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Drinking Water Quality Assessment In Some Selected Villages Of Madanpalli,Chittor Dist-A.P

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ABSTRACT*: Because of human and modern exercises the drinking water is in the form of ground and surface water is unhygienic. This is the difficult issue now a days. Subsequently the investigation of the water quality is imperative to safeguard and administrator the normal eco framework(2). The evaluation of the drinking water quality was done in the diverse wards of selected 4 villages depends on previous research work in Madanpalli mandal . The present work is gone for evaluating the water quality assessment for the driking water of madanpalli mandal and its geographic region .The drinking water tests of all the chose sample sites from the villages were gathered for a physiochemical investigation. For figuring present water quality status by factual assessment following 16 parameters have been considered Viz. pH,EC,Turb.,F^-,NO_3^-,SO_4^{2-},Temp,Dissolved oxygen,Total suspended solids ,Total Hardness, Chloride, and Trace metal ions are Cu, Zn, Mn, Fe, Al. The acquired outcomes are contrasted and Indian Standard Drinking Water particular IS: 10500-2012. The investigation of physico-chemical of this driking water test proposes that the assessment of water quality parameters .In madanpalli mandal we selected villages are Kasiraopeta, Malepadu, Madanpalle, valasapalle , in each village we collected 2 samples of 1 ground water sample and 1 surface water sample ,sample code distribution will explained in next body of paper.*

Key words: Madanpalli, Drinking water, Surface water, Ground water,IS:10500-2012.

I. INTRODCUTION

Water is the most vital essence material in nature to every biotic components especially humans , birds, animals, plants etc. .and furthermore molding the land and managing the atmosphere too.Ground water and surface water sources are utilized for Human exercises and furthermore Industrial exercises(3). be that as it may, over the most recent couple of decades there has been increment the interest of new water because of fast development of populisation and industrialization and furthermore environmental change .

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In this setting the stay a few wellsprings of water was defiled by undesirable exercises in present research region particularly around there because of essence of more slope zone and lacking precipitation there is a raise of a worldwide temperature alteration.

With the goal that we chose this territory to think about. Most of the solvent constituents in ground water originates from dissolvable minerals in soils and sedimentary rocks. The more typical dissolvable constituents incorporate calcium, sodium, bicarbonate and sulfate particles. Another basic constituent is chloride particle gotten from interfered ocean water, connate water, and evapo transpiration concentrating salts, and sewage squanders for instance. So here we chose a few territories of Madanaplli mandal to break down the examples for different parameters as taken in two diverse ground water test and surface water test in every villahe and every village two samples. For this investigation we chose four territories named as Kasiraopeta, Malepadu, Madanpalle, valasapalle, and complete gathered 8 tests for example 4 samples isolated as 2 samples from ground water sources and 2 samples from surface water sources .samples gathered according to Indian guidelines test gathering systems.

Study area : Madanpalli mandal is located in Chittor district of Andhra Pradesh ,india .Surroundings due to hills more number of trees like forest there is very high range of rainfall .so water source is very huge in that area.Total madaal area is 241.48 Km^2 (5) .As This mandal is munciaplity so water supply to public for their regular needs governing by municipality afyer treated proper general methods of water treatment .

II. SAMPLING AND ANALYTICAL METHODS (4)

8 samples were collected from selected 4 villages according to examining techniques indicated in IS:3025 section 1 in Poly Ethilene bottles and immedialty conveyed to research center to break down the examples for physico – Chemical qualities like pH,EC,Turb.,F-,NO3-,SO42-,Temp,Dissolved oxygen,Total suspended solids ,Total Hardness, Chloride, and Trace metal particles are Cu, Zn, Mn, Fe, Al according to Al utilizing the strategies sketched out recommended by Indian standards(1). The acquired outcomes are after investigation contrasted and Indian Standard Drinking water determination IS: 10500-2012. Parameters are to analyzed by prescribed methods shown in below table.

Parameter	Prescribed test (1)
pH	pH meter
EC	Conductivity meter
Turbidity	Nephelometric technique
F-	SPADNS method
Nitrate	Spectrophotometer
Sulphate	Spectrophotometer
DO	DO meter
TDS	TDS meter

Hardness	EDTA titration
Cl-	Argentometric technique
Cu	AAS
Zn	AAS
Mn	AAS
Fe	AAS
Al	AAS

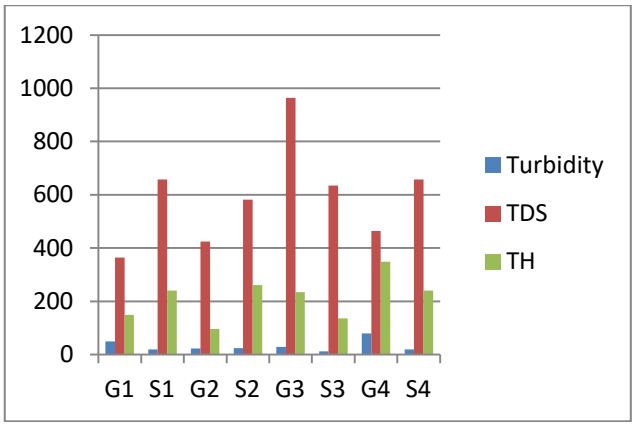
Results & Discussion:

