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Investigation on Heavy Metals of Ground Water around Polyfibre Industry Harihara India

Kiran **kumar B R[1], Manjunatha N T[2], Nagarajappa D.P[3]**
**(Department of Civil Engineering, University UBDT College of Engineering, Davangere-577004, and Karnataka, India)*

ABSTRACT: The problem of environmental pollution due to toxic metals has emerged as a big concern now in most of the industrial belts. Many of the rivers, lakes and oceans have been contaminated by pollutants. The Tungabhadra River, once used as a major source of water is now entirely contaminated due to household, agricultural and industrial wastes while the original river is dried up at present, it is carrying industrial and municipal wastewater which is mainly used for the irrigation of crops because of cost and non availability of freshwater. The wastewater from municipal and industrial origin contains major essential plant nutrients and heavy metals. Heavy metals are generally not removable even after the treatment by wastewater treatment plant for cause's heavy metal contamination of soil and subsequently the food chain. The nineteen groundwater samples were collected and analyzed Heavy metals namely Chromium, and Zinc using Atomic Absorption Spectrometer.

Keywords: heavy metal, ground water, river

1. INTRODUCTION

Heavy metals contamination exists in aqueous waste stream from many industries such as metal plating, mining, tanneries, paints, car radiator manufacturing and as well as agricultural sources where fertilizers and fungicidal spray are intensively used. The presence of heavy metal ions from the transition series, viz. Cr, Zn, Cu, Pb, etc. in the environment is of major concern due to their toxicity to many life forms. Unlike organic pollutants, the majority of which are susceptible to biological degradation, metal ions do not degrade into harmless end products.

Contamination of environment with such toxic heavy metals has become one of the major causes of concern for human kind. Heavy metals in surface water bodies, ground water can be either from natural or anthropogenic sources. Currently, anthropogenic inputs of metals exceed natural inputs due to increased urbanization and industrialization

2. MATERIALS AND METHODS

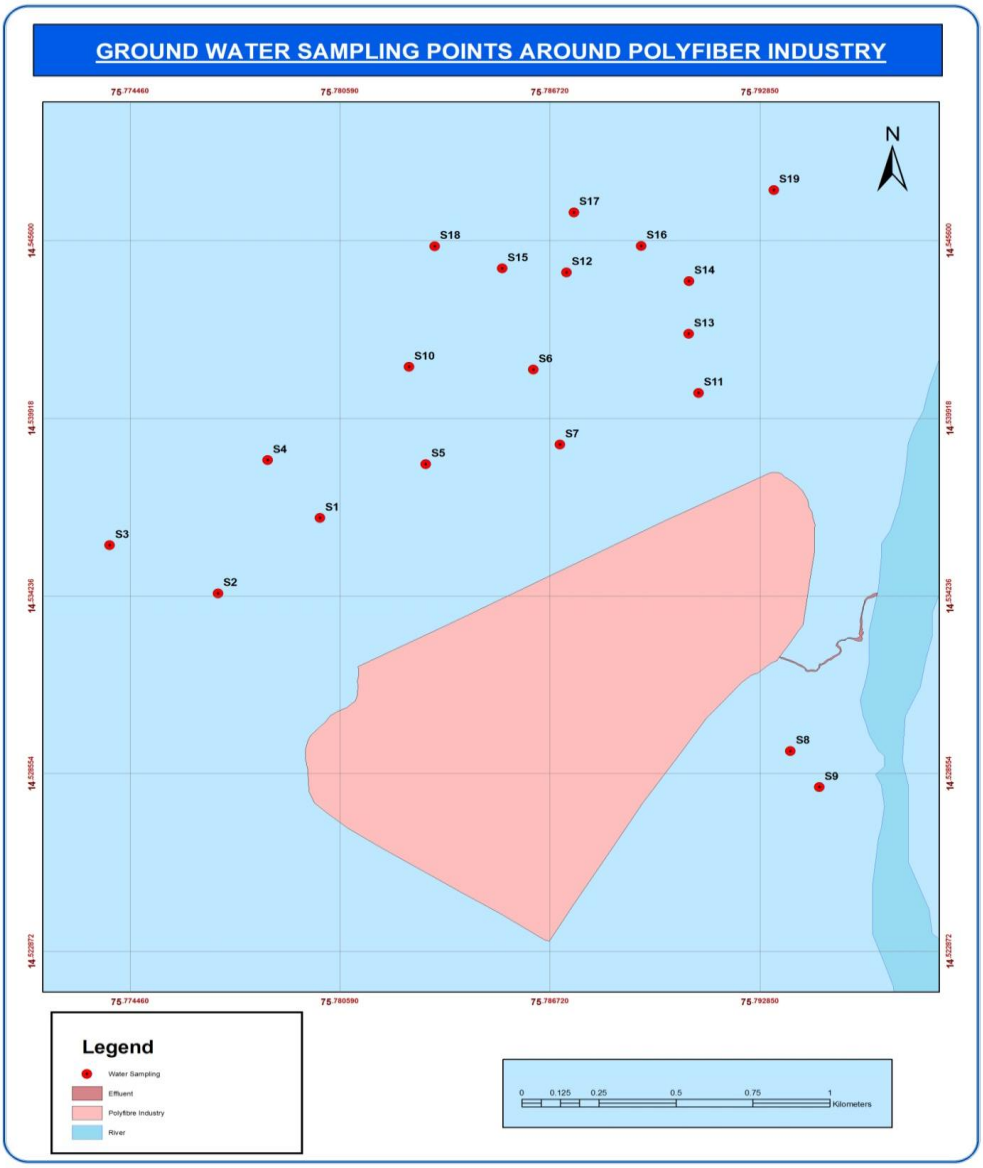

Fig 1: Groundwater sampling points around Polyfibre industry

Grab sampling has been adopted to collect groundwater samples. 19 groundwater samples were collected in polythene containers of 1 litters capacity for chemical analysis after pumping out sufficient quantity of water from the source such that, the sample collected served as a representative sample. The samples thus collected were transported to the laboratory condition. Water sampling location is shown in the fig1.

