

# Archaea

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**Context:** Scientists at the National Centre for Microbial Resource – National Centre for Cell Science (NCRM-NCCS) in Pune have **reported a new archaeon which they discovered in Sambhar Salt Lake in Rajasthan**

- **Archaea (singular archaeon) are a primitive group of microorganisms that thrive in extreme habitats** such as hot springs, cold deserts and hypersaline lakes.
- These slow-growing organisms are also present in the human gut, and have a potential relationship with human health.
- They are known for producing antimicrobial molecules, and for anti-oxidant activity with applications in eco-friendly waste-water treatment.
- Archaea are extremely difficult to culture due to challenges in providing natural conditions in a laboratory setting
- Sambhar Lake is also a hypersaline ecosystem which provides an opportunity for microbial ecologists to understand organisms that thrive in such concentrations.
- Based on the genome analysis, researchers found that the organism has potential gene clusters that helps maintain the metabolism of the archaea to survive in extreme harsh conditions.
- This particular organism also harbours specific pathways for DNA replication, recombination and repair.
- The new archaeon has been named *Natrialba swarupiae*, after Dr Renu Swarup, secretary, Department of Biotechnology,

## **Sambhar lake**

- India's largest inland salt lake
- Sambhar has been designated as a Ramsar site (recognized

wetland of international importance) because the wetland is a key wintering area for tens of thousands of pink flamingos and other birds that migrate from northern Asia and Siberia.

- Recently witnessed mass bird deaths