Table.1: Physio-Chemical Analytical Results

Sample Code	pH	EC µs/cm	Turb NTU	F^- (mg/l)	NO_3^- (mg/l)	SO_4^{2-} (mg/l)	Temp ^oC	DO Mg/l	TDS (mg/l)	Total Hardness (mg/l)	Chloride (mg/l)
G1	7.4	425	49.32	0.28	28.14	178	29	5.3	364	149	82
S1	6.5	365	18.92	0.96	29.12	48.62	28	3.4	658	241	87
G2	8.2	568	23.15	0.16	15.62	136	26	6.1	425	97	114
S2	7.6	745	24.23	0.54	46.21	54.63	29	4.9	582	261	69
G3	6.2	746	29.36	0.26	41.23	76.39	26	2.9	964	235	63
S3	8.4	251	12.30	1.2	36.25	35.26	26	5.9	635	136	136
G4	7.5	585	79.82	0.38	48.24	278	29	6.3	464	349	92
S4	6.5	365	18.92	0.96	29.12	48.62	28	3.4	658	241	87

Graphical Represntation-Madanpalli

Graph.:Sample codes Vs **standard limit crossed parameter analytical Data**



After successfully completed quality assessment of drinking water in **Madanapalli-Chittor** district by choosing 4 villages randomly and from each village collected 2 different driniking water samples as ground water ,surface water sources and finally try to will get maximum accuracy analysis report of selected parameters based on previous research works in this location.Here will discuss parameter wise fluctuations in different localities. pH in Most natural waters are generally alkaline due to sufficient quantities of carbonates and bicarbonates. pH also changes diurnally and seasonally due to variation in photosynthetic activity.The fluctuations of pH in this location was 6.2-8.4 By observation of this results all are samples were in with in limit as on 6.5-8.5. Electrical Conductivity is the measure of capacity of a substance or solution to conduct electric current. It was ranged from 251-746 µS/cm.. By observation of this results all are samples were in with in limit as on prescribed by ISO i.e less than 800 µS/cm **Turbidity** is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. The measurement of **turbidity** is a key test of water quality . In drinking water, the higher the turbidity level, the higher the risk that people may develop gastrointestinal diseases. Turbidity values obtained in the present study as are 12.30-49.32NTU. The high concentration of fluoride is leads to Dental and skeleton fluorosis . The concentration of fluoride is vary in various areas as from 0.16-1.2mg/l by observation samples all are with in limit. Nitrate is the most important of nutrient in Ecosystem. Generally water bodies polluted by organic matter exhibit higher values of nitrate As per standards Nitrate desirable limit is 45 and permissible limit is 100 mg/l..the nitrate are shown vary in selected area from 15.62-48.24mg/l, by observation all are samples are under limit. Sulphate ion if present in excess amount produce cathartic effect upon human beings. As per standards desirable limit is 200 and permisbile limit is 400 mg/l.The sulphate ion concentration is ranged from 35.26-278mg/l. , by observation all are samples are under limit. It is an important parameter which is essential to the metabolism of all aquatic organisms that posses aerobic respiration. The DO values obtained in the present study area are as from 2.9-6.3mg/l by observation all samples are under limit. TDS level as follows: excellent, less than 300 mg/litre; good, between 300 and600 mg/litre; fair, between 600 and 900 mg/litre; poor, between 900 and 1200 mg/litre; and unacceptable, greater than 1200 mg/litre in present study area TDS is ranged from 364-964mg/l, Hardness of water is a very important to used in domestically and industrial purpose.It may cause scale deposition and sludge formation in industries .actually as per standards hardness of water is desirable limit is 200 and permissible limit is 600 mg/l..In present study area the hardness of water samples ranged from 97-349mg/l.all are samples with in limit as per standards.

Chloride occurs in water samples is leads to sewage pollution as per low and higher values. Chloride desirable limit is 250 and permissible limit is 1000 mg/l.Chloride values are ranged from 63-136mg/l.

Table.2: Trace Metal Analytical results

Sample Code	Cu (mg/l)	Zn (mg/l)	Mn (mg/l)	Fe (mg/l)	Al (mg/l)
G1	0.027	1.02	0.025	0.012	0.016
S1	0.009	1.02	0.015	0.24	0.024
G2	0.028	0.89	0.009	0.023	0.024
S2	0.012	1.15	0.085	0.18	0.028
G3	0.01	1.5	0.001	0.36	0.008
S3	0.04	0.56	0.023	0.12	0.018
G4	0.007	1.2	0.05	0.012	0.006
S4	0.009	1.02	0.015	0.24	0.024

Incase of copper If the water samples exceed the EPA copper actionlevel of 1.5 mg per liter, water systems must use treatment to reduce corrosion. Consumers should take steps to reduce exposure to copper if they learn their waterexceeds the action level.In the present study area Copper concentration ranged from 0.007-0.04mg/l. as per observation some samples are with in limit i.e. 0.05-1.5mg/l. some are above limit

Zinc is an essential element for humans, and most health issues are focused on a deficiency of zinc rather than an excess. Adverse effects of an excess of zinc are centered around gastro-intestinal issues.at present Zinc ranged from 0.56-1.5mg/l as per observation samples are under acceptable limit,As per IS standards acceptable limit is 5 permissible limit is 15 mg/l.

manganese because of the staining which may be caused. As per the above results Manganese of drinking water sources is ranged from 0.001-0.085 mg/l where as BIS value is 0.1-0.3 i.e: all of Manganese of all samples in its limit of BIS

Rainfall seeping through soil causes iron to dissolve and leach into groundwater, including wells and aquifers used to supply drinking water. . The drinking water standard for iron is 0.3 milli- grams per liter (mg/l), Iron overload can lead to hemochromatosis, which can lead to liver, heart and pancreatic damage, as well as diabetes. In this study area iron concentration ranged from 0.012-0.36mg/l.The drinking water standard for iron is 0.03 – 0.2milli- grams per liter (mg/l).if It has been hypothesized that aluminium exposure is a risk factor for the development or acceleration of onset of Alzheimer disease (AD) in humans.At present Aluminium ranged from 0.006-0.028mg/l. Al of all samples in its limit of BIS.

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