Student study project on

WATER QUALITY PARAMETERS IN JADCHERLA,MAHABUBNAGAR DISTRICT,TELANGANA

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Dr.BRR Government collage

Jadcherla,Telangana

June -2022

DECLARATION

hereby declare that the project work entitled with **"WATER QUALITY PARAMETERS IN JADCHERLA "**is a genuine work done by us under the supervision of **Dr. B. Sadasivaiah**, for the Department of Botany, Dr. BRR Government College, and it has not been under the submission to any other Institute/University either in part nor in full, for the award of any degree.

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CERTIFICATE

This is to certify that the project work entitled " **WATER QUALITY PARAMETERS IN JADCHERLA,MAHABUBNAGAR DISTRICT,TELANGANA.**"is a bonafide work done by the students of III BZC (TM) **Mr. k.krishna kanth Miss.k.Shivani, Miss.j.Aruna, Miss.M.Anitha** my supervision for the award of Project Work in Botany, Department of Botany, Dr. BRR Government College, Jadcherlaand the work hasn't been submitted toany other College/University either in part nor in full, for the award of any degree.

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Assistant Professor of Botany

Examiners

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CHAPTER-1

INTRODUCTION AND NEED OF THE STUDY

Water is the second most important need for life to exist after air. As a result, water quality has been described extensively in the scientific literature. The most popular definition of water quality is "it is the physical, chemical, and biological characteristics of water" relative to the requirements of one or more biotic species and/or to any human need or purpose .the study of PH.

PH: pH plays an important role in the properties of a liquid containing water.

For instance, the pH of water may make certain elements in it, such as minerals and metals, more or less available to the body. Heavy metals in water with a lower pH tend to be more toxic, as they are more available to the body. A high pH would make heavy metals less available, and, therefore, less toxic.

The pH may also be a sign of other contaminants or bacterial life in a liquid. In general, a very high or very low pH can make water unusable for certain applications.

TDS: What is TDS

TDS stands for Total Dissolved Solids and refers to the total concentration of dissolved substances in drinking water. TDS comprises inorganic salts and a small amount of organic matter as well. Inorganic salts are made up of the positively charged cations (calcium, magnesium, potassium and sodium) and negatively charged anions (carbonates, nitrates, bicarbonates, chlorides and sulfates). The TDS level is how much of the total dissolved solids are present in the water.

Importance of TDS in Drinking Water

TDS in drinking water originates from places like natural sources, sewage, urban run-offs, industrial wastewater, chemicals in the water treatment process, chemical fertilizers used in the garden and plumbing. Water is a universal solvent and easical.

TH: How do I calculate water hardness?

Water hardness can be calculated by the following steps:

1. Multiply the **calcium** ion concentration by **2.497**.
2. Multiply the **magnesium** ion concentration by **4.118**.
3. Add the two numbers to obtain the water hardness in mg-$CaCo_3$/L.

The formula to calculate hardness of water is:

Hardness = Cal × 2.497 + Mg × 4.118

What is the range of hardness value for soft water?

The water is regarded as soft if the hardness value for water remains **under 60 mg/L**.

Physical parameters of water quality

Turbidity is the cloudiness of water It is a measure of the ability of light to pass through water. It is caused by suspended material such as clay, silt, organic material, plankton, and other particulate materials in water [□].

No. Types of water quality parameters

Physical parameters Chemical parameters Biological parameters

- Turbidity pH Bacteria
- Tempera Color Alkalinity Viruses
- Taste and odor Chloride Protozoa
- Solids Chlorine

J., Zaffiro, A. D., Marx, R. B., Kefauver, P. C., Krishnan, E. R., Haught, R. C., & Herrmann, J. G. (2007). On-line Water Quality Parameters as Indicators of Distribution System Contamination. The safety and security of drinking water distribution systems have recently generated considerable interest because of the credible concern that they could be compromised with chemical, biological, and radiological contaminants. In order to protect public health, the United States Environmental Protection Agency (EPA) initiated a program to investigate how changes in water quality parameters, which potentially indicate contamination, may be detected by realor near real- time sensors.