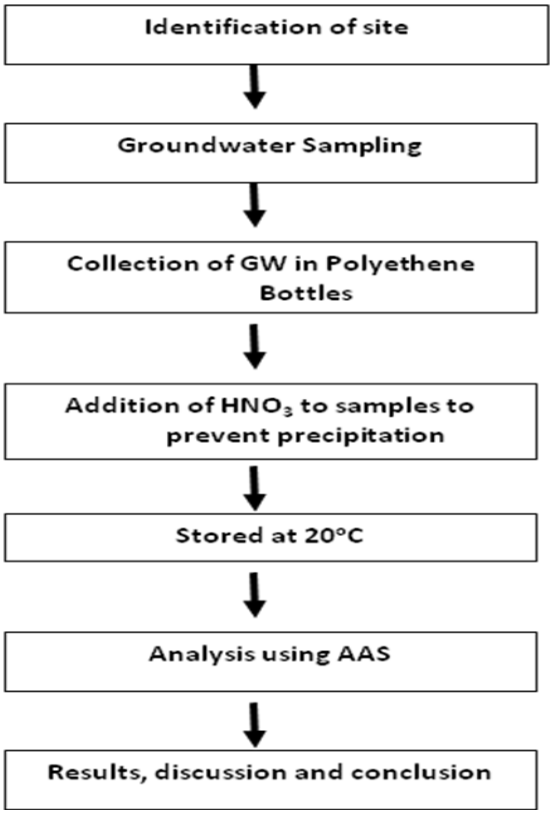

Fig 2: Flow chart describing the methodology adopted in the present study

3. RESULTS AND DISCUSSIONS

HEAVY METAL ANALYSIS OF GROUNDWATER

Table 1: variations of heavy metals concentration (mg/l) in groundwater of study area

Sample. No	zinc	chromium
1	0	0
2	0	0.01
3	0	0
4	0.01	0
5	0.02	0.01
6	0.05	0.015
7	0.213	0.049
8	0.158	0.02
9	0.1	0.01
10	0.04	0
11	0.049	0.01
12	0.04	0
13	0.038	0.015
14	0.043	0
15	0.025	0.012
16	0.141	0.023
17	0.05	0.015
18	0.053	0.012
19	0.1	0.01

The 19 groundwater sample is analyzed for 2 heavy metals that is chromium, zinc. The concentration in mg/l of Chromium 0-0.049, and zinc 0-0.213 from sampling station 1 to 19. In the present study, the concentration of chromium, zinc well within the permissible limit according to the WHO standards for Heavy metals.

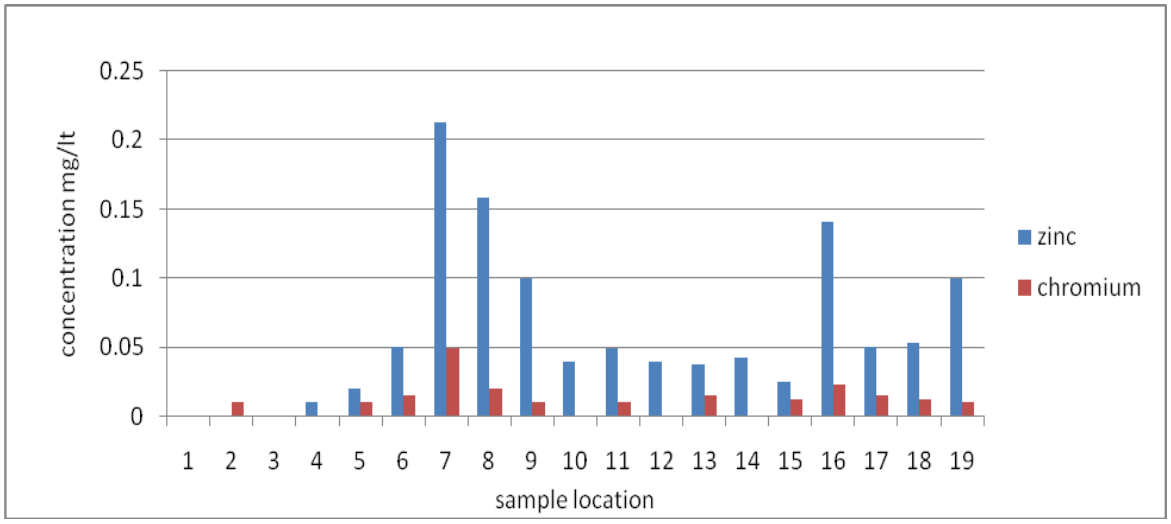

Fig: 3: Variations of Heavy Metals Concentration (mg/l) in Groundwater of Study area

4. CONCLUSION

THE CONCENTRATIONS OF ZINC AND CHROMIUM IN GROUNDWATER SAMPLE ARE WELL WITHIN THE PERMISSIBLE LIMIT PRESCRIBED BY WHO STANDARDS.

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