

ANALYSIS OF SOIL SAMPLES FOR ITS PHYSICO-CHEMICAL PARAMETERS IN ADONI REGION, KURNOOL DISTRICT, (A.P).

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Abstract : *The natural environment is clean, but due to multifarious activities of man, it gets polluted resulting in what is called environmental pollution. In the present study, it was preferred to investigate the soil samples for its physicochemical analysis of some parameter pH, Nitrogen, Carbon, Phosphorous, Sulphur, and concentration of Important metal ions which are useful to healthy and wealthy agricultural activities such as K, Zn, Mn, Cu, Fe. For this study, we selected available type of soil samples in the form of black soil and red soil Adoni region and total 6 samples were collected prescribed by Indian Standards sampling procedures, then send to a laboratory to evaluate the said above physic-chemical parameters and concentration metal ions. The results showed some samples are not more profitable to agriculture with preferred remedial procedures.*

Keywords: *Physical –Chemical parameters, Soil analysis, Metal ions, BIS.*

I. INTRODUCTION:

The soil forms the intermediate zone between the atmosphere and the rock cover of the earth, the lithosphere. It also forms the interface between water bodies (hydrosphere) and the lithosphere and thus forming a part of the biosphere. The soil may be defined as the uppermost weathered layer of the earth's crust in which are mixed organisms and products of their death and decay. It may also be defined as the part of the earth's crust in which plants are anchored. The soil is a complex organization being made up of some six constituents' namely inorganic matter, organic matter, soil organisms, soil moisture, soil solution and soil air. Roughly, the soil contains 50-60% mineral matter, 25-35% water, 15-25% air and little percentage of organic matter. Soil pollution is caused by the addition of minerals to soils by man, from the use of agricultural chemicals such as herbicides, fungicides and insecticides, from the dustfall and precipitation and use of fertilizers and contaminated water. It is also caused by the industrial waste, agricultural waste, urban waste, biological pathogens, radioactive waste. The industrial pollution increases the toxicity levels of the soil. The soluble salt given out as pollutants damages the cultivated farms. The soil pollution due to sewage is also very high. Several diseases are inflicted in human beings due to pathogenic forms present in the soil. It is the need of time that we have to study the physicochemical parameters of soil to know its quality. For this study we selected available type of soil samples in the form of black soil and red soil Adoni region and total 6 samples were collected prescribed by Indian Standards sampling procedures, then send to laboratory to evaluate the said above physic-chemical parameters and concentration metal ions such as pH, Nitrogen, Carbon, Phosphorous, Sulphur, and concentration of Important metal ions which are useful to healthy and wealthy agricultural activities such as K, Zn, Mn, Cu, Fe.

II. MATERIAL AND METHODS:

Six representative soil samples were collected in the depth of 0-20 cm from the surface of the soil from different places of the region in Adoni were collected for analysis. The soil samples were preserved in polythene bags for further analysis. The chemicals and reagents used for analysis were of A.R. grade from S.D Fine and Merck. Standard instrumental and non-instrumental methods were used for estimation of the above-mentioned parameters such as pH, Nitrogen, Carbon, Phosphorous, Sulphur, and concentration of Important metal ions which are useful to healthy and wealthy agricultural activities such as K, Zn, Mn, Cu, Fe. The used methods are for The Chemical analysis of certain parameters like pH, Carbon, Nitrogen, Phosphorous, and Potassium. For this separately the analysis is done by using separate management, like Digital pH meter, Titrimetric method, Spectrophotometry and Flame photometric method respectively. The metal Ion concentration of the sample is done within the parameters like Sulphur, Zinc, Manganese, Copper, and Iron. For these, the following methods are to be done like Atomic absorption spectrophotometric method, titrimetric method, Colorimetric method, and DTPA method.

III. RESULT AND DISCUSSION

The values of physicochemical parameters are presented in table 1. The colour of soil sample was observed visually and it was found to be black soil and red soil types for all the samples.

Table 1. Physico-chemical parameters of the different soils at Adoni region

Sample site code	Soil Sample Type/Color	pH	Carbon	Nitrogen	Phosphorous	Sulphur
Ground 1	Red soil	6.49	7	0.27	12.3	10.4

Ground 2	Red soil	6.78	9.2	0.35	12.1	9.4
Ground 3	Red soil	6.98	10	0.39	12.5	9.7
Ground 1	Black soil	6.81	7	0.33	11.6	9.7
Ground 2	Black soil	6.98	7.6	0.39	12.3	10.7
Ground 3	Black soil	6.44	7.4	0.14	13	9.6

From the above table, we conclude that the chemical parameters of the Adoni region. The pH value is being in a low-level range to leads to soil pollution. And the other factors like sulphur, phosphorus and carbon content in the soil has been in crossing the low-level limits to the critical level to the more soil solution. The Nitrogen levels are been medium level when compared to the black and red soil.

Table 2. Metal ion concentration in soils of Adoni region

Sample site code	Soil Sample Type	Potassium (mg)	Zinc (mg)	Manganese (mg)	Copper (mg)	Iron (mg)
Ground 1	Red soil	11.31	0.82	12.78	5.48	24.45
Ground 2	Red soil	8.75	0.71	15.76	5.39	25.67
Ground 3	Red soil	12.21	0.69	12.07	5.91	24.92
Ground 1	Black soil	11.13	0.76	14.6	4.52	21.63
Ground 2	Black soil	12.55	0.93	12.02	3.09	25.92
Ground 3	Black soil	11.13	0.92	14.93	3.49	24.79

From the above table the Metal ion concentration in soils of the Adoni region. It shows that the Zinc levels are been less when compared to the other metals. The Iron content has been decreasing as per the standard levels in the soil. So that the agricultural activities are cannot be done for it.

IV. CONCLUSION:

The conclusion can be drawn that this study of physicochemical parameters of soil samples showed dissimilar values at different places. This can be due to the irregular distribution of different parameters present in the soil. Such type of monitoring of soil samples is beneficial to know the concentrations of various parameters present in soil samples.

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