DBT-NCCS scientist finds new bacterial species in Antarctica

New Delhi, Feb 12: Antarctica provides a unique opportunity for microbial ecologists to study the microbial diversity of a hostile and pristine environment. Unlike other ecosystems on earth, Antarctica is relatively untouched, with all research and other activities performed there being strictly controlled by the Antarctic treaty.

NCCS scientist collecting microbial samples in Antarctica

However, over the last few decades, human activities across the globe have had an influence on this region. For example, chlorofluorocarbons (CFCs) released into the atmosphere have led to severe depletion of ozone in the stratosphere over Antarctica. Since the ozone shield protects the earth's surface from Ultra Violet (UV) radiations, this 'ozone hole', as it is often called, has led to increased UV radiations.

Global warming is another major concern, with an increase in temperatures of the Antarctic region being evident over the last few years. This can directly impact the native populations of this region, including microorganisms. It has been observed that even a minor change in temperature can alter microbial communities. Global warming is therefore a major concern, since hitherto undiscovered microorganisms may consequently be lost from Antarctica. Therefore, microbial explorations of such pristine ecosystems are pertinent to obtain and grow as many microorganisms as is possible, and store them in microbial repositories. Given that such microorganisms usually have unique properties that enable them to thrive in extreme environments, they can often prove valuable for the development of products with industrial importance.

Microbiologist Dr. Avinash Sharma, a DBT/Wellcome Trust India Alliance Fellow at the National Centre for Cell Science (DBT-NCCS) in Pune, is one of the scientists who participated in the 38th Indian scientific expedition to Antarctica. He collected many samples from different locations in Antarctica, to study the microbial ecology of this ecosystem.

He and his team found a new species of bacterium from the glacier-fed sediment sample collected from Queen Maud Land near India's Maitri station. They named this species Marisediminicola senii, in memory of the late Subhajit Sen, a young researcher from the Indian Institute of Technology, Bhubaneswar, and the National Centre for Polar and Ocean Research, who lost his life in an accident at Antarctica, during the 37th expedition. The discovery of this new bacterial species was recently published in the prestigious International Journal of Systematic and Evolutionary Microbiology. The coauthors of this paper include two master's students, and their participation in research while still in college can serve as an inspiring example for other students.

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