

EVALUATION OF SOIL PROPERTY AND ITS EFFECT ON ECOSYSTEM

Neelima Singh¹, Gautam Kumar Singh², Gitesh Kumar Singh³

^{1,2}Student, Government Engineering College, Jagdalpur, C.G., India

³Student Kendriya Vidhyalaya Jagdalpur, C.G., India

Abstract - The organic component influence the soil properties of different ecosystem in many different ways. Property influenced by organic matter include:- soil structure like water holding capacity, activity of soil organism, nature of soil, effect of chemicals fertilizers pesticides, pH value. Organic matter play and important and multi role in soil. Physically organic matter influence soil structure and all associated properties. Biological organic matter act as nutrient and energy supply for microbial biomass and higher plants. A smile which is biologically and chemically fertile but which cannot physically support crop development will not fulfil its organic potential. Soil productivity is therefore determined by combination of organic matter as influence on physical chemical and biological soil property.

Key Words: Munsell Chart, Water holding capacity, organic component, pH value

1. INTRODUCTION

Organic matter is one of the essential component of soil organic material is used by farmers and gardeners to increase the quality of soil. This increase the nutrient value of soil. Organic matter increased the water holding capacity of soil. The presence of additional organic matter induced an improvement in soil fertility and productivity. Organic material which supply nutrient into soil and plant can take both water and nutrition from soil.

1.1 OBJECTIVE

- 1) To find water holding capacity of soil.
- 2)) To determine colour of soil by using munsell colour chart.
- 3) To check the pH value of soil by using litmus paper to determine nature of soil (acidic or basic)

1.2 METHODOLOGY

List of materials: Soil sample, measuring cylinder, mansell chart, pH paper (litmus paper), water, spead/ khurpi, perforated container

2. EXPERIMENTATION

1. Firstly, fine land to collect soil sample (grassland, agricultural land)

2. By the use of khurpi collect soil sample.
3. Crush the soil sample which can be passed through 2 mm sieve.
4. Air dry the sample.

After preparing soil sample we perform experiment to check the parameter of soil. Water holding capacity, pH measurement, Soil colour.

3. RESULT AND DISCUSSION

The results obtained are as discussed below

3.1 WATER HOLDING CAPACITY

As we know that coil having capacity to hold water. As good quality soil hold right amount of water for plants and crops.

Step 1- Take five hundred gram of soil sample in perforated container and slowly add water in it.

Step 2- Collect drain out water in a container.

Step 3- Wait for 10 to 12 hours

Step 4- Measure the volume of water collected in beaker.

Step 5- Amount of water hold by soil calculated by

Water holding capacity = (volume of water) - (water Collected in beaker) For soil sample 1 (grass land)

S.NO.	TOTAL VOLUME OF WATER ADDED(ml)	WATER COLLECTED IN BEAKER	WATER HOLDING CAPACITY
1	300	200	100
2	250	160	98
3	250	146	104

For soil sample 2(agricultural land)

S.NO.	TOTAL VOLUME OF WATER ADDED (ml)	WATER COLLECTED IN BEAKER	WATER HOLDING CAPACITY
1	300	200	100
2	250	160	98
3	250	146	104

3.2 colour of soil

Munsell Colour System Contains Various Colour Of Soil. (Red , Brown, Grey, Yellow, Black)

- 1) Take one teaspoon of soil.
- 2) Record colour of soil matching with Munsell colour Chart.
- 3) Put few drop of water and again record the moist colour.



Colour observation table

TYPE OF SOIL	COLOUR OF SOIL (dry)	COLOUR OF SOIL (moist)
GRASS LAND	Brown	Dark brown
AGRICULTURAL LAND	Brown	Dark brown

3.3 pH of soil

PH value shows soil sample is acidic or basic in nature

- Step 1) Take 1 teaspoon of soil.
- Step 2) With the soil with two teaspoon of distilled water.
- Step 3) Adding water with for 5 minutes.
- Step 4) Put one piece of litmus paper in soil sample.
- Step 5) Check the range on pH scale
- Step 6) Determine the soil is acidic or basic in nature

PH values of soil Of grass land

SOIL	COLOUR ON LITMUS	pH VALUE	NATURE
Grassland	Yellow	6	Slightly acidic
Agriculture land	Greenish Yellow	6	Slightly acidic



Result obtained from soil sample 1(GRASS LAND) :-

- 1) Water holding capacity = 98ml
- 2) Colour of soil (DRY) = Brown
- 3) Colour of soil (MOIST) = Dark Brown
- 4) PH value = 6
- 5) Nature of soil = Slightly Acidic

Result obtained from soil sample 2(AGRICULTURAL LAND):-

- 1) Water holding capacity = 101ml
- 2) Colour of soil(DRY) = Brown
- 3) Colour of soil(MOIST) = Dark Brown
- 4) PH value = 6
- 5) Nature of soil = Slightly Acidic

4. CONCLUSION

This experiment has helped us to calculate the water holding capacity soil colour PH value and nature of soil. As we know that these are the properties influenced by organic matter. Therefore, in order to maintain the fertility and productivity of soil we should not use chemical pesticides insecticide to the field. This chemical change the pH level of soil which may cause harmful effect on crops plants and animals as well as human that effect whole ecosystem .Organic component influence the soil property of different ecosystem in many ways.

Future scope

This project is helpful for farmers, gardeners.

By maintaining good organic components quality of soil can be increased.

Fertility and productivity of soil can be increased. It save ecosystem for sustainable living.

5. REFERENCES

- [1]. munsell.com
- [2]. PH chart
- [3]. Wikipedia