GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY

DEPARTMENT OF BIOTECHNOLOGY

MINISTRY OF SCIENCE & TECHNOLOGY , GOVERNMENT OF INDIA

Biotechnology Career Advancement and Re-orientation (BioCARe) Programmes

Overview:

With the aim to promote Women in science and in an attempt to enhance the participation of Women Scientists in Biotechnology Research, the Department had launched Biotechnology Career Advancement and Re-orientation Programme (BioCARe), a special scheme of the Department in the year 2011. The purpose is to enhance participation of women scientists in India towards research in Biotechnology and allied area. The programme is mainly for career development of unemployed female scientists upto the age of 55 years for whom it is the first “sanctioned” extramural research funding. This scheme gives an opportunity to unemployed Women Scientists and also to those who are not in regular positions or had a break in their careers to get first independent research grant including fellowship and thus a chance to get back to the mainstream of Science. Through this endeavour of the Department, a concerted effort would be made to give women scientists a strong foothold into the scientific profession, to help them re-enter into the mainstream and to provide a launch pad for further forays into the field of science and technology.

Mandate:

To build capacities for Women scientists after a career break so as to help them undertake independent R&D projects. To open opportunities to unemployed women scientists and also to those who are not in regular positions or had a break in their careers to be back to the mainstream by getting their first research grant as Principal Investigator.

Thrust Areas:

- Animal and Marine Biotechnology and allied areas
- Bioengineering and Biomaterials and allied areas
- Medical Biotechnology and allied areas
- Environmental Biotechnology and Bioenergy and allied areas
- Plant and Agriculture Biotechnology and allied areas

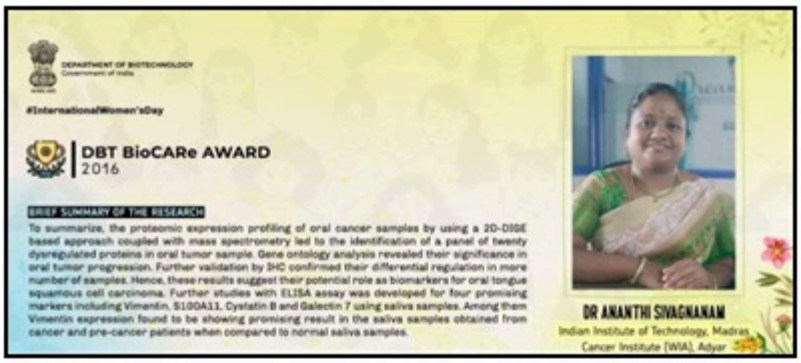
New Initiatives:

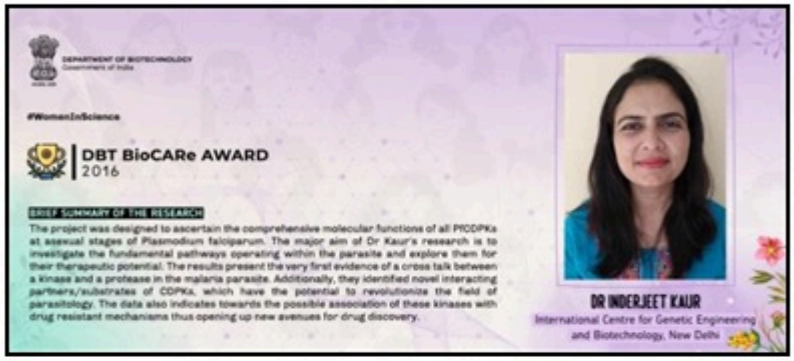
Launch of next call targeting unemployed Women scientists, including those who wish to re-join the mainstream research.

Achievements:

- Five calls have been announced so far under the programme
- So far 364 Women scientists have been supported in various areas of Life Sciences.
- Around 400 papers published
- 11 patents filed including one international patent granted
- 145 posters presentations have been made and 26 have won awards at various platforms
- One scientist has been awarded “Jeanie Borlaug Laube Women in Triticum Early Career Award” by Borlaug Global Rust Initiative.