Omer, N. H. (2019). Water Quality Parameters. Since the industrial revolution in the late eighteenth century, the world has discovered new sources of pollution nearly every day. So, air and water can poten- tially become polluted everywhere. Little is known about changes in pollution rates. The increase in water-related diseases provides a real assessment of the degree of pollution in the environment.

Gorde, S. P., & Jadhav, M. V. (2013). Assessment of Water Quality Parameters: A Review. Water is the most important in shaping the land and regulating the climate. It is one of the most important compounds that profoundly influence life. The quality of water usually described according to its physical, chemical and biological characteristics. Rapid industrialization A Comprehensive Review on Water Quality Parameters Estimation Using Remote Sensing Techniques

Raman, B. V., Bouwmeester, R., & Mohan, S. (2009). Fuzzy Logic Water Quality Index and Importance of Water Quality Parameters. Determination of status of water quality of a river or any other water sources is highly indeterminate. It is necessary to have a competent model to predict the status of water quality and to advice for type of water treatment for meeting different demands. One such model (UNIQ2007) is developed as an application software in water quality engineering. The unit operates in a fuzzy logic mode including a fuzzification engine receiving a plurality of input variables on its input and being adapted to compute membership function parameter.

Liu, Y., Islam, M. A., & Gao, J. (2003).Quantification of shallow water quality parameters by means of remote sensing. Quantification of quality parameters of inland and near shore waters by means of remote sensing has encountered varying degrees of success in spite of the high variability of the parameters under consideration and limitations of remote sensors themselves. This paper comprehensively evaluates the quantification of four types of water quality parameters: inorganic sediment particles, phytoplankton pigments, coloured dissolved organic material and Secchi disk depth. It concentrates on quantification requirements, as well as the options in selecting the most appropriate sensor data for the purpose. Relevant factors, such as quantification implementation and validation of the quantified results are also extensively discussed. This review reveals that the relationship between in situ samples and their corresponding remotely sensed data can be linear or nonlinear, but are nearly always site-specific.

Shah, C. R. (2017). Which Physical, Chemical and Biological Parameters of water determine its quality. Water quality is determined by physical, chemical and microbiological properties of water. These water quality characteristics throughout the world are characterized with wide variability. Therefore the quality of natural water sources used for different purposes should be established in terms of the specific water-quality parameters that most affect the possible use of water. Physical Characteristics of Water Physical characteristics of water (temperature, color, taste, odor etc.) are determined by senses of touch, sight, smell and taste. For example temperature by touch, color, floating debris, turbidity and suspended solids by sight, and taste and odur by smell.

Akter, T., Jhohura, F. T., Akter, F., Chowdhury, T. R., Mistry, S. K., Dey, D., ... & Rahman, M. (2016)Water Quality Index for measuring drinking water quality in rural Bangladesh: a cross-sectional study. Public health is at risk due to chemical contaminants in drinking water which may have immediate health consequences. Drinking water sources are susceptible to pollutants depending on geological conditions and agricultural, industrial, and other man-made activities. Ensuring the safety of drinking water is, therefore, a growing problem. To assess drinking water quality, we measured multiple chemical parameters in drinking water samples from across Bangladesh with the aim of improving public health interventions.

CHAPTER- III

STUDY AREA

Jadcherla is a census town in Mahbubnagar district of the Indian state of Telangana. It is located in Jadcherla mandal in Mahbubnagar revenue division.[3] In 2011, it was upgraded from village to a census town, along with 11 other villages.[1]:13 It is a historical town and is known for its cultural heritage.[4] Recently[*when?*] Jadcherla has been made a Municipality.

- Geography
- Demographics
- Government and politics
- Economy
- Culture
- Transport
- References

Geography[edit]

Jadcherla is located at 16.7738°N 78.1367°E and at an altitude of 14 m (46 ft). The town is spread over an area of 550 km^2 (210 sq mi).[2] Jadcherla is located 86 km from Hyderabad 130km from Kurnool and 21 km from Mahabubnagar.

