MEASUREMENT OF PHYSICAL & CHEMICAL PARAMETERS OF MATH , POND,AND BUDHWARI BAZAAR POND WATER , SEONI (M.P.)

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Abstract- The Aim of wastewater sampling is to collect a portion of material small enough in volume to be transported conveniently and handled in the laboratory while still accurately representing the material being sampled. This implies that the concentration of pollutant in the sample will be the same as in the material being sampled, and the sample will be handled in such a way that no significant changes in composition occur before the analytical tests are made on it.

KEYWORDS: Math pond, Babariya pond, Budhwari bazaar pond, TDS and Turbidity.

1. INTRODUCTION-

People on globe are under tremendous threat due to undesired change in the physical, chemical and biological characteristics of air, water and soil .due to increase human population, industrialization, use of fertilizer and man-made activity water is highly polluted with different harmful contaminants .Natural water contaminates due to weathering of rocks and leaching of soils, mining processing etc. It is necessary that the quality of drinking water should be checked at regular time interval, because due to use of contaminated drinking water, human population suffers from varied of water borne diseases. The availability of good quality water is an indispensable feature for preventing diseases and improving quality of life. It is necessary to know details about different physico- chemical parameters such as color, acidity, hardness, Ph, sulphate, chloride. Alkalinity used for testing of water quality. Heavy metals such as Pb, Cr, Fe, Hg etc. are of special concern because they product water or chronic poisoning in aquatic animals. Some water analysis reports with physico–chemical parameter have been given for the exploring parameters study. Guidelines of different physic –

chemical parameters also have been given for comparing the value of real water sample.

SAMPLE COLLECTION

For chemical and physical analysis of water, sufficient water sample(2-litres) are collected under different conditions.

Sampling involves

➢ **Sample container**:- Generally glass container or Stoppered Winchester quartz bottle of 2.5 liters capacity is used. When composite samples are to be collected, it is advisable to use wide mouthed bottles of capacity 200-300 ml for subsamples.

➢ **Sample:** Point sampler, depth- integrating sampler and displacement sample (for the determination of dissolved oxygen) are employed to meet the specific requirements.

➢ **Grab sample and composite sample**: Liquid samples may be instantaneous, spot, snap or grab samples and continuous or composite samples.

➢ **Collection of Sample**: When the liquid is homogeneous, take the grab sample in a sample bottle. In case of heterogeneous liquid like sewage, a composite sample is taken.

1. **Sample Potable waters**. Sample of potable waters should be taken from a tap directly connected to the main line. If water from a well is to be collected, then the well has to be pumped for a long time so that the sample represents the ground water that feeds the well.

2. **Sampling Industrial effluents and waste waters**: Care is to be taken in the analysis of industrial effluents. It is advisable to study during sample collection:

➢ The character of effluent,
➢ The waste load
➢ Major sources of wastes within a plant
➢ Recovery of useful materials

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➢ The effect of discharged wastes on the receiving body of water.

The composition of pollutant in the effluent is assed by performing laboratory analysis on representative samples collected from wastewater treatment plant. While performing waste water sampling following general precautions shall be considered.

1. Take a sample that meets the requirement of the sampling program and handle it in such a way that it does not decompose or become contaminated before it reaches to the laboratory.
2. Before filling, rinse sample bottle two to three times with the wastewater being collected.
3. Depending on analyses to be performed, fill sampling container fully (for organic analysis) or leave space for aeration (microbiological analysis).
4. Do sampling carefully to ensure that analytical result represents the actual sample composition.
5. Make a record of every sample collected and identify, every bottle, preferable by allocating an appropriately inscribed label with the following information.
   o Sampling station
   o Date and time of collection
   o Induction of composite sample
6. The samples shall not be taken by skimming the top or scrapping the bottom. A point about one third of the way from the bottom shall normally be selected.
7. The samples should reach the place of analysis within 72 hrs of collection. The time between collection and analysis should be recorded in the report.

