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ASSESSMENT OF GROUND WATER QUALITY OF GARKHEDA, AURANGABAD

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Introduction:

Water is a neutral liquid with a high dielectric constant and high density. Water is very essential for life on the earth and it is necessary to check the water quality whether water is polluted or unpolluted for drinking and other purposes such as industrial, agricultural, etc. with increasing population the sources of water is low. As the main source of ground water is rain. From the rain fall, some water lost due to evaporation, some in sewage, some in soil and remaining flow in rivers.

There are many variations in the ground water quality i.e. due to the changes in weather, temperature, low rain, heavy rain and other man made activities. Water is a vital source used for various purpose. Due to irregular water supply in summer, heavy rain, variation in temperature, it is important to asses the quality of water.

Presence of SO_4, Nitrate, Chloride etc. are significant parameters. It is necessary to analysed the ground water quality as preventive measures to control the pollution. As the population is increasing as well as industrialization, urbanization, the natural sources like soil and water decreases. Many workers are working on the quality of ground water in different regions as the ground water is the only a safe and pure water sources for drinking and other domestic purposes.

Experimental:

The samples were collected from Garkheda area Pre-Monsoon season. Samples were collected in sterilized screw-capped polyethylene bottles have one litre capacity and analysed in laboratory for their physico-chemical parameters. For different parameters, methods employed are as follows:

Parameters	Methods	Unit
Temperature	Thermometric	^0C
pH	pH – meter	-
Conductance	Conductometer	-
TDS	Conductivity meter	mg / L
Nitrate	Iodometric method	mg / L
Sulphate	Turbidity meter	mg / L
Chloride	Mohr's method	mg / L

Results & Discussion:

The following data presents the ground water quality of Garkheda, Aurangabad. Water plays an important role in biological activities. As without water, life is not possible on earth. The result obtained are shown in Table no. 2 and the standard for drinking water shown in Table no. 1. pH of ground water ranges from 7.0 – 8.9 pre monsoon season respectively, which shows alkaline nature of ground water.

Parameters	Standards (mg / L)
pH	6.5 – 9.5
Conductance	-
Chloride	500
TDS	6.0
Nitrate	45
SO_4	250

Table 1: Physico-chemical parameter for the ground water from Garkheda area, Aurangabad (Pre-Monsoon)

Sr. No.	Temperature ^0C	pH	Conductance (ms)	TDS	Nitrate	SO_4	Chloride
S_1	24.3	7.4	1.23	624	04	179	810
S_2	23.0	7.0	1.26	1033	35	93	160
S_3	24.0	8.2	0.99	656	72	26	850
S_4	23.8	8.0	0.69	2056	81	166	184
S_5	24.1	7.2	1.66	3159	46	49	128
S_6	24.6	7.8	1.56	4387	24	45	720
S_7	25.0	8.1	1.54	986	17	24	100
S_8	25.0	8.0	1.65	752	63	65	880
S_9	24.9	8.8	0.94	1417	45	77	910
S_{10}	24.4	8.4	1.21	1202	07	131	636

As far as TDS of water is concerned, is a serious problem in the irrigation < 1000 mg/l – , fresh water, 1000 – 3000 mg / l – slightly saline TDS is in the range of 600 – 4500, showing all dissolved minerals in water indicates the general nature of salinity of water. The TDS found to be higher in ground water sample. The nitrate content in water sample is found to be 04 to 81 in range. The nitrate content does not affect the human health.

There is need to aware the people about the nitrate pollution in the area. The higher content of NO_3 causes blue baby syndrome which can be fatal during first three months of life. The chloride content in water is in the range of 120 – 910 mg / litre is found to be

higher is due to the domestic, industrial and dry climate. The SO_4 content of water ranges from 24 – 1179 mg / l. SO_4 is not active in summer season because it is mainly derived from fertilizer sources and farmers do not used fertilizer before rainy seasons. The higher concentration of sulphate may causes malfunctioning of the alimentary canal and show the cathartic effect on the human body.

Conclusion:

So many factors are there which affect on the quality of water like climate change, temperature, industrialization etc. comparison of data with the standard water quality shows some parameters are in permissible limit and some are not such as TDS indicating slightly saline to moderately saline. Even though there is need to take care of water because it is used for drinking purpose and contamination causes diseases to human being, infant etc.

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