Success Stories:


DEPARTMENT OF BIOTECHNOLOGY
Government of India
#InternationalWomen'sDay
DBT BioCARe AWARD
2016
BRIEF SUMMARY OF THE RESEARCH
To summarize, the proteomic expression profiling of oral cancer samples by using a 2D-DIGE based approach coupled with mass spectrometry led to the identification of a panel of twenty dysregulated proteins in oral tumor sample. Gene ontology analysis revealed their significance in oral tumor progression. Further validation by IHC confirmed their differential regulation in more number of samples. Hence, these results suggest their potential role as biomarkers for oral tongue squamous cell carcinoma. Further studies with ELISA assay was developed for four promising markers including Vimentin, S100A11, Cystatin B and Galectin 7 using saliva samples. Among them Vimentin expression found to be showing promising result in the saliva samples obtained from cancer and pre-cancer patients when compared to normal saliva samples.
DR ANANTHI SIVAGNANAM
Indian Institute of Technology, Madras
Cancer Institute (WIA), Adyar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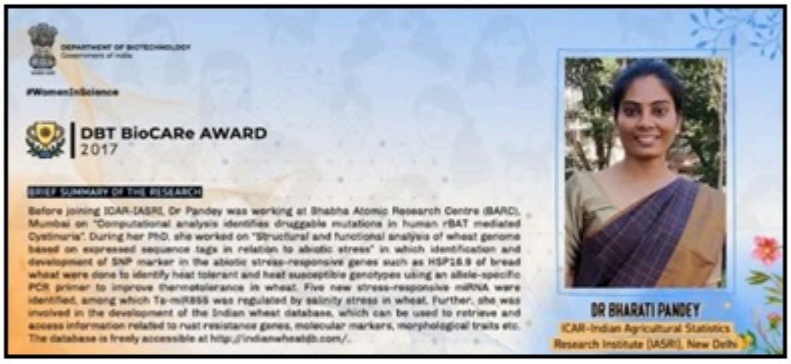
Government of India
#WomenInScience
DBT BioCARe AWARD
2016
BRIEF SUMMARY OF THE RESEARCH
The project was designed to ascertain the comprehensive molecular functions of all PfCDPKs at asexual stages of Plasmodium falciparum. The major aim of Dr Kaur's research is to investigate the fundamental pathways operating within the parasite and explore them for their therapeutic potential. The results present the very first evidence of a cross talk between a kinase and a protease in the malaria parasite. Additionally, they identified novel interacting partners/substrates of CDPKs, which have the potential to revolutionize the field of parasitology. The data also indicates towards the possible association of these kinases with drug resistant mechanisms thus opening up new avenues for drug discovery.
DR INDERJEET KAUR
International Centre for Genetic Engineering and Biotechnology, New Delhi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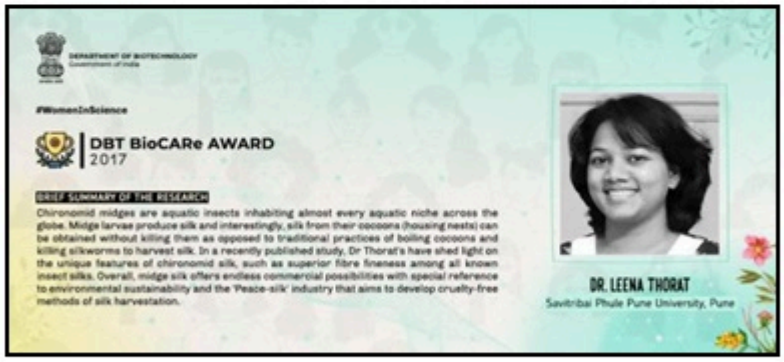
2017
BRIEF SUMMARY OF THE RESEARCH
Before joining ICAR-IASRI, Dr Pandey was working at Bhabha Atomic Research Centre (BARC), Mumbai on "Computational analysis identifies druggable mutations in human rBAT mediated Cystinuria". During her PhD, she worked on "Structural and functional analysis of wheat genome based on expressed sequence tags in relation to abiotic stress" in which identification and development of SNP marker in the abiotic stress-responsive genes such as HSP16.9 of bread wheat were done to identify heat tolerant and heat susceptible genotypes using an allele-specific PCR primer to improve thermotolerance in wheat. Five new stress-responsive miRNA were identified, among which Ta-miR855 was regulated by salinity stress in wheat. Further, she was involved in the development of the Indian wheat database, which can be used to retrieve and access information related to rust resistance genes, molecular markers, morphological traits etc. The database is freely accessible at http://indianwheatdb.com/.
DR BHARATI PANDEY
ICAR-Indian Agricultural Statistics Research Institute (IASRI), New Delhi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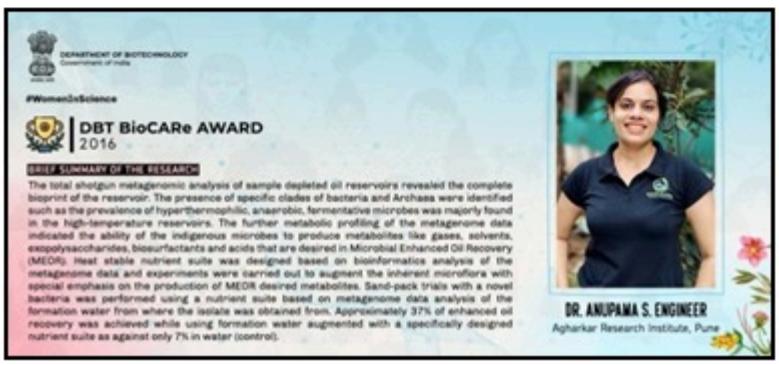
2017
BRIEF SUMMARY OF THE RESEARCH
Chironomid midges are aquatic insects inhabiting almost every aquatic niche across the globe. Midge larvae produce silk and interestingly, silk from their cocoons (housing nests) can be obtained without killing them as opposed to traditional practices of boiling cocoons and killing silkworms to harvest silk. In a recently published study, Dr Thorat's have shed light on the unique features of chironomid silk, such as superior fibre fineness among all known insect silks. Overall, midge silk offers endless commercial possibilities with special reference to environmental sustainability and the 'Peace-silk' industry that aims to develop cruelty-free methods of silk harvestation.
DR. LEENA THORAT
Savitribai Phule Pune University, Pune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2016
BRIEF SUMMARY OF THE RESEARCH
The total shotgun metagenomic analysis of sample depleted oil reservoirs revealed the complete bioprint of the reservoir. The presence of specific clades of bacteria and Archaea were identified such as the prevalence of hyperthermophilic, anaerobic, fermentative microbes was majorly found in the high-temperature reservoirs. The further metabolic profiling of the metagenome data indicated the ability of the indigenous microbes to produce metabolites like gases, solvents, exopolysaccharides, biosurfactants and acids that are desired in Microbial Enhanced Oil Recovery (MEOR). Heat stable nutrient suite was designed based on bioinformatics analysis of the metagenome data and experiments were carried out to augment the inherent microflora with special emphasis on the production of MEOR desired metabolites. Sand-pack trials with a novel bacteria was performed using a nutrient suite based on metagenome data analysis of the formation water from where the isolate was obtained from. Approximately 37% of enhanced oil recovery was achieved while using formation water augmented with a specifically designed nutrient suite as against only 7% in water (control).
DR. ANUPAMA S. ENGINEER
Agharkar Research Institute, Pune

