STUDY OF SOIL CONDITION OF THE TAJ BAJ POND BOTTOM OF HAJIPUR, NORTH BIHAR

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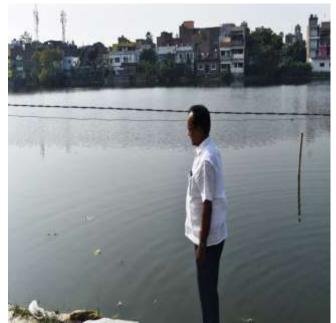
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ABSTRACT:

This paper presents the important results of the soil analysis of the Taj Baj pond bottom of Hajipur, North Bihar during the session 2019-2020. Pond soil samples of Hajipur (North Bihar) have been analysed regarding their suitability for useable purpose. The samples were analysed after every three months for various parameters like pH, organic carbon, Phosphate, Ca & Mg, Carbonate and Bicarbonate.

Keyword: Soil analysis, pond, Hajipur.

INTRODUCTION:

Fishes are the important sources of animal protein, to supplement the nutritional deficiencies. They are being used as food by human beings, from before the prehistoric age till today. Due to these reasons, the attention to the Zoologists has been draws towards the growth of pisci culture in India.

Bihar also known as the 'heart of india', primarily because of its spatial location in the India map. In Hajipur (Bihar), which is so rich in water there is a great potentiality of fish production. It is therefore, necessary to study in detail the physical, chemical and biological condition of water as well as the soil condition of the bottom.

The present study deals with the soil samples collected Taj Baj pond bottom of Hajipur, North Bihar. Taj Baj Pond is a perennial pond situated in the middle of Hajipur city. Hajipur is the headquarters of Vaishali district in north Bihar. Vaishali district is situated in Gandak Kamala interfluvial area. This pond is surrounded in an unplanned manner as well as residential and commercial construction. Ponds get polluted mainly due to discharge of water effluents Sewage waste, solid waste, detergent, pesticide etc. Also present pond household discharge, get a good amount of detergent,solid waste etc.

MATERIALS AND METHODS:

The soil samples collected from Taj Baj pond bottom of Hajipur, North Bihar. All the samples were brought to the laboratory of department of Zoology, SNS College,Hajipur and were analysed.

These soil samples were dried at the room temperature. The air dried soil was normally passed through 2mm sieve. Before sieving the soil clods were lightly crushed.

Plant residues, graved and pieces of bricks and other foreign materials retained in the soil were discarded.

The following chemical factors of soil were analysed - pH value, phosphate, calcium and magnesium, organic carbon, carbonate and bicarbonate. PH was determined with the help of pH meter. Estimation of phosphate content by Olsen's method (1954), calcium and magnesium by Ethylene Diamine Tetra acetate (E.D T.A.) Method, organic carbon by WALKLEY AND BLACKS Method (1934).

RESULTS AND DISCUSSION:

The pH value of soil of pond determined quarterly throughout the study, has been expressed in table no.-1. The pH of pond varied between 7.0 to 7.7 during 2019 and between 6.8 to 7.8 during 2020. It was maximum during April and October and minimum during January and July in both the ponds.

The values of organic carbon of soil of pond were determined every 3 months. Readings were expressed in table-1. The organic carbon of soil of the pond varied from 0.94% to 2.00% during 2019. It the maximum value of the organic carbon of the pond soil was 2.00 in the month of October. Quarterly determination of phosphate of the soil of pond as in table-1, revealed that it varied between 48ppm to 81 ppm in the year 2019. During 2020, it varied between 51 ppm to 90ppm. The maximum value of 81 ppm was recorded in the month of October. The minimum value was in the month of April.

The value of bicarbonate content of soil of pond ranged from 0.5426 m.e. to 1.3479 m.e. during the year 2019. The maximum bicarbonate content was recorded 1.3479 m.e. during October.

Ca and Mg values of the soil of the pond readings are shown in table-2. The maximum value of Ca and Mg of soil of Pond was 3.2587 m.e. in the month of October.

Table No.:- 1 Soil Analysis of the pond (pH, organic carbon and phosphate)

Month	Year	PH	Organic Carbon(%)	Phosphate (PPM)
January	2019	7.0	0.95	57
	2020	6.8	1.25	53
April	2019	7.6	0.94	48
	2020	7.8	0.98	51
July	2019	7.7	1.76	78
	2020	7.7	1.54	73
October	2019	7.5	2.00	81
	2020	7.7	1.87	90

Table No.:- 2 Soil Analysis of the pond (Calcium and Magnesium, carbonate and bicarbonate)

Month	Year	Ca and Mg (m.e.%)	Carbonate (m.e. %)	Bicarbonate (m.e. %)
January	2019	2.1564	Nil	0.6318
	2020	2.4651	Nil	0.7138
April	2019	2.0253	Nil	0.5426
	2020	1.8675	Nil	0.6853
July	2019	3.2653	Nil	1.0153
	2020	2.5416	Nil	1.1365
October	2019	3.9567	Nil	1.3479
	2020	3.2587	Nil	0.9785

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