

FLORA AND FAUNA

2015 Vol. 21 No. 1 PP 60-62

ISSN 0971 - 6920

ANALYSIS OF SOIL OF KHOKSA POKHER DALSINGSARAI, DISTRICT SAMASTIPUR (BIHAR)

RANI BIBHA KUMARI*, ARUN KUMAR** AND B. BHATTA

*Department of Zoology,
L.N.M.U. DARBHANGA (BIHAR), INDIA

**Chakjaddu, Malpur, BEGUSARAI ,
BIHAR(848202), INDIA

Department of Zoology,
D.B.K.N. College Narhan ,
SAMASTIPUR ,BIHAR,INDIA

E-mail : arun93440@gmail.com

Received : 5.2.15; **Accepted** : 27.3.15

ABSTRACT

The present study was carried out on the condition of soil of Khoksa Pokher Dalsingsarai ,district Samastipur (Bihar). It was observed that soil was soft and had water holding capacity . The soil of said pokher was alkaline with the presence of good amount of bicarbonate, carbonate, calcium ,magnesium and phosphate. The soil contained a variety of elements, chemical components and minerals.

Figure : 00

References : 07

Table : 01

KEY WORDS : Khoksa Pokher, Physico – chemical, Soil.

Introduction

The condition of soil plays an important role in determining the fertility of fish ponds. The physico- chemical properties of soil are responsible for the growth of the vegetation and determine the kind of organisms that can live. It plays an important role in determining the fertility of fish in fish pond. Though production of fish depends on the quality of water but the quality of water depends on the soil. Thus, Soil is “ **soul of Pokhers** ” . The present investigation was designed to study the limnology of soil of Khoksa Pokher of Dalsingsarai, distt. Samastipur ,Bihar because no such work was done previously . Khoksa Pokher is large ,deep perennial , rain cum riverfed , roughly rectangular in shape . The quality of soil was estimated by pH ,inorganic and organic constituents . Perusal of work related to condition of soil of different workers .¹⁻⁷

Materials and Methods

The water body (Khoksa Pokher) is located in village Khoksa , Distt. Samastipur (Bihar) on the latitude 25° 39' North and Longitude 82° 52' East. It

is connected with Naua chour in North and Khilhabad chour in West. There is canal in the west and other in east through which water enters during rainy season . Soil samples were collected monthly from four corners and mixed thoroughly and dried under shades. Soil samples were analysed for important chemical compounds by standard methods. In the first week of each month of year 2013, water samples were collected on clear day before noon in plastic jar. Temperature, transparency, pH and dissolved oxygen concentration of water were measured on spot using maximum, minimum thermometer, Secchi disc , standard pH paper and Winklers methods (APHA) respectively . Total Magnesium , Nitrogen and Sulphur content were estimated according to method suggested ².

Observations

(A) pH of Soil:

pH is one of the most important parameters for soil. Soils are referred to as being acidic, neutral or alkaline depending on their pH value. During the

TABLE - 1 : Soil contents of Khoksa Pokher (Dalsingsarai) of Samastipur district during Jan.2013 –Dec.2013.

S. No	Soil constituents	Pre monsoon season	Monsoon season	Post monsoon season
1	pH	7.6	8.2	7.4
2	Bicarbonate(mg/100 g)	1.8250	3.04725	0.81500
3	Carbonate(mg/100 g)	0.6850	1.4230	0.8045
4	Organic carbon (%)	0.79	2.20	2.00
5	Ca ⁺⁺ ,Mg ⁺⁺ (mg/100 g)	0.442	0.773	1.031
6	Phosphate(ppm)	15.45	110.00	85.50
7	Conductivity of soil (mho/cm at 25 ^o c)	0.65	0.75	0.25

present study period of Khoksa Pokher was observed pH ranging from 7.4 to 8.1 . During post monsoon season, it was 7.4 but increased to 7.6 in premonsoon season and was maximum 8.1 in monsoon season.

(B) Organic Carbon :

Organic carbon was recorded from 0.79% to 2.20% . It was 2% during post monsoon season but decreased to 0.79 in premonsoon season and became maximum 2.20% in monsoon season.

(C) Phosphate:

Phosphate content of soil of Khoksa Pokher varied from 15.45 ppm to 110.00 ppm . During post monsoon season , It was 85.50 ppm but decreased to 15.45 ppm in post monsoon season and became maximum during monsoon season 110.00 ppm.

(D) Calcium and Magnesium :

The value of Calcium and Magnesium was recorded from 0.4420 mg/100 g to 1.0310 mg/ 100 g . It was 0.7730 mg / 100 g during monsoon season and slightly decreased during pre monsoon season 0.4420 mg/100 g and became maximum during monsoon season 1.0310 mg/ 100 g.

(E) Bicarbonate :

Bicarbonate of soil in this pokher ranged from 1.8350 mg/100 g to 3.04725 mg / 100 g . The value of bicarbonate during post monsoon season was 0.81500 mg/100 g which increased in pre monsoon season and was 1.82500 mg/100 g but became maximum during monsoon season that was 3.04725 mg/100 g .

(F) Carbonate :

Carbonate of soil ranged from 0.6850 mg/ 100 g to 1.4230 mg/100 g . The value of carbonate during post monsoon season was 0.8045 mg/100 g but decreased during pre monsoon season was 0.6850 mg/ 100g and became maximum during monsoon season and was 1.4230 mg/ 100 g.

(G) Conductivity:

The conductivity of soil ranged from 0.25 mho/cm at 25^oC. Which was minimum during post monsoon season and increased during premonsoon season and was 0.65 mho/cm and became maximum 0.75 mho/cm during monsoon season.

Discussion

The physico-chemical properties of the soil are responsible for the growth of the vegetation and determine the kind of organisms that can live. The soil forms the top cover of the earth .Therefore , it plays an important role in determining the fertility of a water body. It is essential to investigate other water bodies located in different environmental conditions necessary for high productivity of any water body in relation to the fish which is given below :-

1. pH 6.5 to 7.5
2. Temperature min. 20^oC
3. Temperature mix. 37.8^oC
4. Depth More than 5 meter.
5. Organic carbon (%) 1.5 to 2.5
6. Phosphate (ppm) Greater than 60
7. Presence of mud , deposit of organic matter

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derived from the decay and decomposition of animals and plants .

On the other hand soil content of Khoksa Pokher during Jan. 2013 - Dec. 2013. (Table No. 1) showed complete alkaline in nature, throughout the year. Calcium and Magnesium were good in

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amount. Phosphate was high . This might be due to degeneration of phytoplankton and deposition of shell and bones.

Several workers have investigated on different water bodies from time to time to find out the condition of soil.^{2-4,6-7.}

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