

Krishnan, the leader of the project, 'long-term monitoring of Kongsfjorden for climate-change studies'.

Climate change is felt first and fastest in the Arctic. It manifests

variability, would also provide inputs in the understanding of the Arctic processes and their influence on the Indian monsoon system through climate modeling studies, explained Dr. Krishnan.

commercially.

The browning of the mushroom is caused by the enzyme polyphenol oxidase (PPO) and the above effect may be got by removing the

Cultivating genetically modified crops is a huge industry which may be undergoing a massive rethink involving a three-pronged argument. On the industry on side, the hold

complex procedures will be initiated and so the whole process of regulating these products will need to be reviewed as and when that happens.

Right man, right time, right place - Ramachandran

» SPEAKING OF SCIENCE

As fields in Science and Technology go, the two buzzing ones, namely biotechnology and information technology have been the "newbies." Started just about 35-40 years ago, these two have captured both the best minds and the best market. And India, happily enough, has contributed both to the science and the technology in these two fields.

Talking about biotechnology, people at the helm of affairs in India understood the value of this new science already by 1980, and decided to set up machinery to promote it. The Planning Commission (which had the agriculture scientist Dr. M S Swaminath-

an in it) and the Ministry of Science and Technology (which had the chemist/technologist Dr S Varadarajan in it) got together and set up the National Biotechnology Board (NBTB) in 1982. And they handpicked and invited Dr S Ramachandran (then at the Bengal Immunity in Calcutta) to join it as its Member Secretary.

They could not have done better! It was the right man, at the right time, at the right place, doing the right thing. And as we pay our homage to this great soul (who passed away last month at the age of 82), let us reflect on his stellar contributions to promote and sustain this field of biotechnology as the Founder Secretary of the Department of Biotechnology (DBT) from 1986 for seven years.

It was the right time. Sig-



Dr. S. Ramachandran
File Photo

nificant number of young Indian biologists, having learnt some aspects of this blossoming field abroad, had returned home, and were looking for opportunities. Ramachandran understood this and nurtured them, with passion, at several universities and research centres. Indian Institute of Science Ben-

galuru, Madurai Kamaraj University, M S University Baroda, Anna University Chennai, JNU Delhi, University of Delhi South Campus, Pune University, University of Hyderabad, as well as the CCMB at Hyderabad and Im-Tech Chandigarh are just some examples. He helped organise workshops, hands-on practical courses, special lectures, push people to write text books in biotechnology (I was one such, along with the late Dr Kunthala Jayaraman and Prof. K. Dharmalingam, both from MKU), offer grants for equipment and lab facilities. And these were done at speed and with a smile. And he was usually there on the spot, encouraging youngsters. Much of the advances these centres have made over the years have largely been due to the initia-

tive of Ramachandran, and several of today's 'biggies' in biotechnology research in India owe their stature to the leg-up that he offered them then.

Ramachandran realised the importance of combining biology with the other sunrise field of information technology, and joined hands with Dr N Seshagiri (then secretary of National Informatics Centre) and put together the Biotechnology Information System Network (BTIS Net), which was propagated across the country through able scientists (such as Profs. Dharmalingam, Ashok Kolaskar, M Vijayan, Manju Bansal, MW Pandit and others). Indeed, I recall the first ever e-mail I sent in my life was thanks to the Distributed Informatics Centre we had at CCMB, as part of

BTIS Net.

Encouraging biotech industries and supporting them was another important initiative of Ramachandran. Dr Kiran Majumdar Shaw, perhaps the earliest biotech entrepreneur in India, writes in very warm words about him, and Dr Padmanabhan Babu, a scientist at TIFR, Mumbai, who started his own company, is another example. Vaccines was another area that Ramachandran encouraged and supported. It is worth noting here that today India supplies over 45 per cent of the world's childhood vaccines. Happily enough, his successors Dr C R Bhatia (1993-96), Dr Manju Sharma (1996-2004), Prof MK Bhan (2004-12) and now Prof K Vijayaraghavan (2013- to date) have built on the foundation that Ramachandran laid, and

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today DBT runs on a budget of about Rs 1,800 crores this year compared to Rs 20 crores in 1997-98, doing better and better with time. True to his humility, when Ramachandran was honoured with the Padma Bhushan in 2011, he said: "I share this honour with my colleagues who helped build the DBT."

I had the pleasure of interacting with him often and was struck by his "can-do" spirit, the positive enthusiasm with which he would describe the work of some youngster or the other, and his ever present smile. He enjoyed literature and music—be it Beethoven or Balamuralikrishna, Dvorak or Dikshitar. But he was a tough taskmaster as well. I recall his term as a member of the research advisory board of CCMB Hyderabad, where I

worked. His questions were incisive, and his displeasure with half-baked answers, made us nervous, pushing us to be precise and to the point. I had more opportunities to interact with him closely when I was a Fogarty Visiting Scientist at the NIH in Bethesda, MD, USA and he was a Fogarty Scholar in Residence, and I could see his passion to bring all that is possible in biology to India. Indeed, Dr. Ramachandran was the man of the moment for India when the field of biotechnology was just emerging, and we in India owe a lot to this pioneer who led by example. It is thus so fitting that the DBT has initiated an annual S. Ramachandran Lecture series in homage to its founder.

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