Demographics[edit]

As of 2011 census, Jadcherla had a population of 17,958. The total population constitute, 9,083 males and 8,875 females —a sex ratio of 977 females per 1000 males. 2,251 children are in the age group of 0–6 years, of which 1,139 are boys and 1,112 are girls. The average literacy rate stands at 75.25% with 11,820 literates, significantly higher than the state average of 67.41%.[1]

Government and politics[edit]

Jadcherla is a state Assembly/Vidhan Sabha constituency in the state of Telangana and is part of Mahbubnagar Lok Sabha/Parliamentary constituency. Jadcherla falls in Mahabubnagar district and South Telangana region of Telangana. It is categorised as a rural seat. C. Laxma Reddy is the

present MLA of the constituency from Telangana Rashtra Samithi.[5] It is also a part of Mahabubnagar lok sabha constituency which was won by Manne Srinivas Reddy of Telangana Rashtra Samithi.

Economy[edit]

Pharmaceutical industry of Special Economic Zone and Green Industrial Park are for providing local employment. Apart from this, there are other sectors like, tourism and real estate contributing to the economy.[4][8]

Culture[edit]

There exists some of the historical religious structures. The Hindu temples include, 12th century Chennakeshava temple, Anjaneya temple, Maisamma temple, Parushaveri temple and Ranganayaka temple. The Jain shrine also exists by the name Gollatha Gudi. Other notable landmarks of the town are Nachiketa Tapovanam, Sitammajalu waterfall, Mayuri nursery etc.[4]

Transport[edit]

TPTY - KCG Double Decker at Jadcherla

Jadcherla Bus Stand

The town connected to the major destinations through national and state highways. Asian highway 43 and NH 167 passes through the town.[9] The State Highway 18 connects it with Nalgonda and SH 21 with Wanaparthy. TSRTC operates buses to various destinations from Jadcherla bus station.[10][11] Jadcherla is as a railway station in Hyderabad railway division of South Central Railway zone.[12

CHAPTER-IV

METHODOLOGY

I have did this project individual .i have collected water samples from hotels ,bakeryies chats, Restaurents ,and free cooled water shelter, RO water, villages, bore water etc……..

I have went to hotels just as a customer and I have ordered for some food iteam then I have asked for them for a bottle of water some of them have agreed for that and some of then said sorry sir no . those who said ok u can take a bottle of water but then when I have taken photo in GP camera then they did not agreed to take a photo then I have explained them about my project then some of them are agreed . and then I also went to some of my friends home to check there drinking water which they are using to drink and I hve explained them about the water which is safe to drink and which is not and also went some rural villages like kotha pally,dondla pally,ayyavar pally etc….. I have found many mistakes in that water which they are using to drink mostly in villages they use to drink mission bhagiratha water , due to tha damage of pumos, and not clean of tanks and due to some high addition of bleech the water parameters were found to be high but then also the water is safe to drink .

And also I have tested that ro water whis was using to drinknk in some industrial sites .

Process of sample testing:

Step 1: First I have collected the sample water .then I have tested ph with 10 ml of sample of water with the help of PH solution then

step 2: testing of TDS with the help of TDS meter by dipping the metter in the sample water etc….

step 3: testing of TH(TOTAL HARDNESS) teted with the help of hard ness kit etc…after getting the results I have pre[ared a formet and I have written feed back and explained them abot the feed back of the water and explained them etc.. I have gave the some feed backs about that water wt they are drinking and ro add some chemicals in RO plant and in miss

