

## **MIC 202-P ARCHAEA - ECOLOGY, PHYSIOLOGY, BIOCHEMISTRY, GENETICS [P]**

**Course Credit: 1**

**Contact Hours: 30**

1. Isolation and culturing of archaea.
2. Identification of isolate:
  - 2.1 Biochemical tests for archaea.
  - 2.2 Extraction of archaeal pigment and characterization using UV-Vis spectroscopy.
  - 2.3 Cellular lipids - Extraction and chromatographic resolution of lipids.
3. Screening for hydrolytic enzymes.

### **References (Composite list for theory and practicals):**

1. Woese, C. R., Fox, G. E., (1977) Phylogenetic structure of the prokaryotic domain: the primary kingdoms. *Proc Natl Acad Sci USA*. 74: 5088–5090.
2. Blum, P., *Archaea: New Models for Prokaryotic Biology*, Academic Press.
3. Cavicchioli, R., *Archaea: Molecular and Cellular Biology*, ASM Press.
4. Garrett, R. A. and Hans-Peter, K., *Archaea: Evolution, Physiology and Molecular Biology*, John Wiley and Sons.
5. Howland, J. L., *The Surprising Archaea: Discovering Another Domain of Life*, Oxford University Press.
6. Barker, D. M., *Archaea: Salt-lovers, Methane-makers, Thermophiles and Other Archaeans*, Crabtree Publishing Company.
7. Munn, C., *Marine Microbiology: Ecology and Applications*, Garland Science, Taylor and Francis Group, N.Y.
8. Boone, D. R. and Castenholz, R. W., *Bergey's Manual of Systematic Bacteriology: The Archaea and The Deeply Branching and Phototrophic Bacteria*, Springer Science and Business Media.
9. Corcelli, A. and Lobasso, S., (2006) Characterization of Lipids of Halophilic Archaea. *Methods in Microbiology*, 35: 585-613.
10. Rothe, O. and Thomm, M., (2000) A simplified method for the cultivation of extreme anaerobic archaea based on the use of sodium sulfite as reducing agent, *Extremophiles*. 4: 247-252.



