

# ARSENATE REDUCTION BY SOME BACTERIA ISOLATED FROM INDUSTRIAL EFFLUENTS OF RAJSHAHI, BANGLADESH

M. A. SALEH & A. E. EKRAM

Microbiology Laboratory, Department of Genetic Engineering and Biotechnology, University of Rajshahi, Bangladesh

## ABSTRACT

Arsenic is a heavy metal whose significance in microbial ecology and as environmental toxins has recently been recognized. Arsenite, a reduced form of arsenic, is more toxic and mobile than arsenate. The aim of this study was to isolate the arsenic resistant bacteria from industrial effluents and to assess their ability to reduce arsenate to arsenite. Two different species of bacteria *i.e.* *Klebsiella oxytoca* and *Rahnella aquatilis* were isolated and these two could tolerate arsenic up to 260 mg/L and 220 mg/L respectively. Both the species showed maximum growth at pH 7.0. The maximum growth for *K. oxytoca* was observed at 30 °C while the maximum growth of *R aquatilis* was observed at 35° C. *K oxytoca* and *R aquatilis* showed 75% and 69% ability to reduce As(V) to As(III) respectively. So, they may potentially be used in the bioremediation of arsenic.

**KEYWORDS:** Arsenic, Industrial Effluents, *Klebsiella oxytoca*, *Rahnella aquatilis*