



# Study of variation in composition of some parameters of soils samples of two different regions of Maharashtra

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## ABSTRACT

The composition of soil changes as per the ecological factors change. The numbers of important nutrient supplies to living things such as salts, alkalis, organic matter and various biological systems also vary as the site of sample changes. Considering these facts in present work the comparisons of soils from two regions of Maharashtra east of Kalamb and west Maharashtra of Lonand soils were studied. It was observed from the table 1 and Table 2 the variation in the physical parameters of soil samples collected from two different regions of Maharashtra state was found to be much more, with reference to Soil particle density, Porosity, Salinity and conductance of soil samples. The Dissolved oxygen, pH and water holding capacity were not much varied. The soil from lonand region is suitable for sugarcane crops. Due to more industrialization in this region the effluents from industry directly throw into river. Such polluted water used for irrigation purposes and due to which Soil particle density, Porosity, Salinity and conductance of soil of this region were found to be more as compare to Kalamb region soils.

**Keywords:** ecological factors, Kalamb, Lonand, physical parameters of soil, Dissolved oxygen, pH water holding capacity, Salinity and conductance

## INTRODUCTION

All living organisms including plants and animals on Earth for their nutrition and support depends on main ecological factor known as soil. Soil provides important nutrients, water and minerals to plants and animals. Due to modernization, industrial and anthropogenic activities the soil get polluted. The important contents of soil change as the location of soil changes. Healthy soils indicate the integrity of terrestrial ecosystems which remain intact and having ability to recover from disturbances such as drought, climate change, pest infestation, pollution and human exploitation, including agriculture (Ellert et al, 1997). Disposal of industrial waste is the major problems responsible for soil pollution the pollutants affect the chemical and biological properties of soil Chauhan et al (2011). Soil types are a major factor in determining what types of plants will grow in a certain area. Plants use inorganic elements from the soil, such as nitrogen, potassium and phosphorus, but the community of fungi, bacteria, and other microscopic creatures living within the soil are also vital Solanki H.A. and Chavda N. H. (2012).

In our country 80% of peoples depends on the agricultural practice. The details study of quality of soil still in demands. Present study deals with the study of variation in the quality or contents of soil parameters from two different regions of Maharashtra.

### Study Area

In Maharashtra vidarbha region is considered as the dry and low rain fall region and the western region is high rain fall fertile soil containing region. One of the regions selected was the Kalamb Tahsil of Yavatmal District comes under the Vidarbha region. This is the very famous for the production of huge quantity of cotton Popularly with “white gold” producing region. The major soil type is the deep black. This region comes under the less rain fall, highly drought prone and most of the agriculture from this region depends on monsoon rain. irrigation is very less Chavhan et.al. (2019). Another region selected for the study is very famous for onion and sugarcane producing site, Lonand of Khandala Tahsil of Satara district located in the western part of Maharashtra. Lonand is a village having big market of onion in Khandala Tahasil. It is situated on the boundary of Satara & Pune district. Though it is dry & Hilly Tahasil, the main crops are “Bajara” ‘sugarcane’, & “Onion” Chavhan and Wagh (2013).

**Sample collection:-**

Nutrition study requires sample at the depth of 10 cm. Borer samples are used for this purpose. Soil samples were collected from local reservoirs and sealed in tight cloth bag at the depth of 10 cm and 20 cm valley.

**Physicochemical analysis of soils:-**

The investigations were done by standard methods. pH was calculated by digital pH meter. Electrical conductance was estimated by standard EC-TDS meter. Nitrogen was estimated by Kell-Plus Microkjeldahls distillation unit. Phosphorus was estimated by using spectrophotometer. Maximum water holding capacity of soil sample, density and porosity of soil was calculated by standard method at Central Sugar Research Station, Padegaon.

