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## Studies of physicochemical parameters of different soil samples

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### ABSTRACT

*Analysis of soil was carried out for the studies of various parameters like total Organic Carbon, Nitrogen (N), Phosphorus ( $P_2O_5$ ) and Potassium [ $K_2O$ ] pH, conductivity. This study leads us to the conclusion of the nutrient's quantity of soil of Yawal, Taluka District-Jalgaon, (M.S.) Results shows that average all the villages of Yawal have medium or high minerals content. This information will help farmers to solve the problems related to soil nutrients amount of which fertilizers to be added to soil to increase the yield of crops.*

**Key words:** Physicochemical, Conductivity, Organic Carbon,

### INTRODUCTION

A collection of soil samples from seven villages of Yawal taluka, Jalgaon District, which represent soils of that village. The soil samples were collected by standard procedure and collected in polythene bags. All the samples were collected in summer season. In laboratory these samples were analyzed to measure various chemical parameters by standard methods.[1] Analysis of soil is carried out for the studies of various parameters like total Organic Carbon, Nitrogen (N), Phosphorus ( $P_2O_5$ ) and Potassium [ $K_2O$ ] pH, , pH measurement and estimations of  $Mg^{2+}$ ,  $Ca^{2+}$ ,  $K^+$ ,  $HCO_3^-$ ,  $PO_4^-$ ,  $NO_3^-$ . % of soil was studied. The fertility of the soil depends on the concentration of N, P, K, organic and inorganic materials and water. conductivity. The physicochemical properties such as moisture content, specific gravity Nitrogen as a fertilizer required for the growth of plant. Potassium is used for flowering purpose and phosphate is used for growth of roots in plants [2-5].

### MATERIALS AND METHODS

All the chemical and reagents of A R grade were used..Analysis of physico- chemical parameters of the soil samples were suspended in distilled water (1:4 w/v) and allowed to settle down the particles. The pH of the suspension was determined using pH meter (Equiptronics, India). Electrical conductivity of the soil was determined in the filtrate of the water extract using Conductivity meter. % Organic carbon (OC) content was determined by adopting chromic acid wet digestion method as standard procedure of Walkley and Black method, available nitrogen was estimated by alkaline Permanganate method[6-8] available phosphorus determined by volumetric method. Available potassium content in the soil was determined by using turbiditometric methods, calcium and magnesium can be determined by titration with standard  $KMnO_4$  solution, magnesium can be determined by titration with standard  $KMnO_4$  solution, magnesium can be determined by precipitation in alkaline medium as magnesium ammonium phosphate, carbonate in soil was determined by rapid titration method [9-12].

## RESULTS AND DISCUSSION

Physical chemical properties of soil samples was studied, pH of soil samples shows variation 7.2 to 8.3, the above 7.5 value of pH shows basic nature. These values had shown in table no 1.

Table 1.Shows Physico – chemical properties of soil samples from villages of Yawal taluka.

Sr. No	Samples	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	S <sub>6</sub>	S <sub>7</sub>	S <sub>8</sub>
1	pH	7.6	7.2	7.8	7.4	7.7	7.9	8.3	7.9
2	Conductivity (M mhos)	0.09	0.06	1.11	1.06	1.09	1.10	1.08	1.07
3	%C(OC)	0.48	0.44	0.46	0.48	0.45	0.51	0.47	0.55
4	%N	0.045	0.031	0.047	0.044	0.036	0.039	0.033	0.039
5	%P	0.022	0.031	0.021	0.025	0.033	0.026	0.024	0.025
6	%K	0.86	0.95	0.98	1.06	1.09	1.21	1.19	1.28
7	%Ca	1.10	0.98	1.22	1.02	1.31	3.36	1.21	1.32
8	%Mg	1.21	1.03	1.18	1.24	0.98	1.36	1.33	2.44

The Conductivity study of soil shows variation in conductivity values between 0.06 mhos to 1.11 mhos this value suggest normal soil. Percentage of carbon varies from 0.44 to 0.55 also shows normal soil. Percentage of N, P and K are also in normal range. The percentage of Calcium varies from 0.98 to 3.36 (normal range of calcium is 0.98-2.45% by weight) in sample S<sub>6</sub> the percentage of Ca is (3.36% by weight) abnormal. The percentage of magnesium varies from 1.03 to 2.44% by weight, the normal percentage of magnesium was 1.20 to 2.00% by weight, in sample S<sub>7</sub> we observed 2.44% of Mg by weight which is abnormal.

## CONCLUSION

A physicochemical studies of soil samples from seven villages of Yawal taluka, shows that all the soil parameters conductivity ,pH %Ca, % Mg, %N, %P, %K and % carbon are normal range. These studies give information about nature of soil, present nutrient in soil, according to this information farmer arrange the amount of which fertilizers and nutrients needed to soil for increase the percentage yield of crops.

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## REFERENCES

- [1]AK Gupta, MLVarshaney; *Practical Manual for Agricultural Chemistry*. Kalyani Publisher., **1994**.
- [2] K Kanimozhi; A Panneerselvam; *Archives of Applied Science Research*., **2011**, 3 (2):525-536.
- [3]NS Sonawane; CP Sawant;; RV Patil; *Archives of Applied Science Research*., **2013**, 5 (2):294-298.
- [4]NN Garba; A.Isma'illa; UK Asma; ZN Garba; B.I Tijjini;;*European Journal of Applied Engineering and Scientific Research*., **2013**, 2 (2):23-27.
- [5]KP Kordlaghari; SN Sisakht; A. Saleh; *Annals of Biological Research*., **2013**, 4 (3):105-108.
- [6]KK Borah;; B.Bhuyan; HP Sharma; *Archives of Applied Science Research*., **2009**, 1 (2) 159-164.
- [7]I.Ifenna; LC.Osuji; *Archives of Applied Science Research*.,**2013**, 5 (3):184-192.
- [8] AF Aiyesanmi, AE Okoronkwo.; OM Sunday; *Archives of Applied Science Research*., **2012**, 4 (1):360-371.
- [9]MC Onojake; LC Osuji; *Archives of Applied Science Research*. **2012**, 4 (1):48-58.
- [10]CC Trasar, MC Leiros, S Seoane, F. Gilsotres, *Soil Biol. Biochem.*, **2008**, 1, 301-307.
- [11] K Rajendren, R Veeraputhiran, *Agric. Rev.*, **2001**, 22(1), 68-70.
- [12] M M Lakdawala; D H Patel; *Der Chemica Sinica*., **2013**, 4(4):73-77