

Water Quality Monitoring at Himayat Nagar

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ABSTRACT: In this paper we are analysing various parameters of drinking water from different tube wells of Himayat Nagar, Nanded viz. TDS, Coliforms etc. It is important to analyse the water quality of area as people use it for drinking purpose. Therefore it is directly related to the health of people living in the city. The samples of water were taken from various areas tube wells of the city and thereafter the standard procedures for testing the quality of water were followed. The purpose of this work is solely to provide or improve quality of water to the people. In humans, coliforms affects the liver, central nervous system (brain) and kidneys after a person breathes air or drinks liquids that contain large amounts of coliforms

KEYWORDS: Quality, Drinking Water, TDS, Coliforms, Water bodies.

I. INTRODUCTION

The Himayat Nagar Taluqa is situated in Nanded district Maharashtra ,The project is based on the testing of quality of drinking water , water is very important for human life as of now more than 70% of earth is covered with water of which 97.8% is in the form of sea water and in the glaciers. Only 2.2 % is drinkable water flowing in the rivers of the world. In India especially in the Maharashtra we suffer from drought every year. In present drinking water it is very important to know amount of TDS, Turbidity, and coliforms bacteria because these parameters are affects the human health. To assess the quality of water in this project we have taken total 20 samples of water from various areas of the city and the water was tested for TDS and to finding out the amount of coliforms the samples were forwarded to District Public Health Laboratory Nanded.

II. LITERATURE REVIEW

Coliform bacteria are directly affects the human body, i.e. they generate disease like gastro, diarrhea, nausea, vomiting, illness etc. TDS is the total dissolved solids found in the water .It is not the primary pollutant but it plays important role in the aesthetic characteristics of the drinking water. The TDS contain the all organic and inorganic solids, dissolved metals like Iron, Manganese Calcium, phosphates, nitrates, sodium, potassium, sulphates and chloride etc. The permissible limit of the TDS in the good palatable water should be 500 mg/L this limit was set on the basis of taste thresholds. Agricultural and residential runoff is primary sources for TDS in receiving waters. Hard water has high TDS levels, which might be the reason for scale build-up in filters, pipes, and valves, reducing performance and adding to the cost of system maintenance. Turbidity is the cloudiness and haziness in water that affect various body organs of humans if taken in large amount.

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III.OBJECTIVE

The objective of this paper is to find out the parameters in the water. And check the amount of percentage with their limits of acceptability. And give a brief report on the conditions of drinking water in the area and aware them about the effects of that water on their health.

IV.METHODOLOGY

To find out the parameters of water first we collected 20 water samples from different areas of the city. Then the following tests are performed in the laboratory.

Total dissolved solids:

Apparatus required for TDS

1. Conical flask
2. Petridish
3. Oven
4. Weighing Machine

Procedure

- 1) First the water sample was taken after removing TSS (total suspended solids).
- 2) A petridish is taken and weight of the petridish is recorded on weighing machine.
- 3) The filtered water sample is taken in the petridish and placed in to the oven at a temperature of 100^oC.
- 4) After some time the water is evaporated the remains are the dissolved solids.
- 5) The petridish is taken out from the oven and weight of that petridish is recorded.
- 6) The initial and final weight of the petridish is subtracted.
- 7) The result which we get is the amount of dissolved solids in 10 ml of water. It is divided by 10 in order to get the
- 8) Amount of TDS per ml of water.

Coliforms:

The samples taken from various places were then forwarded to District Health Lab Nanded for testing. Coliform bacteria are tested by using Membrane filtration techniques and measured in form of Colony forming units per 100ml (CFU/100ml).

Turbidity:

Turbidity is measured by using standard turbidimeter. And values measured in NTU. Turbidity makes water cloudy or opaque. The water collected in the bottle is used to find out the turbidity, which is measured by shining a light through the water and is measured in nephelometric turbidity units (NTU).



Turbidity
Meter (a)

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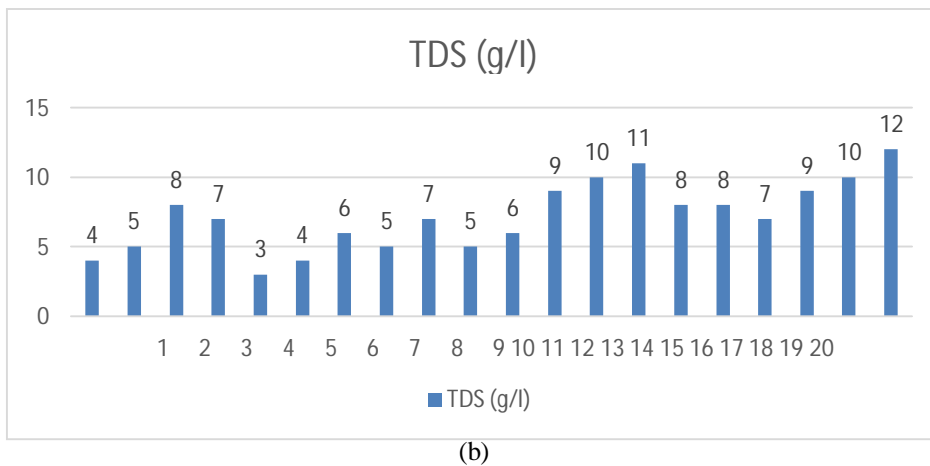
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- 1) First, the beaker is taken & is washed properly.
- 2) Then, distilled water is poured into the beaker. Turbidity of distilled water is measured by the turbidity meter. If the turbidity is not zero, then the settings are adjusted as to make it zero.
- 3) Then, the beaker is again washed properly.
- 4) Then, the sample is poured into the beaker. The turbidity of the beaker is measured using the turbidity meter.
- 5) The same procedure is repeated for all the samples.

