



SOIL PROFILE OF VINOBA BHAVE UNIVERSITY CAMPUS**MISHRA PK* AND RANJAN A**

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*Corresponding Author: E Mail- pkm.vbu@gmail.com; Mob - 8986823937Received 29th July 2019; Revised 26th Aug. 2019; Accepted 28th Sept. 2019; Available online 1st Jan. 2020<https://doi.org/10.31032/IJBPAS/2020/9.1.4921>**ABSTRACT**

University campus is hub of activities and is known for its dynamism. To know and properly manage various environmental activities is important therefore. Edaphic factors are important to maintain vegetation of any area and keeping this fact in mind present study was conceived to evaluate soil characteristics of Vinoba Bhave University campus. In ten different stations randomly selected, marked variation in pH and electric conductivity was observed. Macronutrient and micro nutrient compositions of soil sample also varied considerably. This variation may be because of manipulations done from time to time depending upon land use pattern.

Keywords: University, Soil profile, Electric conductivity, pH, Nutrients**INTRODUCTION**

Vinoba Bhave University campus is spread in 67.8 acre area and it caters educational need of North Chhotanagpur area of Jharkhand. Thousands of students spent fairly long hour of day in the campus hence, the area is a site of various activities. Responsibility of University does not confine to just teaching learning and research but it is torch bearer of society and it has to address various social issues as well. It is undisputed that environmental

concern is primary social as well as scientific issue and keeping this fact in mind soil characteristic of Vinoba Bhave University campus was studied. Soil characteristics are a basic input for proper land management and it also help us in formulating strategies for plantation in the campus. Several workers like [1-3]. This is however a maiden attempt to study soil characteristic of Vinoba Bhave University campus.

MATERIAL AND METHODS

Soil samples were collected from ten stations around different localities of Vinoba Bhave University. Monolith was dug and soil samples were collected from twenty centimetres uniform depth, collected in polythene bags and brought in laboratory. Soil samples were air dried and physico-chemical analysis was done following standard methods. pH, Organic Carbon, available macronutrients were estimated following methods suggested by [4]. Nitrogen was estimated following methods of [5]. Fe, Mn, Zn, and Cu were estimated by methods of [6].

RESULTS AND DISCUSSION

All together soil samples were collected from ten sampling sites of Vinoba Bhave University campus. pH of soil ranged from 5.40 to 8.02. Lowest pH was recorded in sample collected from football ground where as highest pH was recorded in sample collected from back side of Bank of India. Soil samples collected from other stations were having pH above 7.0 and below 8.0. Another noteworthy parameter analysed was organic carbon. Minimum organic carbon was recorded in sample collected from UCET Workshop and the value was 0.20. Highest organic carbon was found in sample collected from garden in front of Arts block and the value was 0.72. Lowest value of available Nitrogen was

estimated in sample collected in front of UCET Workshop and the value was 95kg/ha. Highest value of available Nitrogen was recorded in sample collected from Guest house premises and the value was 301 kg/ha. Lowest available sulphur was found in sample collected from premises of Botany department where as highest value was found in sample collected from Central Library premises and the value was 8.04. Lowest value of available Potassium was 161.2 kg/ha from sample collected from Botanical garden. Highest value of available Potassium was 435.68kg/ha and was recorded in sample from football ground. Value of electric conductivity ranged from 0.03 Siemens/meter and was calculated in sample from Botanical garden and Central library to 0.11 Siemens/meter and was recorded in samples from UCET Workshop and arts block garden. Lowest value for copper, 0.704ppm was recorded from sample collected from UCET workshop and Botanical garden. Highest copper was found in soil collected from Science block building and the value was 2.24 ppm. Iron is another noteworthy mineral of soil which decides productivity of soil. Highest value of this mineral was 27.56 ppm and the lowest value was 6.67 ppm recorded from arts building garden. Zinc content in soil of Vinoba Bhave University campus ranged from 0.42ppm to 1.272 ppm recorded from

Botany department site and Central library site respectively. Highest Manganese content was 46.48 ppm recorded from sample collected from football ground where as lowest value was from sample collected from sample collected from guest house and the value was 9.52 ppm (Table 1).

Different soil parameters have significant affect on soil characteristic and it directly impact soil plant relationship. It also provides an important input for proper land use. Availability of nutrients as well

as acidity/alkalinity is determined by soil pH. Exchange of cation and water relation is also an active process and depends upon pH of soil. Similarly different macro nutrients and micro nutrients play vital role in plant growth. Results obtained during this study clearly indicate drastic variation in soil characteristics of Vinoba Bhawe University. Apart from variation in topography, various amendments done from time to time depending upon requirement and campus planning may be the possible reason.

Table 1: Soil Characteristic Of Vbu Campus

S. No.	Site	pH	Organic carbon (%)	Available nitrogen (kg/h)	Available sulphur (kg/h)	Available potassium (kg/h)	EC	Cu (ppm)	Fe (ppm)	Zn (ppm)	Mn (ppm)
1	Football ground	5.40	0.44	198	4.86	435.68	0.04	0.8	27.56	1.2	46.48
2	Front of UCET Workshop	7.60	0.20	95	3.60	282.24	0.11	0.704	12.77	0.928	17.98
3	Sarajini Nayadu Girl's Hostel	7.83	0.35	166.25	6.98	178.08	0.06	0.909	15.82	1.064	20.36
4	Back of Science Block 1	7.54	0.50	200	6.35	247.52	0.04	2.24	13.64	1.108	41.16
5	Arts Block Garden	7.90	0.72	270	5.29	284.48	0.11	0.896	6.67	0.86	20.12
6	Back of Central Library	8.02	0.26	123.5	8.04	411.04	0.03	0.848	7.77	1.712	30.38
7	Right side of Botany Deptt.	7.47	0.24	124	2.54	232.96	0.04	0.704	11.03	0.42	10.23
8	Botanical Garden	7.47	0.41	184.5	3.17	161.28	0.03	0.848	8.36	1.02	32.46
9	Guest House	7.88	0.86	301	5.71	263.2	0.11	1.136	26.25	1.272	9.52
10	Vivekanand Sabhagar	7.52	0.29	137.75	5.08	240.8	0.06	1.088	14.08	0.928	26.03

CONCLUSION

It is concluded from the results obtained during this study that soil is a very dynamic ecological factor and it varies significantly from place to place. Soil characteristics and land use pattern is intrinsically related to each other and has got profound impact on other. It is also concluded that if proper soil

amendment is done, soil can be used for various purposes.

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