

# Tracing the Carbon sources for Arsenic-mobilizing bacteria in Bangladesh

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Arsenic (As) is a naturally-occurring element found in elevated concentrations in groundwater around areas of South and Southeast Asia. It is a carcinogen and poses health risks to populations that utilize groundwater with elevated levels. The prevailing hypothesis suggests that heterotrophic bacteria reduce iron at the subsurface, releasing any As bound to iron into groundwater. As the carbon sources for these bacteria are not well-characterized, this research attempts to examine DNA collected from bacteria in Bangladeshi groundwater and obtain the age of carbon that bacteria use to mobilize Arsenic. Microbial DNA was collected by filtering groundwater from Ariazahar, Bangladesh, in a 0.25km<sup>2</sup> area near a local stream with 200-300 ug/L dissolved As at 10km. The DNA was extracted and purified from the filters using several chemical reagents. The goal was to obtain 150 ug of pure DNA to date. The DNA was purified to Absorbance ratios of 260/280 >1.8 and 260/230 >2.0, but only 64ug of DNA were obtained so more filters must be processed in order to obtain a sizeable amount of pure DNA to date. Once the DNA is dated, an age for the carbon sources that Arsenic-mobilizing bacteria use will contribute more to understanding the factors that support Arsenic mobilization.