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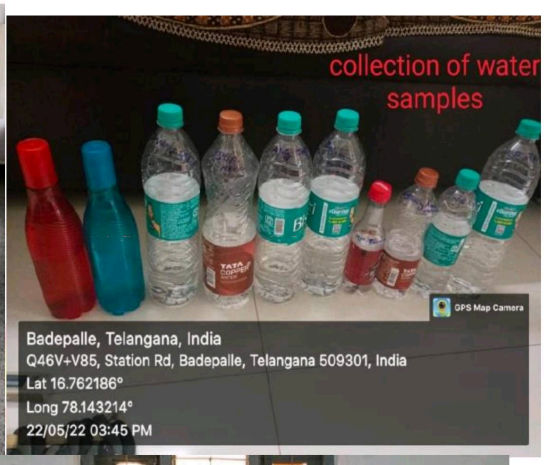
collection of water samples
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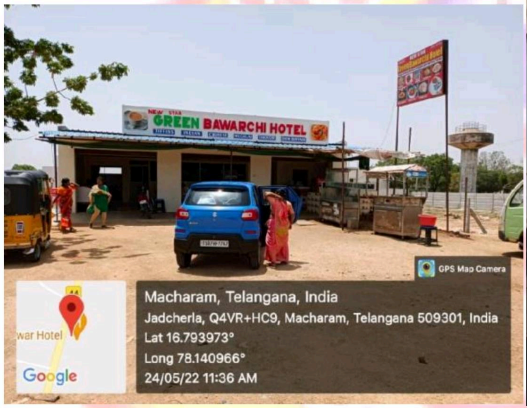
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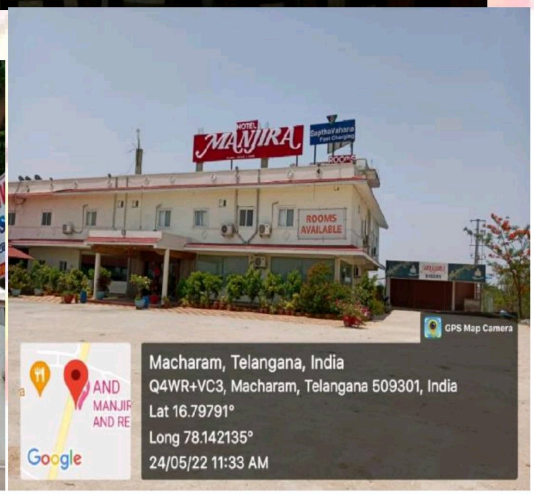
HOTEL MANJIRA
ROOMS AVAILABLE
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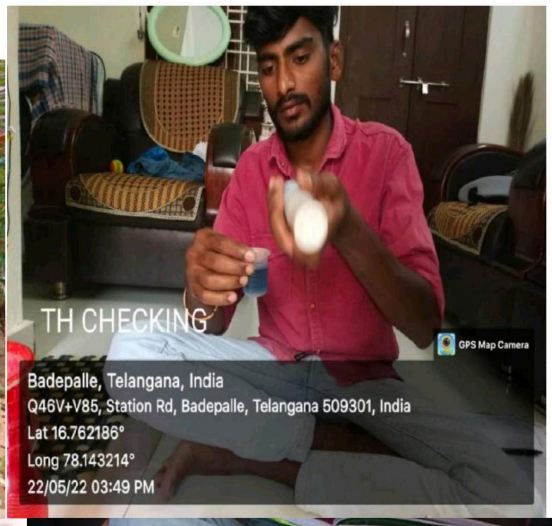
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Alfa Cafe
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water Testing kit
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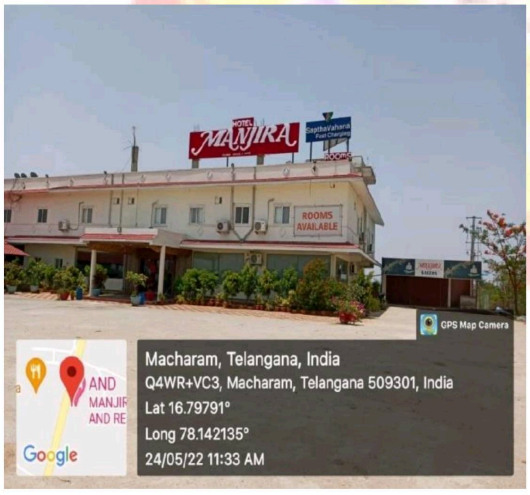
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CHAPTRE-V
RESULTS AND DISCUSSIONS

Among the given 18 water samples collected from different hotels in jadcherla town majority of samples showing normal quality and they are safe for drinking.

From the below given table 11 hotels water samples found to be normal and safe to drink
Remaining 7 hotels water parameters ph found to be hing the hig ph water is unsafe to drink .

