



STUDY OF WATER QUALITY OF RATWAD VILLAGE

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Abstract

The study is based on analysis of drinking water of "Ratwad village" for this purpose water samples have been collected from three different water resources i.e boring water ,well water,& gram panchayat water then total hardness, acidity, pH, COD ,dissolved oxygen,conductance,turbidity of those water samples have been carried out for this project aim is to find total hardness,acidity,pH, and COD, dissolved oxygen, turbidity, conductance of three water samples.^[1]

Keywords: *Acidity, pH, COD, total hardness, turbidity, conductance, dissolved oxygen.*



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Introduction:

Ratwad village is a midsize village located in mangaon taluka belongs to kokan division. people of this village used well water, boring water, canal water, and river water for daily purpose.

Water includes pollutants like bacteria, Nitrogen and low levels of dissolved oxygen, which often cause by the decomposition of organic material; leading sources of pollutant include air deposition, agricultural runoff and hydrological modifications. This polluted water cause many disease and to control those disease it is necessary to check the quality of water which we are use in our day today life.

Different physical parameters have been compare to check the quality of water in Ratwad village

Materials and methods:

Collection of water samples:

Water samples from well,boring ,gram panchayat are collected in clean bottles free from impurities.

Analysis of water sample:

- Total hardness ,acidity,pH,COD of water samples can be analyse using following procedure.

- Procedure followed is standard procedure taken from Beuro of indian standards(BIS).^[16]

Procedure to find acidity of water:

- Pipette out 50ml of water sample in a 10ml conical flask+2,3 drops of 1% phenolphthalin indicator to it.
- Shake well and titrate it against standardised NaOH solution from the burette end point will be from colourless to pink.

Procedure of total hardness:

- Prepare 0.01M EDTA solution.
- Then pipette out 25ml water sample in a conical flask.
- Add 5ml of buffer solution(pH=10)+3,4 drops of 2% Eriochrome black T indicator to it.
- Shake well and titrate it against 0.01M EDTA solution from the burette end point will be from blue to colourless.

Procedure to find Chemical oxygen demand of water sample:

- Transfer 50ml of water sample in round bottom flask add 25ml of 0.25N $K_2Cr_2O_7$ solution to it.
- Keep the flask in ice bath.
- Then add 75ml 4N H_2SO_4 solution add one porcelain piece.
- Reflux the contents of the flask on boiling water bath for one hour..
- After heating is over cool the flask and transfer the contents of the flask to 250ml volumetric flask and dilute to 250ml with distill water.
- Pipette out 25ml dilluted solution in a conical flask add 2,3 drops of 2% ferroin indicator to it.
- Shake the flask well and titrate it against std ferrous alum solution from the burette.
- End point will be from green to red colour fallow the same procedure to find blank reading instead of water sample take disitill water for blank reading.

Procedure to find pH of water sample:

- pH of water sample can be found from standardized pH meter.

Procedure to find dissolved oxygen:

- Take 300ml water sample in stoppered bottle.
- Add 2ml of $MgSO_4$ to it.
- Add 2ml Conc H_2SO_4 .
- Place it in cool and dark place for sometime.

- Titrate it against std Sodium thiosulphate using Starch indicator.
- End point will be from blue to colourless.

Procedure to find Conductance:

- First find cell constant. Using KCl.
- Take about 25ml water sample in beaker.
- Immerse conductivity cell in it.
- Measure conductance directly from instrument display.

Procedure to find Turbidity:

- Gently agitate the sample until the bubble disappears.
- Take water sample in cuvette.
- Read turbidity directly from instrument display.

Result: Results obtained for all three water samples are as follows:

Water sample	Acidity	COD	Hardness	pH	Turbidity	Dissolved oxygen	Conductance
Boring water	63.5	0.370ppm	62	7.09	3NTU	27ppm	1.57
Well water	83	0.05ppm	222	8.16	7NTU	48ppm	962
Gram panchayat water	64	0.490ppm	170	6.90	4NTU	32ppm	652

Conclusion:

From above results and on comparing all parameters we conclude that boring water is more potable for drinking and for other purpose also.

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