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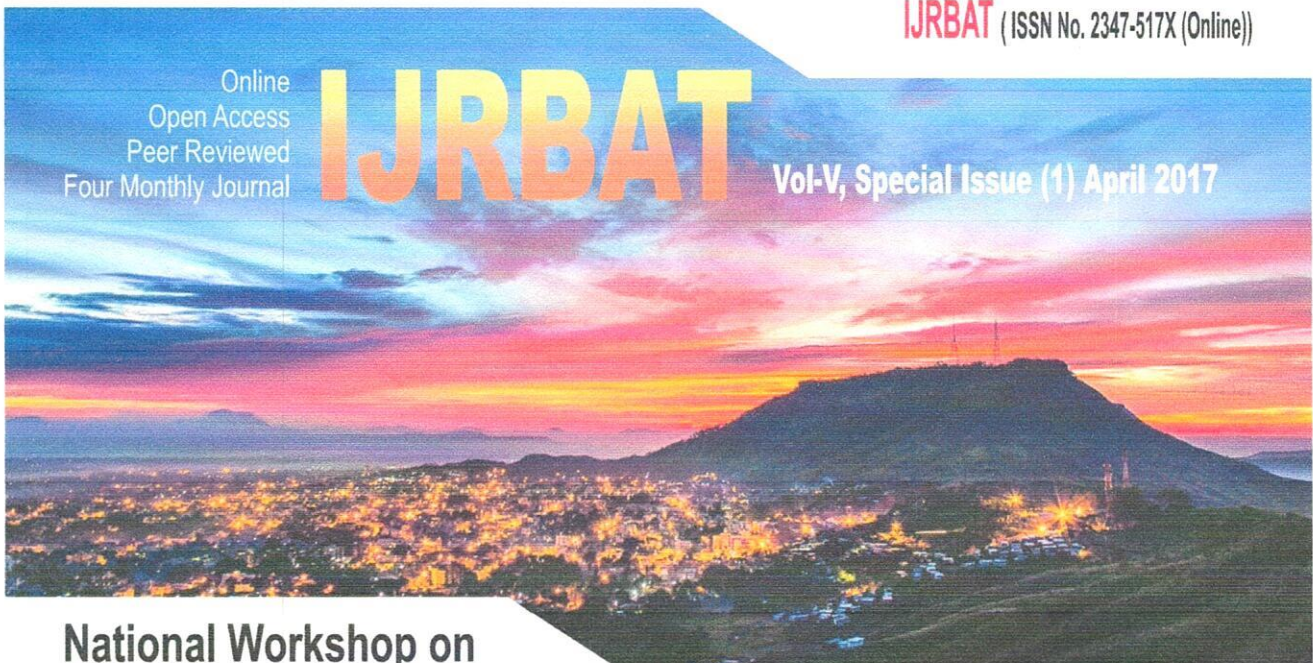
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*PHYSICO-CHEMICAL INVESTIGATION OF TUBE-WELL WATER IN SLUM REGION OF
KADEGAON FROM SANGLI DISTRICT OF MAHARASHTRA*

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ABSTRACT:

The present study has been undertaken to investigate the tube well water from some slum region of kadegaon. Slum region from kadegaon is affected by anthropogenic activities like bathing, washing cloths and utensil. In this region drainage and poor sanitation contaminate the ground water resources. Some tube-wells are near public toilet. The dump region near source deteriorates the ground water. Residents from this region use the tube- well water for household purpose like domestic as well as for drinking. To monitor the contamination of water and to investigate the quality of water, the representative Sampling sites are selected from the slum region of study area. The water sample analyzed for physico-chemical parameters. Certain Physico-chemical parameters are beyond the permissible limit recommended by World Health Organization (WHO) and Indian Standard Institute (IST).

Key word: Tube-well, investigation, anthropogenic activity, physic-chemical parameters, sanitation.

INTRODUCTION: Water is basic need of human being as one cannot survive on the earth without water. It is made available from surface and underground resources. It fulfil the agricultural, industrial and domestic needs of human being. Underground water quality depends upon geological origin and presence of chemical substance as studied by number of workers (Garg 2003). Direct discharge from Municipal water, industrial waste and other domestic sewage. Agricultural run off mixes the large number of pollutants in water hence the residents of kadegaon must aware about quality of drinking water. The tube- well water is needed for domestic as well as for drinking purpose.