**RESULTS AND DISCUSSION**

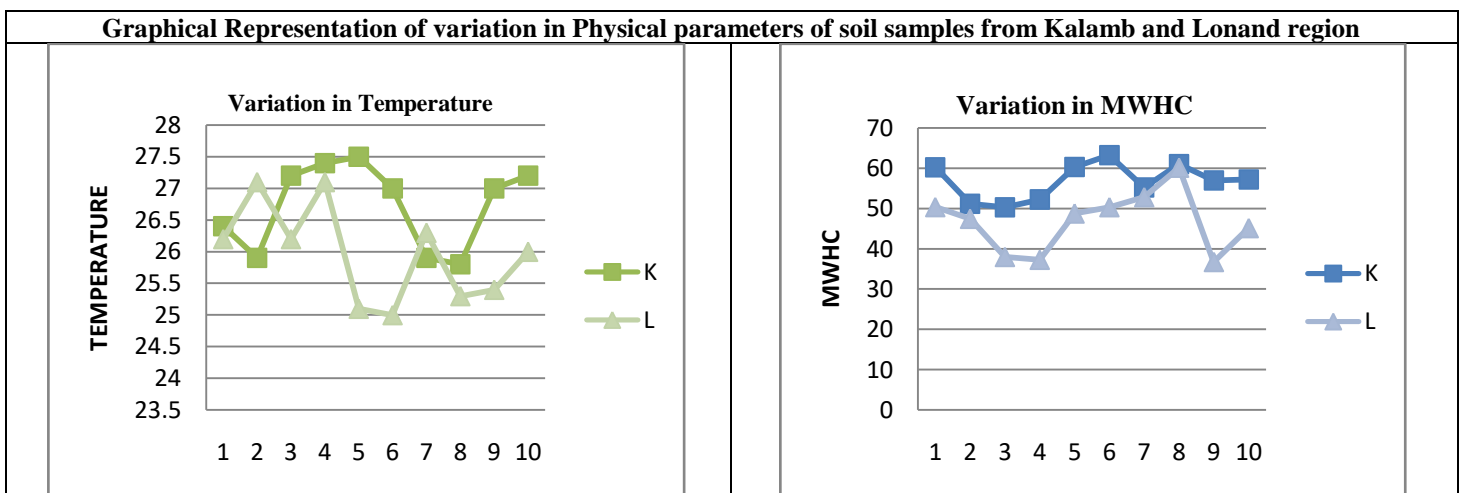
It was observed from the table 1 and two the variation in the physical parameters of soil samples collected from two different regions of Maharashtra state was found to be much more with reference to Soil particle density, Porosity, Salinity and conductance of soil samples. The Dissolved oxygen, pH water and holding capacity not much varied.

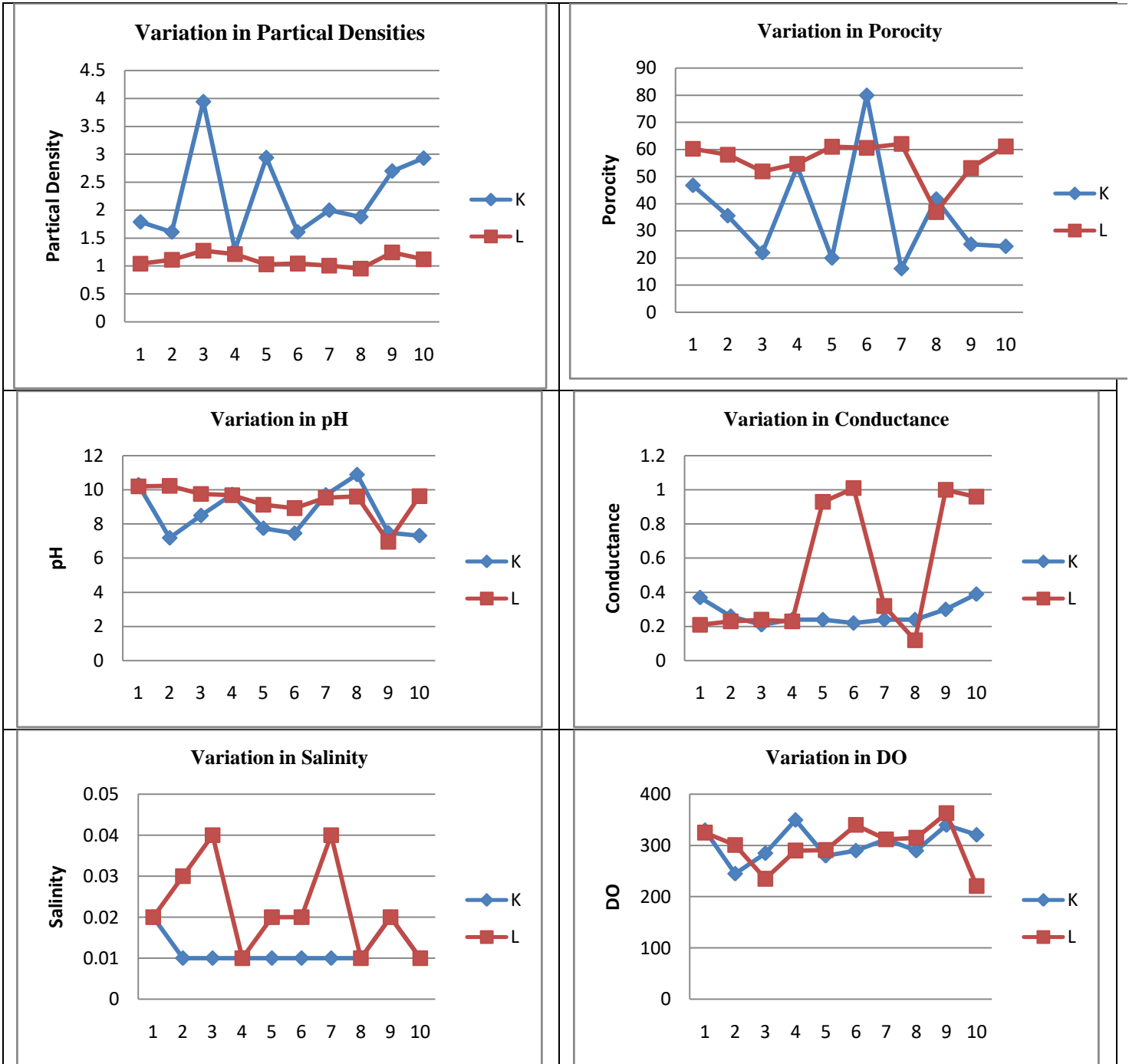
**Table: 1 Showing the variation of physical parameter of soil samples**

