Experiential Learning through Project Work

Department of Chemistry 2021-22

Providence Women's College Calicut

Preliminary Water Quality Analysis of Local Water Bodies

1. INTRODUCTION

Water quality refers to the chemical, physical and biological characteristics of water. It is a measure of the condition of water relative to the requirements of one or more biotic species and or to any human need or purpose. It is most frequently used by reference to a set of standards against which compliance can be assessed. In the present project physical and chemical properties of water from water resources near to the residence of students were analyzed & compared. The properties analyzed are the follows:

- Total Dissolved Solids
- Temperature
- pH
- Conductivity
- Turbidity

2. Materials and methods

Sampling and analysis: water sampling and analysis involves the collection of water samples and measurement for chemical and biological characteristics to determine its quality. These results are compared with water quality standards in regulations or guidelines to determine its use or the treatment required to make the water suitable for its intended use. Students were divided into five groups to collect the water samples from ten different sources and to do the analysis. The samples analyzed during this project are:

Sample No.	Source of the sample
1	House-1
2	Factory producing house hold goods
3	Milma agency
4	Bore well
5	House-2 near oil mill
6	NIT campus
7	River
8	Lake
9	Field-water used for irrigation
10	Co-operation pipe

3. RESULTS AND DISCUSSION

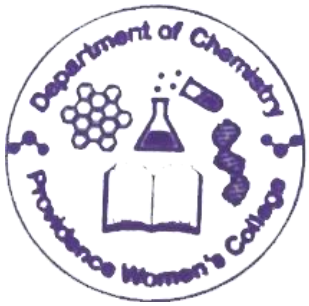
According to Indian Standards: 10500 (Drinking water specifications), the value for TDS should not be more than 2 g/l. If it exceeds this value, it might cause gastro intestinal irritation. However, it can be seen that the value of TDS is higher than this value in samples taken from river, lake and field.

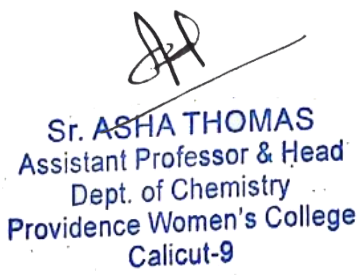
Sample no.	TDS (g/l)	Conductivity (mS/cm)	Turbidity (NTU)	pH Value
1	0.435	0.0762	1.7	7.23
2	0.385	0.0678	1.9	6.58
3	0.382	0.0702	1.6	7.01
4	0.452	0.0781	2.8	7.25
5	0.464	0.0832	7.3	7.12
6	0.294	0.0513	2.6	7.22
7	2.865	0.1255	8.4	6.07
8	2.321	0.1023	7.5	6.14
9	2.116	0.0985	6.8	7.09
10	0.658	0.854	3.0	7.12

Conductivity is directly related to the total dissolved solids. Therefore, it can be seen that the value of conductivity is more in the samples possess high TDS. If we reduce TDS, the value of conductivity will automatically be reduced. According to Indian Standards: 10500 (Drinking water specifications), maximum value of turbidity should be 5 NTU. But here, many samples have higher value. This water is certainly not fit for drinking. The pH of most of the sample fall within the required value between 6.5 & 8.5. The pH of river water and lake water are slightly less than this value which shows water is acidic.

4. Conclusions

Study provides an understanding of sampling techniques and analytical tools to ensure the quality of water to the students. It also helps them to be aware of the polluted water bodies near their residence.





List of students participated in the Project Work		
Sl. No	**Name**	**Class**
1	Aarsha Babu C	II Chemistry
2	Agna Joji	II Chemistry
3	Ajanya K Anil	II Chemistry
4	Amaya K R	II Chemistry
5	Amaya Ks	II Chemistry
6	Amrutha Unni	II Chemistry
7	Anjusha M	II Chemistry
8	Anugraha K	II Chemistry
9	Aparna P	II Chemistry
10	Aparna V	II Chemistry
11	Archana M K	II Chemistry
12	Aryananda M	II Chemistry
13	Aswani V	II Chemistry
14	Ayisha Mirsa	II Chemistry
15	Devika Sasikumar	II Chemistry
16	Gayathri G K	II Chemistry
17	Gayathri Raj	II Chemistry
18	Hanin Sharafa	II Chemistry
19	Hiba Fathima	II Chemistry
20	Keerthana N	II Chemistry
21	Manusmaya P	II Chemistry
22	Manya R	II Chemistry
23	Nafeesa Thasneem	II Chemistry
24	Namitha Joy	II Chemistry
25	Nandana M V	II Chemistry
26	Nivedhya P P	II Chemistry
27	Pooja S Prabhu	II Chemistry
28	Praveena Venugopal	II Chemistry
29	Reema Rosarita	II Chemistry
30	Revathi P	II Chemistry
31	Samanwaya P T	II Chemistry
32	Sandra P M	II Chemistry
33	Sangeerthana.K	II Chemistry
34	Shana Parvin	II Chemistry
35	Shivani K M	II Chemistry
36	Sneha P	II Chemistry
37	Sneha Sajeev	II Chemistry
38	Sona S Nair	II Chemistry
39	Sredha Sreedharan	II Chemistry
40	Sreelakshmi V	II Chemistry
41	Swathi P	II Chemistry
42	Swathi U	II Chemistry
43	Vyshnavi M	II Chemistry
44	Yuktha Govind S	II Chemistry

Sr. ASHA THOMAS
Assistant Professor & Head
Dept. of Chemistry
Providence Women's Colleg
Calicut-9