Mega Events :

Glimpse of Women Scientists & Entrepreneurs Conclave titled **"Women Scientists & Entrepreneurs: Contributing towards transforming India"** organized during 4th India International Science Festival 2018 to promote and encourage science education and entrepreneurship among the young Women. Various sessions were organized to showcase the role and contribution of Women Scientists & Entrepreneurs in transforming India. A poster and exhibition session was also part of the conclave where researchers and entrepreneurs showcased their work through posters and stalls.

A Photo Exhibition titled **" Celebrating Indian Women in Science: An Incredible Journey"** was organized in March, 2019. The aim was to remember, acknowledge and showcase the stories of great Indian Women scientists on International Women's day, who have contributed to the development of science through their outstanding work.

Glimpse of the DBT-BioCARe Conclave with the theme **" Women Scientists Achieving Great Heights"** organized on 8th and 9th March, 2019, New Delhi. Various sessions were organized where the beneficiaries of the scheme shared their success stories before and after getting their first

independent BioCARe R&D projects and how it made an impact in their careers. A large number of students also participated in the event alongwith scientists and researchers

Glimpses of **International Summit on Women in STEM–"Visualizing the Future: New Skylines "**, organized in January, 2020 to encourage the next generation to participate in the STEM fields and at the same time assess the success of the various efforts of 'women in STEM activities'. Large number of women scientists, researchers and students participated in the event and benefitted from the lectures and panel discussions.

Achievements :

BioCARe Women scientists working towards achieving objectives of their first independent research projects.

To apply for the fellowship, please visit:

For Notification https://dbtindia.gov.in/
For Proposal Submission https:///fellowships.gov.in/

Contacts Concerned Officer for more Information

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