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Analysis of Monthly Variation on Ground Water Quality in Toranmal Tal. Shahada Dist. Nandurbar.

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Abstract:
In the present investigation to evaluate monthly fluctuation in ground water quality, determine the effect of stressors in the Toranmal area. Total 11 samples were collected from study site during November 2021 to October2022. Then were analysed for 11 Parameters including PH, Turbidity, Temperature, TDS, Alkalinity, Chloride, Fluoride, Nitrate, Sulphate, TH and Iron etc. the result showed that Total Dissolve Solid, Total Hardness, Salinity Lead, Arsenic, Nitrate and sulphate were detected as a contaminant in collected samples from study sites.

Key words: Analysis, variation, Ground water, Toranmal.

Introduction:

Water is an important constituent of universe. Water plays chief role in fiscal and the general well-being of the nation. Without water life of all organisms will not survive. Water quality monitoring is a vital method for water resources management. Physicochemical and biochemical Paramenters play a vital role in the characterisation of water quality. They are co-operative tools for the identification of pollution in aquatic media, being natural sources because of anthropogenic actions. Health of the population is depending upon the quality of water. Therefore, poor quality of water affects the health of plant and human. Ground water contains various types of pollutants and several other substances are dissolved in it (Ranjana, 2009). Nagarajan *et al.*, (2000) stated that, ecess of fluoride causes dental, skeletal and non-skeletal fluorosis through continued use of fluoride contaminated water, air and agriculture produce. Polluted ground water is the major causes for the spread of epidemic chronic disease of man (Arvind Prasad dwived, 2017). In the universe, water found in two forms like surface water and ground water. Ground water is an important source of water supply because of its plenty and steady quality. Ground water resources are dynamic in nature and are affected by factors of

irrigation activities, industrialization, urbanization and geological processes occuring within them and reactions with aquifer minerals (Nagarajan *et al.*, 2010). Groundwater is the Chief sources of drinking water in rural as well as in rural areas. Toranmal is famous tourist place and renown hill station located in satpuda ranges of Maharashra state. It is 95 km away from Nandurbar District.It is located at 21°52'51.89" N latitude and 74° 27'40.88" E longitudes. The literature assessment reveals that, no water quality studies are carried out in this area so far. Therefore, present study is planned and carries out. The study was conducted to know the physico chemical properties of ground water and in different seasons and their impact on human health.

Materials and Methods:

The samples were collected, during November 2021 to October 2022.from manually operated hand pumps, open well, bore wells and hand pumps. Samples were collected in pre-cleaned and rinsed polythene bottles of litter capacity with necessary precautions and without any air bubble. All the samples were analysed for the following physico-chemical parameters; P^H, Electrical conductivity (EC), Total Alkalinity (TA), Total Hardness (TH), Calcium hardness (Cah), Magnesium hardness (MgH), Chloride, Nitrate, Fluoride and Total Dissolved Solid (TDS). TDS is determined by the evaporation method.TH is calculated by EDTA titration procedure given by Akpabli, (2002). Chloride was calculated by using spectrometry. The data have been compared with standard values which given by WHO, 1996. Standard. Parameters are weighted according to their perceived importance to overall water quality and the index is calculated as the weighted average of all observations of interested (Bharti and Katyal, 2011). The analysis for water samples were carried out in according to standard analysis methods given in APHA, (2005).

Results and Discussion:

