

Physico-Chemical Analysis of Soil Samples from Beed District, Maharashtra

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Abstract

from Beed district, Maharashtra, India. From the Beed district, ten different places were selected for study, and the soil samples were brought to the laboratory for physico-chemical analysis. These soil samples were employed for the analysis of pH, Electrical conductivity, Total organic carbon, Nitrogen, Phosphorous (P₂O₅), and Potassium. The present study has been undertaken to find out the Physico-chemical characteristics of soil samples collected (K₂O). This study revealed that at different places of some places of Beed district have medium mineral contents, and at some places, mineral contents are of high.

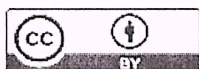
Keywords: Beed District, Soil samples, Physico-chemical properties.

Introduction

Soil is one of the most important ingredients which supports life. Soil resources are of vital importance for the growth and development of crop plants. For the analytical study of soil, very small amounts of soil samples are to be collected by making "V" shaped pits. Now a day's farmers are facing the problems of soil degradation and soil pollution which will ultimately affect the growth of crop plants and production of the crops. Increased soil salinity is one of the most important factors which is due to the extensive use of fertilizers, addition of chemicals and use of various chemicals. In fact, almost 40% of the world's land surface is affected by salinity problem (Bacchevar 2011). Soil sampling is perhaps the most vital step for any soil analysis. As a very small fraction of the huge soil mass is used for analysis, it becomes extremely important to get a truly representative soil sample of the field. Soil test based nutrient management has emerged as a key issue in an effort to increase agriculture productivity and production since optimal uses of nutrients, based on soil analysis, can improve crop productivity and minimize wastage of these nutrients, thus minimizing impact on the environment leading to a bias through optical production. Deficiencies of primary, secondary and micronutrients have been observed in intensive cultivated areas (Kaur H. 2002). Soil is a natural body on which agriculture products grow and it has a fragile ecosystem. Soil is a medium in which crop growth to food and clothes the world. Fertility of soil is one of the most important factors which regulate growth and yield of crops. Due to improper irrigation, imbalance and inadequate use of fertilizers, and various cultural practices, the soil quality is depleting rapidly. Soil is an important natural resource and plays a crucial role in maintaining environmental balance (Naiknaware V V 2017). Certain external factors control plant growth, temperature, mechanical support, air, nutrients and water. The present work is undertaken to study the physico-chemical analysis of soil samples collected from different villages of Beed district, Maharashtra.

Material and methods

The soil samples were collected from ten different villages of the Beed district by following the proper method of soil collection. The soil is collected from a depth of 30 cm from the surface of soil in polythene bags. The soil samples were collected in the month of Jan. 2016. The ten different villages of Beed district from where the samples are collected are Palwan, Rajuri(N), Namalgaon, Kurla, Jarud, Karzani, Waybhatwadi, Dhekanmoha, Malapuri, and Charhata. As per the standard procedure, soil samples were analyzed for physico-chemical properties in which pH, Electrical conductivity, and Total organic carbon, Nitrogen, Phosphorous (P₂O₅) and Potassium (K₂O) were analyzed. The pH of the suspension was determined using a pH meter. Electrical



conductivity (EC) of the soil was determined by using conductivity meter (Chandra R 2009). Percentage of organic carbon content was determined by adopting chromic acid wet digestion method. Nitrogen, Phosphorous and Potassium are determined by standard procedure. Results were compared with standard values.

Results and Discussion

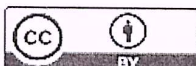
Table No. 1: Physico-chemical analysis of soil samples from different villages of Beed District Maharashtra.

Sr.No.	Name of Villages	pH	Electrical conductivity mhos	% of organic Carbon	% of Nitrogen	% of Phosphorous	% of Potassium
1	Palwan	7.65	0.64	0.76	0.06	0.032	0.96
2	Rajuri(N)	7.44	0.80	0.64	0.05	0.028	1.06
3	Namalgaon	7.30	0.75	0.78	0.07	0.034	1.12
4	Kurla	7.80	0.42	0.82	0.07	0.036	0.88
5	Jarud	7.93	1.34	0.62	0.06	0.030	1.26
6	Karzani	8.15	0.68	0.86	0.04	0.042	1.04
7	Waybhawadi	7.58	0.56	0.48	0.03	0.026	0.98
8	Dhekanmoha	8.45	1.06	0.74	0.05	0.032	1.03
9	Malapuri	8.20	0.82	0.81	0.05	0.026	1.01
10	Charhata	7.95	0.95	0.77	0.06	0.044	1.04

Table no. 1 shows physico-chemical properties of soil. The pH is an important parameter as it helps in ensuring availability of plant nutrients. pH also helps in maintaining the good soil condition. In the above study pH values ranges from 7.30 to 8.45 shows basic nature. The measurement of electrical conductivity (EC) is for measure the current that give clear ideas of soluble salts present in the soil. Conductivity depends upon the dilution of the soil suspension. The EC values ranges from 0.42 to 1.34 mhos suggest normal values (Naiknaware V.V.2012). The organic matter includes all the dead plants material and live or dead animal. Most living in soil including plants, insects, bacteria, protozoa and fungi are dependent on organic matter for nutrition and energy. In the present study the organic carbon percentage ranges from 0.48 to 0.86 shows normal soil. The percentage of nitrogen ranges from 0.03 to 0.07 suggests normal values. The percentage of phosphorous ranges from 0.026 to 0.044 suggest normal values.(Jackson M. L. 1967) and the percentage of potassium ranges from 0.88 to 1.26 also suggest normal values.

Conclusion

The present investigation shows that from different places of the Beed district some places of Beed district have medium mineral contents and at some places mineral contents is of high.



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