Sr. No	Temp		MWHC		Particle density		Porosity		pH		Cond		Salinity		DO	
	K	L	K	L	K	L	K	L	K	L	K	L	K	L	K	L
1	26.4	26.2	60.23	50.38	1.79	1.042	46.80	60.25	10.3	10.20	0.37	0.21	0.02	0.02	330	325
2	25.9	27.1	51.18	47.47	1.61	1.112	35.60	58.05	7.19	10.23	0.26	0.23	0.01	0.03	245	301
3	27.2	26.2	50.32	37.98	3.94	1.274	21.96	51.91	8.5	09.76	0.21	0.24	0.01	0.04	285	235
4	27.4	27.1	52.25	37.27	1.29	1.213	53.77	54.73	9.73	09.69	0.24	0.23	0.01	0.01	350	290
5	27.5	25.1	60.29	48.79	2.94	1.031	20.00	61.02	7.75	09.13	0.24	0.93	0.01	0.02	280	291
6	27.0	25.0	63.24	50.36	1.61	1.045	80.00	60.57	7.46	08.93	0.22	1.01	0.01	0.02	290	340
7	25.9	26.3	55.22	52.85	2.00	1.006	16.11	62.02	9.71	09.54	0.24	0.32	0.01	0.04	312	312
8	25.8	25.3	61.04	60.19	1.88	0.955	41.73	36.94	10.9	09.61	0.24	0.12	0.01	0.01	290	315
9	27.0	25.4	56.98	36.72	2.7	1.243	25.07	53.15	7.49	06.96	0.30	1.00	0.02	0.02	340	363
10	27.2	26.0	57.23	45.15	2.93	1.120	24.32	61.08	7.32	09.63	0.39	0.96	0.01	0.01	321	221

K= Kalamb, L=Lonand,Temp:°C, MWHC=Maximum Water Holding Capacity, Porosity:% Cond,ms/Cm, salinity:dS/m,DO=Dissolved Oxygen:ppm

**Table: 2 Graphical Representation of variation in Physical parameters of soil samples from Kalamb and Lonand region**





### CONCLUSIONS

The soils of kalamb region are black cotton soil and a major crop of this region includes the cotton. The cotton plant required the less amount of water to grow. Due to excess use of chemical fertilizers and less rain fall in vidarbha regions increases the pH of soil and make infertile. Whereas the soil from lonand region is suitable for sugarcane crops. Due to more industrialization in this region the effluents from industry directly throw into river. Such polluted water used for irrigation purposes and due to which Soil particle density, Porosity, Salinity and conductance of soil samples are more as compare to Kalamb region soils



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