TABLE -1

S.NO	HOTEL NAME	DATE OF COLLECTION	PH	TDS	TH	REMARKS
1	MITHAI GHAR	22-05-2022	7.5	38	6 PPM	NORMAL
2	RR BAKERY	22-05-2022	7	41	4 PPM	NORMAL
3	DELHIWALA	22-05-2022	7.2	36	2 PPM	NORMAL
4	UDIPI HOTEL	22-05-2022	6.5	25	4 PPM	PH FOUND TO BE LOW UNSAFE TO DRINK
5	ALFA CAFÉ	22-05-2022	8	52	20 PPM	NORMAL
6	NEW LJ BANGLUR BAKERY	22-05-2022	8.2	61	26 PPM	WATER PH FOUND TO BE SLIGHTLY HIGH
7	ABHINYA SHRI FOOD	22-05-2022	6.5	42	6 PPM	PH FOUND LO BE LOW UN SAFE TO DRINK THE WATER
8	NICE BAKERY	22-05-2022	7	36	2 PPM	NORMAL
9	ASR BAKERY	22-05-2022	7.8	54	10 PPM	NORMAL
10	ABHIRUCHI	24-05-2022	6.5	32	3 PPM	PH FOUND TO BE LOW UNSAFE TO DRINK
11	SHRI GURU RAGHAVENDRA UDIPI HOTEL	24-05-2022	7.5	41	6 PPM	NORMAL
12	SHRI VENGAMAMBA	24-05-2022	7.8	37	14 PPM	NORMAL

	JUICE POINT					
13	NEW GOLDEN BAKERY	24-05-2022	6.3	17	4 PPM	PH FOUND TO BE LOW UNSAFE TO DRINK
14	KALIINGHA	24-05-2022	6.6	49	32 PPM	PH HIGH UNSAFE TO DRINK
15	PAVAN MESS	24-05-2022	8	53	14 PPM	NORMAL
16	MUNAWAR HOTEL	24-05-2022	7.5	67	22 PPM	NORMAL
17	MANJIRA HOTEL	24-05-2022	7.5	51	18 PPM	NORMAL
18	CLR FREE COOLED	24-05-2022	6	37	6 PPM	PH FOUND TO BE LOW UNSAFE TO DRINK

Among the given 10 water samples collected from different villages and different colony 9 water samples found to be safe to drink and 1 sample is found unsafe to drink.

TABLE -2

S.NO	AREA AND PLACE OF SAMPLE COLLECTION	DATE OF SAMPLE COLLECTION	PH	TDS		REMARKS
1	DR BRR GOVT DEGREE COLLAGE, JADCHERLA BORE WATER	24-05-2022	7.5	803	18	TDS IS HIGH WATER IS UNSAFE TO DRINK
2	KAVERAMMA PETA,JADCHERLA MISSION BHAGIRATHA WATER	28-05-2022	8	175	22	NORMAL
3	BURGU PALLY , JADCHERLA ,MISSION BHAGIRATHA WATER	24-06-2022	7.5	180	32	NORMAL
4	MARRI CHETTU	23-06-2022	7.8	300	28	NORMAL

	TAHAND , MISSION BHAGIRATHA WATER					
5	KOTHA BPALLY LIMBIYA THANDA, MISSIONBHAGIRATHA WATER	23-06-2022	8	193	18	NORMAL
6	DONDAL PALLY,RAJAPOOR, RO WATER	24-06-2022	7	21	4	NORMAL
7	AYYAVAR PALLY ,MISSION BHAGIRATHA WATER	24-06-2022	8.5	312	34	PH AND TDS FOUND TO BE HIGH
8	NIMABAI GADDA ,JADCHERLA RO WATER	24-06-2022	7	21	4	NORMAL
9	VENKATESWARA COLONY JADCHERLA RO WATER	24-06-2022	7.5	32	6	NORMAL
10	GOUERY SHANKR COLNEY RO WATER	24-06-2022	7.8	29	8	NORMLL

CHAPTER-VI

CONCLUSION

The study of water quality parameters in jadcherla

The samples which I was collected from the hotels mostly there are main problem that I have found in the water samples low PH only at some hotels only I have found all parameters normal the high ph water is un safe to drink it can cause skin to become dry itchy and irritated . And I have also observed that high PH, and high TDS in in mission bhagiratha water due to the leakage and damage of pipes the water is contaminated with some ground soil to avoied and also found high bleech level in that water sample to I request to that mission bhagiratha higher officers to take action on this kind of problems and also found some high PH problems at hotel samples i request the municipal commissioner to take action on hotels and RO plant.woners to give them some advoices to maintain the parameters .

CHAPTER –VII

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