**STUDY OF VARIOUS METHODS FOR THE REMOVAL OF ARSENIC CONTAMINATION IN GROUND WATER**

**ABSTRACT**

High concentrations of arsenic in groundwater have caused great health problems all across the world. In the present field of study, different methodologies of arsenic removal has been studied by using some hybrid materials such as Activated Charcoal (charcoal) in addition with Ferric Chloride, Coarse Calcite along with Ferric Sulphate(hydrous) and Portland Cement. These hybrid materials were prepared by sol-gel and co-precipitation method. Sodium arsenite and sodium arsenate standard solutions were used for preparing standard solutions of arsenic of required concentration. AAnalyst200 Atomic Absorbtion Spectrometer (AAS) was used for measuring the residual concentration of arsenic after the remotion techniques and parameters like pH, reaction temperature, period of time and concentration of the adsorbate/coagulant were varied to study their effects on the elimination of arsenic. These hybrid or conflated materials showed assuring results in removing arsenic from the prepared samples.

The maximum efficiency showed by Activated Carbon (AC) was 96.22 percent at neutral pH, concentration: 8g/L and forced hydrolysis time period: 6 hours towards 0.05ppm As solution.

The maximum efficiency showed by HPPC was 95.84 percent for pH equals to 5.1, concentration: 15g/L and adsorption period- 8hours on 0.2 ppm As solution.

Coarse Calcite was the most efficient hybrid material which showed an efficiency of 99 percent at a concentration of 5g/L, pH: 4.0 and reaction time of 30 minutes against 5ppm As solution.

For the same concentration of 0.2ppm, these hybrid materials were analysed and it was found that both HPPC and Coarse Calcite have nearly same efficiency of 93 percent while activated carbon took out only 50% of the As.