Biospectra : ISSN : 0973-7057, Vol. 15(1), March, 2020, pp. 311-312 32(PS).
An International Biannual Refereed Journal of Life Sciences **Plant Science**

ISSN : 0973-7057

Int. Database Index: 663 www.mjl.clarivate.com

Assessment of physico-chemical parameters of soil in different area of Saharsa district

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Received : 28th January, 2020 ; Revised : 05th March, 2020

Abstract: Plants get nutrition from soil. Availability of inorganic salts of Phosphorus, Potash, Nitrogen etc. in soil is very important for the growth of plants. Soil pH and texture also play an important role in plant growth. In Saharsa district the pH value of soil ranged from 6.2 to 8.2 in different villages. Soil texture was loamy. Organic carbon ranged from 0.90% to 2.70% available Phosphate (P_2O_5) Traces to 6.25 K.g/hac. and available Potash (K_20) 226kg/hac to 353kg/hac.

Key words: Physico-chemical parameters, soil, Saharsa district,

INTRODUCTION

Soil is an important component of terrestrial habitat which also supports the aquatic ecosystem as well as wetlands in the biosphere.[1]

The physicochemical parameters of of soil sharply differs from other habitat media like water and air in terms of many soluble & insoluble minerals and nutrients getting deposited in layers forming the soil bed. This scientific principle makes the soil fertile or sterile & sometimes toxic due to deposition of undesirable substances.[2,3]

The present investigation is an attempt to bring on record different physicochemical parameters of soil samples collected from Saharsa district - a wetland pocket of Kosi division

MATERIAL AND METHOD :-

Soil Samples were Collected from 5 villages of Saharsa district 1) Mehshi 2) Mohanpur 3)Salkhua 4) Bangaon 5) Paharpur Samples were brought to laboratory and test was Performed for pH, Organic Carbon, texture, Potash and Phosphorus.

pH :- pH was determined as per the method described by Jackson (1958)[4]. Soil water suspension of 1.2 ratio was prepared by dissolving 10gm soil in 20ml. distilled water and stirred well for 5 minutes. It was kept undisturbed for some time and then again stirred. pH was measured on systronic pH meter after calibration with buffer of pH 4, 7 and 9.2

Potassium:- Potassium was Measured using Flame Photometer.

Phosphorus:-Phosphorus was measured using systronic spectrophotometer.

Organic Carbon :-

Total Organic Carbon was Measured as per method of Walkley and Black (1934)

01.One gram soil sample was added in a 500ml conical flask. 10ml. N Potassium dichromate was added in it.

02.20ml. Conc. Sulphuric Acid was added and left for 30 minutes.

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03.200ml. distilled water was added to the mixture.

04.10ml. Orthophosphoric Acid, 0.5gm. Sodium Fluoride and one ml. diphenylamine was added to mixture.

05.Mixture was titrated against .5M ferrous ammonium sulphate till the end point appear from blue. Voilet to green.

06.A blank also run without soil sample.

Organic Carbon was calculated by the formula

Organic Carbon % = $\frac{10\ (A-B)\ x\ 0.003\ x\ 100}{A\ x\ wt.\ of\ soil\ in\ gram}$

A = Vol. of ferrous amm. sulphate used against mixture

B = Vol. of ferrous amm. sulphate used in blank

RESULT

The pH value of soil ranged from 6.2 to 8.2 in different villages. Soil texture was loamy. Organic Carbon ranged from 0.90% 2.70% available phosphate (P_2O_5) Traces to 6.25 k.g/hac. and available Potash (K_2O) 226 k.g/h to 353 k.g/hac.

The result is tabulated in Table No. -01

Table 1- Table showing soil pH, soil taxture Organic Carbon, Phosphorus and Potash in fields of Saharsa District

S.No.	Site	Soil pH	Soil Texture	Organic C%	Available P_2O_5	Available K_2O
1	2	3	4	5	6	7
01	Mehshi	7.5	Loamy	1.12	2.3	293.3
02	Mohanpur	6.2	Loamy	1.07	6.25	353.1
03	Salkhua	8.2	Sandy Loamy	2.70	6.15	230.7
04	Bangaon	6.2	Loamy	1.00	Trace	232.5
05	Paharpur	6.5	Loamy	0.90	6.25	226.4

CONCLUSION

Plants get their nutrition from soil inorganic form for the healthy growth of plants soil pH, Taxture, Organic Carbon, Phosphate and Potash are important factors of Soil. In different villages of saharsa district soil in loamy with a pH range of 6.2 to 8.2. Organic Carbon is also in good quantity in most of the fields. However in Bangaon available phosphate is very low. Available potash is also in a satisfied quantity in different fields.

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