



## Study of Heavy Metal Analysis in Groundwater Samples of Ambad Tehsil

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### ABSTRACT

Water pollution has become one of the major threat to human health. Uses of insecticides and pesticides and vast use of fertilizers and any suspended particles as well as harmful and toxic chemical substances. Determination of heavy metal concentration of selected 10 sites from Ambad tehsil of Jalna district was carried out. Heavy metals were estimated by atomic absorption spectrophotometer and outcome of the results were discussed in the light of pollution status of the study area.

*Key words: Heavy metal Analysis ground water, Ambad Tehsil*

### INTRODUCTION

Ambad is considered to be the oldest and religious town in Jalna district of marathwada region, a famous temple of "goddess Matsyodari" is situated in Ambad town. A famous Temple of lord Jambuvant is situated near jamkhed, 14 km away from Ambad town. The resident of Ambad Tehsil usually water from duck well and borewell for drinking and domestic purposes. There is a huge variation in the concentration of different species due to the factor like debt different land underground water conditions rain conditions etc the present work attempts to evaluate the groundwater quality in Amber Tehsil of Jalna district for portability.

### MATERIAL

Material used

In the present study 10 ground water (borewell). Samples were collected from different sites of Ambad tehsil in brown glass bottles with necessary precautions find



preserve as per the recommended procedures. All the chemical used were of AR grade, glassware used were of 'A' grade. Double distilled water was used through out of the work to prepare standard solution.

## METHOD

Exactly 500 ml of each water samples was taken in clean, dry, separating funnel. Exactly 25 ml of Isobutyl methyl ketone (IBMK) And 2 ml of Ammonium purolidinethio carbomate (APDC3) were added. The solution was shaken well, for 20 minutes and allowed for separation of organic and aqueous layer. Aquarius layer was discarded out to the organic layer, 1 ml of 50% HNO<sub>3</sub> was added and allowed to settle and further the aqueous layer was collected and presented for analysis of trace metals. The aqueous extract was made up to 25 ml using D.D. water and analysed for heavy metal by using atomic absorption spectrophotometer 1.

## RESULTS AND DISCUSSION

Heavy metals are the major category of toxic pollutants, distributed in water bodies which have been extracted from earth crust the result obtained during the present investigation are tabulated in table 1.

Table 1 - Heavy Metal Analysis in Ground Water S amples of Ambad Tehsil

SAMPLE	AS	CD	CR	PB	CU	ZN
1	11	15	15	54	82	30
2	13	28	13	57	76	70
3	12	27	8	25	63	140
4	17	28	13	30	65	100
5	19	16	11	60	98	80
6	13	18	16	44	60	60
7	10	23	14	50	47	40
8	15	28	12	36	106	30
9	20	29	10	25	28	35
10	14	30	9	30	88	60

Source: Sample analysis



1. Arsenic:

It is well known carcinogen it is combined to nature by weathering reaction biological activities and volcanic emission as well as anthropogenic activities. in the present study area 10 to 20 ppb . It is higher than permissible limit.

2) Cadmium:

It is rare element. It is considered to be one among the environmentally hazard metal because of its high toxicity and greater capability of accumulation and retention in the body of organism including human. In the present study the cadmium concentration ranges from 14 to 30 ppb Values are higher than permissible limit 10 ppb WHO.

3) Chromium:

It is naturally occurring element which is essential for good health that is synthesis of fat from glucose and also for the oxidation of Fat to CO<sub>2</sub>. In groundwater chromium ranges from 8 to 16 ppb. Some values are higher than permissible limit 10 ppb according to WHO .it is due to sewage in the study area.

4) Lead:

It is highly toxic the high concentration in portable water may cause cancer and blood high values in study area maybe due to rain water run off, and household sewage stagnation Heena and around study area and unplanned drainage system. The values in this from 10 to 60 ppb below permissible limit 100 ppb according to WHO.

5) Copper:

It is widely distributed heavy metal on earth crust total annual anthropogenic discharge of copper to surface water range from 35 \*10<sup>3</sup> to 90\*10<sup>3</sup> metric tons per year Copper range is from 22 to 106 ppb most of them are with in the permissible limit (100pb).



6) Zinc:

It is essential metal which involved in synthesis of RNA and DNA the total amount of zinc discharge in the freshwater from anthropogenic sources is estimated to be 77 to 373\*10<sup>3</sup> metric tons per year it range is from 20 to 150 ppb in the study area with in permissible limit

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