

NCCS scientists find new microbial species, name it after DBT Secretary

By Sunderarajan Padmanabhan

New Delhi, January 28: The Sambhar Lake in Rajasthan is India's largest inland salt lake. Being a hypersaline ecosystem, i.e. one with very high salt concentrations, it is likely to harbor hitherto unknown microbial communities. Consequently, it provides microbial ecologists with a unique opportunity to study halophiles, i.e. microorganisms that grow well in the presence of salt concentrations so high that they inhibit the growth of most other microbes. Yet, the microbial ecology of this lake is poorly studied, especially with respect to a specific kind of microorganisms called "archaea".

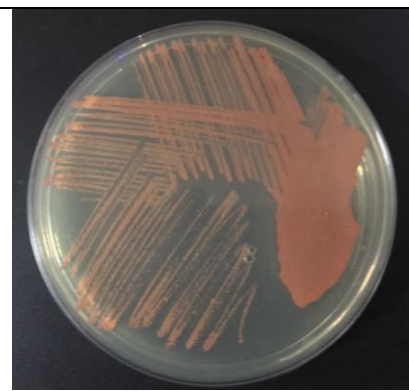
These are the most primitive group of life forms, and one of the three main domains of life, the other two being eukaryotes (plants, animals, fungi & protists) and bacteria. Archaea are microorganisms that are similar to, but not same as bacteria. They are mainly found in extreme environments like hot springs, cold deserts, and highly saline, acidic, or alkaline environments. They are very difficult to grow in the laboratory due to several challenges such as sensitivity to detergents and impurities in the growth media, and limitations in exact replication of the physico-chemical conditions of their natural habitat in the laboratory, etc. Therefore, archaea grow very slowly in the laboratory, and very few researchers are involved in growth-based studies on these complex organisms.

The dearth of studies on archaea from the Sambhar lake prompted scientists at the National Centre for Cell Science (NCCS), Pune, to take on the challenge of exploring this lake for archaea, which led them to discover a novel archaeal species, *Natrialba swarupiae*. They named the species after Dr. Renu Swarup, Secretary, Department of Biotechnology, Government of India, in recognition of her invaluable role in simplifying some of the provisions of the Biodiversity Act 2002 to ease the deposition of microorganisms in repositories for microbes (culture collections) located outside India.

The simplification of the provisions holds special relevance for the taxonomy (classification) of microorganisms, because when a novel microbial species is discovered, researchers are required to deposit it in at least two culture collections located in different countries, as part of the process of describing and naming it, so that it can be formally recognized as a novel microorganism.

Dr. Swaup has also been instrumental in supporting microbial diversity research in India through her initiative in establishing India's largest microbial repository, the Centre of Excellence for National Centre for Microbial Resource (NCMR, formerly Microbial Culture Collection, MCC) at NCCS. It houses more than 2,00,000 culture holdings, which includes several different types of microbes collected from diverse environments across India. *Natrialba swarupiae* is formally recognized as a novel archaeal species through the recent research article published in the 'International Journal of Systematic and Evolutionary Microbiology'.

Natrialba swarupiae appears vibrantly-coloured when grown in the laboratory



Links related to this story -

News article published in the news paper:

<https://indianexpress.com/article/explained/this-word-means-archaea-6234091/>
The Indian Express, 25 January, 2020 - 'Explained: What is Archaea?'

Social media links:

Twitter (this was retweeted by @NCCS_Pune):

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Title of the research article:

'*Natrialba swarupiae* sp. nov. a halophilic archaeon isolated from a hypersaline lake of India'

Authors: Kajale S., Deshpande N., Pali S., Shouche Y., Sharma A.

Journal: International Journal of Systematic and Evolutionary Microbiology

Link to the research article:

<https://www.microbiologyresearch.org/content/journal/ijsem/10.1099/ijsem.0.003986>

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