Paramenter	Nov. 2021	Dec. 2021	Jan 2022	Feb. 2022	March 2022	April 2022	May 2022	June 2022	July 2022	Aug. 2022	Sept. 2022	Oct. 2022
P^H	7.4	7.3	7.3	7.5	7.5	7.9	7.9	7.0	7.4	8.9	7.9	7.9
Turbidity	10.1	20.1	13	7.0	9.0	4.0	5.0	9.0	1.0	0.9	0.9	1.0
Temp.	17.0	16.0	28.0	25.0	34	37	30	29	17	16	17	20
TDS	500	800	600	757	1017	1117	1300	1000	413	443	490	636
Alkalinity	157	103	173	182	150	147	227	158	150	127	170	130
Chloride	80.0	64.0	60.0	84.0	40	58	70	30	60	30.0	36	40
Fluoride	0.1	0.0	0.1	0.0	0.1	0.2	0.2	0.3	0.1	0.0	0.0	0.0
Nitrate	3.0	3.0	3.0	7.0	6.0	6.0	3.0	17	3.0	8.0	7.0	3.0
Sulphate	29	25	31	20	29	50	48	47	30	17	16	15
TH	580	260	503	390	670	216	509	127	236	470	230	198
Iron	0.41	0.21	0.11	0.02	0.31	0.32	0.91	0.30	0.20	0.30	0.17	0.03

Conclusion:

A sample of the study area is poor and unfit for drinking and the ground water from these locationa require proper water treatment before use. All parameters fall within permitted but poor water quality index indicate that villagers and tourist should be educated and informed about better management of water. it is also recommended to be arranged some awareness programmes to make them aware about the possible health effect of ground water pollution.

Refferences:

- Polluted groundwater is the major causes for the spread of epidemics chronic diseases of man. (Assessment of Physico-Chemical Studies on Groundwater in and Around Banda City, Uttar Pradesh.Arvind Prasad Dwived, (IJEAIS) 170801
- STUDY OF PHYSICO-CHEMICAL PARAMETERS OF GROUNDWATER QUALITY OF DUDU TOWN IN RAJASTHAN Groundwater contains various types of pollutants and several other substances are dissolved in it.(32 pdf)
- Excess of fluoride causesdental, skeletal and non skeletal fluorosis through continued use of fluoride contaminated water, air and agriculture produce (Nagarajan Prabavathi, Kavitha B, Jeyakar Chellaraj DA, Raja RE. *Indian J. Environ Prot*, 21(1) 51(2000).
- Bharti, N. and Katyal, D. (2011) Water Quality Indices Used for Surface Water Vulnerability Assessment. International Journal of Environmental Science, 2, 154-173.
- Akpabli, C.K; Amoako, C.; Acheampong, K., (2002). Quality evaluation of natural mineral water produced in Ghana, J. Appl. Sci. Tech.,7 (1-2): 71-76
- Fetter, C. W. (2001). Applied Hydrogeology (4th ed.). Prentice Hall.
- Lloyd, J. W., & Heathcote, J. A. (1985). Natural Inorganic Hydrochemistry in Relation to Groundwater. Oxford University Press.
- Yidana, S. M., Banoeng-Yakubo, B., & Akabzaa, T. M. (2010). Assessment of groundwater quality for drinking purposes in the Bosomtwe District of the Ashanti Region, Ghana. Environmental Geology, 58(2), 493-502.
- Chidambaram, S., Srinivasamoorthy, K., Prasanna, M. V., & Vasanthavigar, M. (2010). Groundwater quality assessment and its suitability for drinking and agricultural use in Tondiar River Basin, Tamil Nadu, India. Environmental Monitoring and Assessment, 171(1-4), 595-609.
- APHA. (2005). Standard Methods for the Examination of Water and Wastewater (21st ed.). American Public Health Association.
- Ravikumar, P., Somashekar, R. K., & Angami, M. (2008). Evaluation of groundwater quality and its suitability for drinking and agricultural use in Tumkur Taluk, India. Environmental Monitoring and Assessment, 143(1-3), 279-290.
- USSL. (1954). Diagnosis and Improvement of Saline and Alkali Soils (No. 60). United States Salinity Laboratory.

- Davies, B. E. (1964). Loss-on-ignition as an estimate of soil organic matter. Soil Science Society of America Journal, 28(5), 459-465.

- Gupta, S. K. (2008). Modern Techniques in Water and Wastewater Treatment. New Age International.

- APHA. (2012). Standard Methods for the Examination of Water and Wastewater (22nd ed.). American Public Health Association.