Research Paper
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PHYSICO-CHEMICAL ANALYSIS OF GROUND WATER QUALITY OF RAMSHILA POND AT GAYA DISTRICT

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ABSTRACT:

The Present communication deals with certain physic-chemical parameters of Ramshila pond at Gaya District in different time's intervals. Ramshila hill was located on the southeast side of gaya and is said to be the site of lord Rama's panda offering. There are a number of antique stone carving on and around the hill that to the presence of prior building or temples and near by the one pond. i.e ramshila pond associated with the bygone era. The physico-chemical parameters such as, pH, temperature, calcium, phosphate, alkalinity, total hardness, dissolved oxygen, biochemical oxygen demand, Floride, iron and sulphate, were estimated in the samples to evaluate their quality. Concentration of BOD, DO, Total hardness, Calcium, sulphate, alkalinity, phosphate, iron and chloride are within permissible limits and Iron, phosphate are negligible in comparison to permissible limits .The proper treatment necessary before the use for drinking purposes and irrigation purposes.

KEYWORDS:

PHYSICO-CHEMICAL PARAMETERS, RAMSHILA POND, WATER QUALITY.

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INTRODUCTION

Ramshila hill was located on the southeast side of gaya and is said to be the site of lord Rama's panda offering.there are a number of antique stone carving on and around the hill that to the presence of prior building or temples and near by the one pond.i.e ramshila pond associated with the bygone era. Ramshila hill presently in Gaya. Gaya City (M. Cor, 3,38,197,2001) situated at 240 47' N and 850 00'E is a place of pilgrimage of international importance is sacred both to the Hindus and the Buddhists Gaya, like Varanasi, is one of the most ancient living cities of the world and has been enjoying a prime place in the cultural history of India. Located on the bank of river Phalgu, it is a city of seven hills endowed with winsome landscape. Gaya is the 2nd largest city in the state of Bihar and is an important junction on the Grand Chord section of the Eastern Railway. It is connected with the historical Grand Trunk Road, the National Highway No.2, by two roads 28. Although considerable investigations have been made by the researchers but a little information is known about the systematic physico-chemical studies in ramshila pond at Gaya. It is important to note that no qualitative, quantitative or ecological study on hydrology was made so far from Ramshila pond Gaya. Ramshila has received various types of sewage i.e., domestic sewage, cattle waste etc. Hence an attempt into the hydrological investigation in relation to the different physicochemical characteristics of water taken up in the present investigation. Information about Ramshila pond. These freshwater communities are extremely sensitive to environmental variations. They respond quickly to environmental changes and are used to assess the ecological status of water body. In the present study an attempt has been made to assess the physico-chemical studies and their distribution and flactuations in the pond.

MATERIALS AND METHODS

In Ramshila pond water Samples were collected in plastic bottles for physico-chemical and biological analysis. Water temperature, pH, dissolved oxygen and free CO were determined on the 2 sampling spots and other parameters were analyzed in the laboratory. It is small, open, and shallow, round shaped, fresh water pond. All collections were made between 7.30 am to 9.30 am during the study period Physico-chemical parameters were analyzed in accordance with APHA et al. (2012), Sarmah & Goswami (2012), Mishra & Singh (2018) and Choudhary (2019)

RESULTS

Our result reveled that concentration of alkalinity, phosphate, iron, DO, BOD, Total hardness, Calcium, sulphate, and chloride are within permissible limits and Iron, phosphate are negligible in comparison to permissible limits . The proper treatment necessary before the use for drinking purposes and irrigation purposes.

TABLE 1: SHOWING DIFFERENT PARAMETERS OF GROUND WATER QUALITY OF RAMSHILA POND.

S n	Parameters	Sampling and Analysis			
		March	July	November	February
1	Alkalinity (mg/l)	230	230	240	230
2	PH	7.6	6.5	6.5	7.6
3	Temperature(ºC)	28	31	26	27
4	Nitrate (mg/l)	15	15	10	15
5	Nitrite (mg/l)	2.0	3.0	3.0	2.0
6	Phosphate (mg/l)	0.0	0.0	0.0	0.0
7	Iron (mg/l)	0.3	0.3	0.3	0.3
8	Chloride (mg/l)	300	220	300	300
9	Total Hardness (mg/l)	340	350	200	500
10	DO(mg/l)	3.1	3.2	4.2	2.1
9	BOD(mg/l)	2.0	2.1	2.6	2.4
11	Floride	0.0	0.0	0.0	0.0

CONCLUSION

In ramshila pond;

1. Concentration of DO, BOD, Total hardness, Calcium, sulphate, alkalinity, phosphate, iron and chloride are within permissible limits and Iron, phosphate are negligible in comparison to permissible limits.
2. The Proper treatment necessary before the use for drinking and irrigation purposes.

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