In slum area due to acute shortage of public water supply scheme, residents used tube- well water for domestic and drinking purpose. In the region the lack of sanitation and drainages contaminate the ground water resources. Therefore the present study has been undertaken to investigate the quality of tube well water from slum are of kadegaon.

STUDY AREA: Kadegaon is a tehsil place and is located in rural and hilly area of Sangli district in Maharashtra. It is rapidly growing city on account of trade, education, industrial and agricultural practices located at 17.2964' N. latitude and 74.3315' E longitudes including M.I.D.C.area. . The majority of industries are of textile park. To investigate the quality of drinking water four representative sampling sites of tube wells were selected.

MATERIAL AND METHOD: The Tube-well water sample from slum region of selected sites of study area were collected to investigate the physic- chemical parameters. Sampling was carried out during Oct 2016 to Dec. 20016. All samples were collected in sterilized 2-L plastic cans and analyzed as per the procedure given in standard method for examination of water and waste water by APHA (1985) Washington DC. Physico-chemical parameters such as Electric Conductivity (EC), pH, dissolved oxygen analysed at site and COD, BOD, Chloride, Alkalinity, Sulphate, Total Hardness, Calcium, Magnesium, Sodium in Laboratory¹

Table No.1 Minium and maximum value of physico-chemical parameters of water in slum area

| Parameters | Unit | Sample-1 | | Sample-2 | | Sample-3 | | Sample-4 | |
|------------|----------|----------|---------|----------|--------|----------|---------|----------|--------|
| | | Min | Max | Min | Max | Min | Max | Min | Max |
| Alkalinity | | 176.48 | 253.68 | 265.34 | 359.76 | 253.76 | 372.5 | 217.64 | 265.84 |
| BOD | mg/L | 3.71 | 7.81 | 1.61 | 5.67 | 6.28 | 7.90 | 1.43 | 7.41 |
| COD, | mg/L | 16.31 | 33.93 | 8.77 | 33.93 | 22.16 | 35.1 | 13.48 | 35.88 |
| Calcium | mg/L | 28.2 | 79.12 | 59.11 | 89.79 | 62.52 | 103.2 | 27.95 | 76.11 |
| Chloride | mg/L | 106.46 | 132.9 | 68.28 | 110.76 | 71.35 | 103.13 | 42.01 | 78.43 |
| DO | | 2.054 | 4.014 | 2.21 | 4.29 | 2.35 | 4.05 | 2.43 | 4.71 |
| EC | µmhos/cm | 844.08 | 1051.08 | 587.38 | 915.78 | 653.05 | 1002.45 | 510.43 | 789.23 |
| Hardness | | 142.28 | 344.78 | 237.67 | 393.03 | 270.32 | 429.72 | 134.5 | 339.38 |
| Magnesium | mg/L | 14.93 | 38.51 | 19.46 | 43.66 | 20.73 | 48.99 | 11.8 | 38.64 |
| pH | | 7.1 | 7.52 | 6.29 | 6.69 | 6.61 | 7.51 | 7.15 | 7.73 |
| Sodium | mg/L | 39.16 | 102.00 | 21.28 | 42.54 | 36.53 | 80.63 | 38.57 | 63.09 |
| Sulphate | mg/L | 76.56 | 160.26 | 53.4 | 142.64 | 66.98 | 134.04 | 53.33 | 129.27 |
| TDS . | mg/L | 515.31 | 666.03 | 397.55 | 607.95 | 487.23 | 695.43 | 301.85 | 676.49 |

RESULT AND DISCUSSION:The results of physico-chemical analysis of tube well water samples are depicted in table NO. 1

In Present investigation pH of water samples ranged from 6.29 to 7.73. The limit of pH value for drinking water is specified 6.5 to 8.5^{7,15}. The pH of all tube well water samples are within the prescribed limiting of [ICMR, WHO 1975]^{7,15}. pH is important parameter to evaluate acidic and alkaline nature of water. It is important in regulating respiration and enzyme system³. pH has no direct adverse effect on human health⁸, but all biochemical reactions are sensitive to the variation of pH.