V. EXPERIMENTAL RESULTS

Total Dissolved Solids:

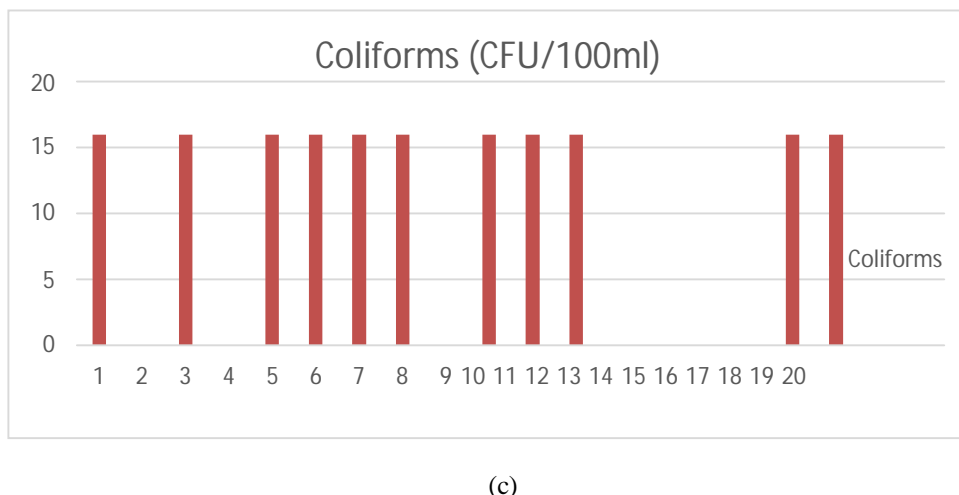
The results are shown below in fig (b);



As we can see here the amount of TDS in every sample is exceeds the allowable limits given by IS10500 of 2g/l. this will cause gastrointestinal problems in human body.

Coliforms:

The water sample were tested in District lab and report given. The results are shown below fig (c),



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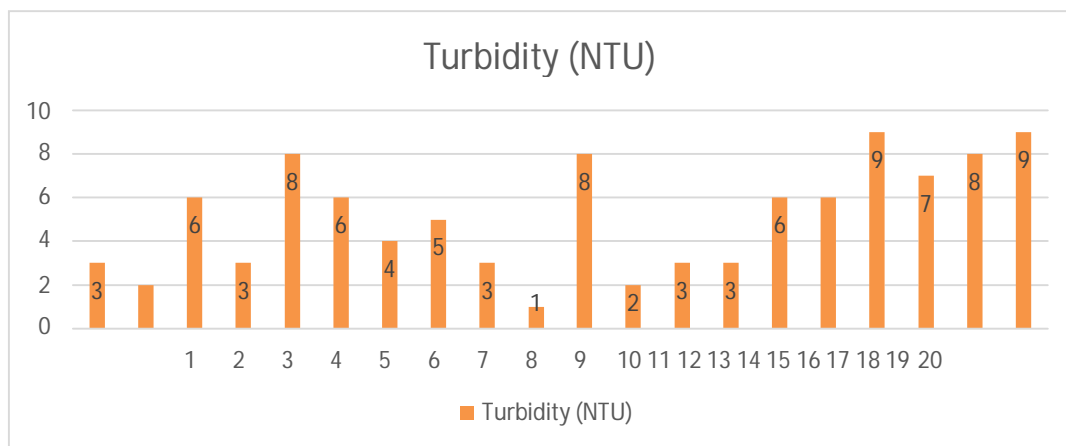
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This shows that total 11 of 20 samples of drinking water has coliform bacterial more than 16 CFU/100 ml. As per IS10500 there should not be coliform detectable in drinking water. But we can see here what the situation is and what will be the side effects of these on health of peoples.

Turbidity:

The turbidity of water sample is tested by using turbidimeter in NTU Fig (d);



(d)

As per IS10500:2012 the turbidity in drinking water should not be more than 1 and for extreme conditions not more than 5. This results shows that not a single water sample is in permissible limits. This will cause serious health issues on long terms.

VI. CONCLUSION

From this work we conclude that the characteristics of drinking water are not even close to the permissible limits of more than 60% water samples which is very harmful for the health of the people as well as it is not a good sign for a developing country like India. Here we found that most of the samples are crosses the permissible limits from these we can aware people about drinking water and the administrative services and department can take action for treating the water and providing good quality of water to the peoples.

Like this if same work done for other cities then it will be helpful for the peoples of cities.

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