International School of Milling Technology (ISMT) established in 1981 in the campus and contributing to the highly skilled Flour Milling professionals across the globe, the Institute has now conceptualised another centre, National School of Baking Technology which would set a benchmark in terms of quality and standards of bakery products in the country. Initially, a 5-weeks programme has been announced and in the due course it will be upgraded as a full-fledged 6-month programme. The unique programme catering to the Baking Industry will commence from the first week of November. The duration of the course is for five weeks in which the participants will be trained on choice of quality ingredients, product development, quality aspects, including the establishment of sustainable and hygienic Bakery units.Those who have completed Matriculation can seek admission to the course. The Medium of Instruction will be English. The programme will be a boon to the large number of personnel employed in the unorganized sector and the budding entrepreneurs. The Institute has advanced infrastructural facilities for Baking processes which include: Roller Flour Mill Plant with a capacity of 20 Tonnes/day, Chakki Atta Plant with 10 Tonnes/day capacity, Analytical laboratory for physico-chemical characterizations, Rheology laboratory, Pilot-scale baking and extrusion etc. The expert faculty involved in Research and development and product development in the Institute will be associated with the training.The Fee for the programme is fixed Rs. 30000/- (Rupees Thirty Thousand only)

whichinclude GST as well.The admission will be done on 'First Come First Served Basis'. The intake for the programme is restricted to 25 numbers.

The accommodation has to be arranged by the individual participants.A Certificate will be awarded to the successful candidates at the end of the programme. For further details please contact : Head, Flour Milling & Baking Technology Department, CSIR-CFTRI, Mysore 570 020 (Ph. 0821-2517730 Email : fmbct@cftri.res.in)

Published in:
City Today

The signature wine of Araku

CSIR-CFTRI

9th September 2017

Get ready to clink your wine glasses and say cheers to Araku's jackfruit wine

Sometimes it is the most underrated and under-appreciated of things that emerge as the show-stealer. In the case of Vizag, it could well be the humble jackfruit that is set to create a home-grown fine wine revolution. This bright green and fantastic fruit, grown in abundance in the Araku region, will soon be a major draw for tourists from across the country and abroad, once the Girijan Cooperative Corporation (GCC)'s pilot project of making jackfruit wine gets completed. For who can resist the temptation for something that manages to be both fruity and held down, yet jaunty and refreshing at the same time? And if all goes well, Vizag could well be known for its jackfruit wines just the way Goa is synonymous with its locally produced alcoholic spirit feni.

First-version review

Metroplus got a chance to taste the first version of the jackfruit wine and it surely felt like a winner! If there's an obvious fresh fruit, it reaches in that direction and yet never quite gets there. Toasty and fruity, the aroma seems unlikely for a wine of such junior age and modest alcohol. To drink, it's a bit gooey. If you don't like acid, this can be somewhat reassuring, and perhaps even comforting wine. It's soft without being sweet. Clean and white, it creates the luscious mouth-feel and gives us just a kiss of jackfruit. The first trial session of producing the jackfruit wine has got a thumbs-up from Mysore's Central Food Technological Research Institute (CFTRI). Buoyed by the initial positive response, GCC is determined to further refine it to turn it

into the best of fine wines available in the market and a signature wine of Araku. “CFTRI gave us a very encouraging feedback and said it was a good sample. In the first samples, the alcohol content is around 5 % which can be enhanced to 7 % with some modifications. The final sample will be the best versions and we are working hard on it,” says GCC Managing Director A.S.P.S. Ravi Prakash. A team will head to CFTRI next month to get training on improving the current version of jackfruit wine. Once the final version is tried and tested, it might just become your new favourite! The national fruit of Bangladesh, jackfruit is sustainable, organic and GMO-free. India produces approximately 70 percent of the world’s crop. In peak season, Vizag alone produces 100 lorry loads of the fruit, with each load having 10 tonnes of jackfruit. These enormous jackfruits are scattered all over the Agency Area. “We saw that it was one of the most underutilized crops that the farmers in the tribal areas could capitalise on. Even after local demands are met, huge loads of these fruits are wasted or left unused,” Prakash says. GCC’s plan is to have a small plant that would make the wines in Araku and offer training to the locals.

The process of making

We learnt the process of making the jackfruit wine from the experienced and friendly J. Yustus, Deputy General Manager of GCC, who is overseeing the wine project. “It is a simple, linear process. Just that the measurements should be perfect,” he explains. For making the wine, the bulbs are cut into small pieces, boiled and then ground. Sugar syrup is made separately and set aside. “For every 2 kg of bulb, we use 500 gms of sugar,” he adds. After adding warm water (3 litres) to the ground bulbs, sugar syrup and yeast is added for fermentation. This concoction is then kept in a mud pot at a dark place for 18 days. Finally, the top part of the liquid is filtered out for the wine. “The CFTRI directed us to carry out some minor corrections and adjustments to improve on the final product. Adding some other catalysts other than yeast will help enhance the alcohol percentage. There are plans to also introduce a non-alcoholic version of jackfruit drink in tetra packs,” says Yustus. GCC isn’t stopping just at this. To make its signature jackfruit wine of a world-class standard, it is planning to also reach out to the Defence Food Research Laboratory for further inputs and

has already collected samples from Coorg where jackfruit wines are produced at the homes of local villagers. While this season of jackfruit is coming to an end, get ready to clink your wine glasses and say cheers to Araku's signature jackfruit wine which is coming soon.

Fruity Essence

Endemic to this part of the world, Jackfruit trees can grow as tall as 60 feet and yield up to 3 tonnes of fruit annually. It has various health benefits. It is low in sodium, cholesterol and saturated fats. Also a rich source of vitamins A and C, it does not contain any sugar.

Published in:
The Hindu