In the present investigation, Electric conductivity (EC) value ranged from 510.43, µmhos/cm to 1002.45 µmhos/cm,. The permissible limit of WHO standard electrical conductivity for safe drinking water is 300 µmhos/cm. All tube well water sample cross the permissible level might be due to waste deposit near tube well. High conductivity is due to ground water recharges as well as solubilized mineral form well. From and ground and structure¹². The high values of EC are due to high concentration of ionic constituents present in water reflect salinity, intrusion as well as pollution by industrial and domestic waste.

The TDS value ranged from 301.85 to 695.43mg/L. The higher values of dissolved solids may be due to solid waste deposits near bore wells¹³. Dissolved oxygen ranged from 2.21 to 4.71mg/L. The recommended dissolved oxygen limit for all domestic purposes is 4 to 5 ppm⁴ Low DO clearly indicate the pollution due

to sewage and domestic waste seepage^{6,11} in present investigation BOD values are ranged from 1.43 to 7.90 mg/L. The recommended Permissible value of BOD is 2.0 mg/L as per ISI standard. All water sample showed values of BOD beyond the ISI standards. More BOD indicates that water sources are polluted due to increased leaching of organic matter from dumping sites & biodegradable waste from sanitary waste.

Chemical oxygen Demand (COD) is important water quality parameter is deciding to the pollution load of water. In present investigation the average COD values in all four sites ranged from 8.77mg/L to 35.88mg/L. The COD values more than 1 mg/L are due to pollution. The average COD values in all sites are beyond the guideline of WHO. It should not exceed more than 10 ppm limit. The average chloride concentration in tube well water ranges between 42.01 to 132.9. In the present study the phenolphthelin alkalinity is zero, indicating absence of any hydroxide and carbonate ions. Bicarbonate that is total alkalinity ranges from 176.48 to 359.76 mg/L in four sites. The ISI limit for alkalinity to 50-200 mg/L. It means water sample of tube wells have higher alkalinity which can be attributed to concentration of calcium and magnesium also in water¹⁰.

The sulphate may be present in sedimentary rock and minor quantities in igneous rock. The average sulphate value ranges from 53.33 to 160.26 mg/L in four sampling site. All values are within permissible limit.

The total hardness value ranged from 134.5 to 429.72 mg/L. the BIS and WHO permissible limit water sample from site ii & iii shows the hardness of water beyond permissible limit. Hardness of water is an important parameter determining suitability of water for drinking and domestic purpose. The calcium and magnesium concentration is within limit of WHO & BIS standard.

The low content of calcium in drinking water may cause rickets and defective teeth. It is essential for nervous system, cardiac function and in coagulation of blood^{9,5}. Excess calcium leads to urinary calculi¹⁴. In human body excess calcium causes hypercalcemia, coma and death². Human body requires approximately 0.7 gm to 2.00 gm of calcium per day as a food element. In Present investigation calcium content of water samples ranged from 27.95 to 103.2.

In present investigation the average value of sodium ranges between 21.28 to 102.00 in four sites which are within the permissible limit.

CONCLUSION: The study of physico-chemical parameters reveals that the tube well water is not safe for drinking purpose. Some physico-chemical parameters such as Electric conductivity, TDS, BOD, COD, Alkalinity, Total hardness showed values beyond the standard limit of WHO, ICMR & ISI. Dissolved oxygen, Chlorides, calcium and Manganese values are within the permissible limit.

