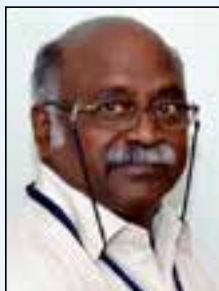




## National Award for Polar Science & Cryosphere

### Dr. S. Shivaji



Dr. S Shivaji after his M.Sc. from BITS, Pilani in 1973 obtained his Ph.D. from University of Delhi in 1978. He worked as a scientist and retired as Director-grade Scientist at the Centre for Cellular and Molecular Biology, Hyderabad, in 2012. He was co-founder and Scientist-in-charge of LaCONES (The laboratory for the Conservation of Endangered species) between 2005-2012. Presently, he is the Director of Prof. Brien Holden Eye Research Institute and LV Prasad Eye Institute, Hyderabad.

Dr.Shivaji's research (1985-2015) focused on the microbiology of the cryosphere and included some of the coldest regions of the world like Antarctica, Arctic, Himalayan glaciers, deep sea and the stratosphere.

Dr.SShivaji's persistent studies on the microbiology of the Polar Regions and the cryosphere over 3 decades (1984-2015) have lead to identification of more than 1000 species of bacteria including 80 new species of bacteria with unique biotechnological potential. Very few microbiologists in the world have achieved this feat of identifying 80 new species. His significant contributions in Polar Sciences and Cryosphere are: (1) Identification of 8 new genera and 80 new species of bacteria from Antarctica, Arctic, Himalayan glaciers, deep sea and the stratosphere (2) First evidence of seven new species of bacteria from the stratosphere including *Bacillus isronensis*, *Bacillus stratosphericus* and *Bacillus aryabhataii* in honor of ISRO, Stratosphere and Aryabhata respectively, (3) Discovered a new fatty acid desaturase gene essential for the survival of life forms at low temperature, (4) Established that genes aspartate aminotransferase and tRNA modification GTPase are required for survival of life forms at low temperature, (5) Established that differential synthesis of polar and non-polar carotenoids is crucial for low temperature survival, (6) Several bacterial isolates from the cryosphere produce cold active proteases and lipases with applications in biotechnology industries, (7) Research on the biodiversity of psychrophilic bacteria has attracted recognition and collaborations both within the country and countries abroad, (8) Genome sequencing has been completed for about 20 bacteria from cryosphere to identify genes involved in growth and survival at freezing temperatures.



Dr. S Shivaji has published about 160 peer reviewed papers in Polar Science & Cryosphere related to bacterial diversity, survival strategies and biotechnological potential of cold loving microorganisms. He is a fellow of National Academy of Sciences, India, Indian Academy of Sciences, India, TelanganaAkademi of Sciences, India, and Fellow of the Association of Microbiologists of India. In recognition of his work in the area of Antarctic Microbiology the government of India awarded him the Antarctica Award in the field of Biological Sciences in 2002. He is a recipient of the first Carl Woese Memorial award, 2014, by the Association of Microbiologists of India.

In recognition of his outstanding contribution to Polar Science & Cryosphere, the Ministry of Earth Sciences honors Dr. S. Shivaji with “National Award in Polar Science & Cryosphere” for the year 2016.