ANALYSIS OF WATER POLLUTANTS

The analysis of water is extremely important as it contains a large number of impurities which are necessary to be checked before the water is used for any specific purpose.
Water analysis: Is usually expressed in milligrams per litre or in parts per million (ppm), where
1 ppm = one part of hardness/10^6 parts of water
1 ppm = 1 ug $^{-1}$; 1 ppb = 1 ng g^{-1}, 10 ppb = 1 ng
Parts per million (ppm) means the number of parts of substance per million parts of water.

II.   MATERIAL AND METHODS
Water sample where collected monthly from different sample station of the year Oct. 2014, Jan. 2015 and March 2015 in 1000 ml polythene bottles Math pond (lake) is attached to the seoni city in M.P. The water available to public for his personal requirement is not absolutely pure. Many cause the physiochemical composition in the water and finally become insoluble for human consumption.

Table .1. EFFLUENT STANDARDS

Parameter	Standards			
	In land surface water	Public sewers	Lands for irrigation	Marine coastal area
Suspended solid	100	600	200	100
Dissolved solids	2100	2100	2100	-
Sulphate	1000	1000	1000	-
Total N	100	-	-	100
NH₃-N	50	50	-	50
Chloride	1000	1000	600	-
Fluoride	2.0	15	-	15
Percent Na	-	60	60	-
Phenolic compounds	1.0	5.0	-	5.0

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Alpha emitter uC/ml	10^{-7}	10^{-7}	10-8	10^{-7}
Beta emitters uC/ml	10^{-6}	10^{-6}	10^{-7}	10^{-6}

Table 2. :- Analytical result of the following parameters & various samples of water obtained from different sample of water math pond in near Seoni city.

Name of Pond:- Math Pond, District SEONI (M.P.)

S. No.	Parameter	Technique Used	WHO Standard	Indian Standard	Find Value
1.	**Color**	Visual/color kit	-	5-hazen units	Grey
2.	**Turbidity**	Physiological sense	Accept table	1-5 (NTU)	4.5
3.	**Acidity**	Acid-base titration	-	-	340
4.	**Electrical Conductance**	Conductivity meter/water analysis kit	-	-	2600 us/cm
5	**Alkalinity**	Acid-base titration	-	200 ppm	800 mg/l
5.	**Total hardness** Ca Mg	Complex metric titration	200 ppm 240 35	300 ppm 340 45	200 ppm 400 60
6.	**pH**	pH meter	6.5-9.5	6.5-9.5	9.5
7.	**TDS**	-	-	-	1600
8	**TSS**				400
9	**Heavy Metals** Fe Mn	Compelxometric method			0.35 0.2

Table 3. Name of Pond:- Budhwari Pond, District SEONI (M.P.)

S. No.	Parameter	Technique Used	WHO Standard	Indian Standard	Find Value
1.	**Color**	Visual/color kit	-	5-hazen units	Brown
2.	**Turbidity**	Physiological sense	Accept table	1-5 (NTU)	4.8
3.	**Acidity**	Acid-base titration	-	-	190
4.	**Electrical Conductance**	Conductivity meter/water analysis kit	-	-	2100 us/cm
5	**Alkalinity**	Acid-base titration	-	200 ppm	940 mg/l
5.	**Total hardness** Ca Mg	Complex metric titration	200 ppm 240 35	300 ppm 340 45	200 ppm 360 35
6.	**Ph**	Ph meter	6.5-9.5	6.5-9.5	10.6
7.	**TDS**	-	-	-	1200
8	**TSS**				200

9	**Heavy Metals** **Fe** **Mn**	Compelxometric method			0.42 0.18

III.   RESULT AND DISCUSSION-

Industrialization is believed to passes inevitable problem of pollution in water soil and air based on the type of industries. Nature of raw material and type of equipment used. Math Mandir and Shankar Madia to the Seoni city in M.P. The water available to public for his personal requirement is not absolutely pure. Waste sewage and vegetarian waste material are one of the pollutant which effected disorder in aquatic life.

Physiochemical parameter study is very important to get exact idea about the quality of water and we can compare result of different physiochemical parameters and analysis of various water sample collected from math pond and budhwari bazaar pond his result revealed that the parameter like electrical conductance, TDS, TSS or highly compared to permissible limit of CPCB (Central Pollution Control Board) and analysis showed the pollution load of the water.

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IV.   REFERENCE-

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