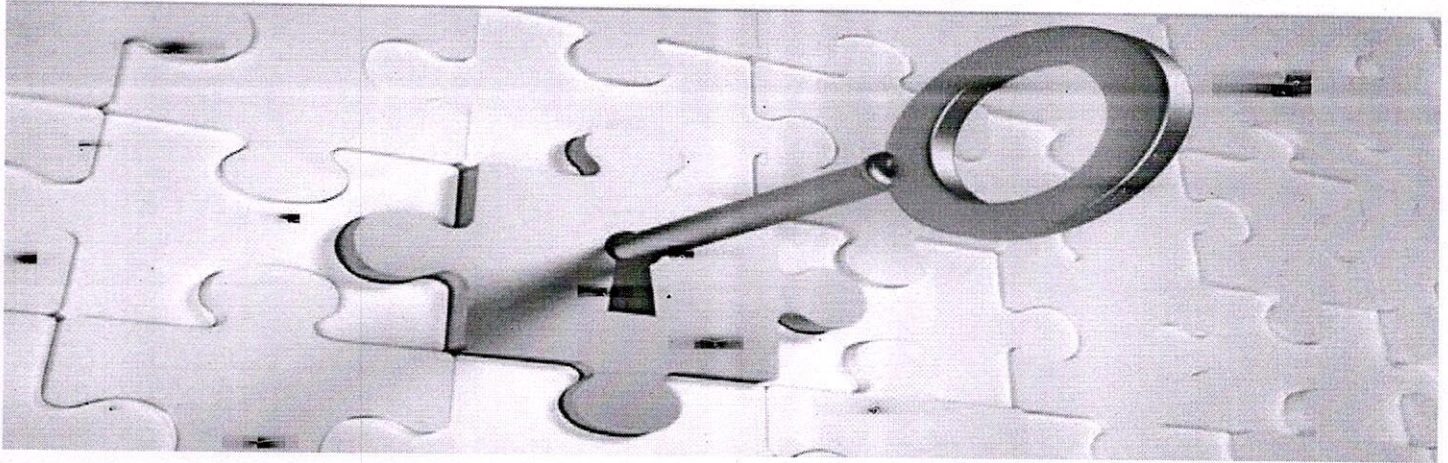
Majority of tube well Hand pump of Municipal Corporation are located at improper location, near public toilet, solid dump, garbage dump and are fecal contaminated. Most of the people depending upon tube well water sources in slum area are suffered from water borne diseases like dysentery, Diarrhea, Typhoid and jaundice. Hence over all water quality is rated as very poor from WQI, Severally polluted and unfit for human consumption.

REFERENCES:

1. APHA, 1998. Standard Methods for Examination of Water And Waste water, American Public Health Association. Washington, D.C.
2. Dasgupta Adak, M. and K.M. Purohit 2001. Assessment of the water quality in Rajangpur Industrial Complex. II, metallic Parameters, *Poll Res.* 20(4): 575-581.
3. Fokmare K. and M. Mohmad 2001 Comparative Studies of physico-chemical and bacteriological quality of surface and ground water. *poll. Res.* 20: 651-655.
4. Garg V.K.; Deepshikha, Dahiya S. and Chowdhary A. 1998. Groundwater quality in rural areas of jind district, Haryana. *J. of Env. And Poll* 5 (4): 285-290.
5. Garg s.s. 2003 water quality of wells and bore wells of 10 selected location of chitrakoot. region. *Indian jr. Env. prot* 10 (9):672-676.
6. Hedge S.H.; S.C. Puranik and A. K. Abbi 1992. Study of groundwater quality deterioration in Hubli city area. *Indian J. Env. Health.* 28: 214-224
7. ICMR 1995. Manual of standards of Quality of drinking water supplies [2nd edn.]
7. Khadson R.E. and Mangesh V.Kadu 2003. Drinking Water Quality Analysis of some Bore well water of cihikhali. Town, Maharashtra. *Jr. Industrial Poll Control* 20 (1): 31-36.
8. Khurshikd S.; Zaheeruddin and A. Basheer 1997. Pollution assessment and water quality Status in parts of Cochín. *Indian J. Env. Prot.*, 18(4) 246-249
9. Manivakam, N. 1984. Physico Chemical Examination of water seages and industrial effents, pragati prakashan, meerut p. 46.
10. Pradhan S.K.D. Patnaik and S.P. Rout 1998. Ground water quality An assessment around a phosphatic fertilizer plant at paradip.
11. Sarma, CD. K.D K. Deka and K. G. Bhatyacharya 2002. Quality of water in a few urban drinking water sources.
12. Sharma B.K. and Kaur 1998. Chemical and biological methods for water pollution studies Environmental publications, Karad. P 35-38
13. Taquikhan M.M. 1986. Presidential address section of chemistry 73 Indian Science Congress, Delhi.
14. WHO 1971. International Standards for drinking water (3rd edn.) World Health Organization, Geneva.





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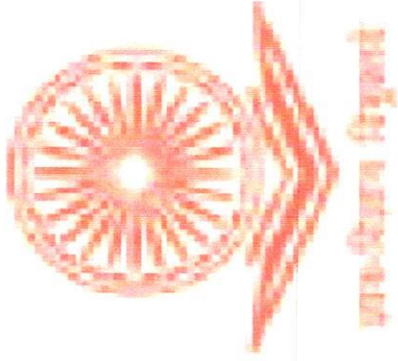
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