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Research Article

Soil Analysis of Barelpura in Dholpur City (Raj.)

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ABSTRACT
Soil is a non-renewable dynamic natural resource that is essential to life the human activities that are toxic to the natural ecosystem are transport ,agriculture ,industrial and domestic waste disposal theenvironmental pollutioninsoildue to multivarious activities of man the soil from the intermediate zone between earth atmosphere, the lithosphere and the rock cover the five samples were collected form Barelpura and Viparpur village in different area the results depends on quality of five representative soil samples were obtained and analysed for its PH electrical conductivity temperature moisture content water holding capacity phosphates chloride alkalinity carbonate nitrogen and organic present in soil

Keywords: physio- chemical phosphate chloride nitrogen calcium, carbonate, bi Carbonate and organic content EC, PH etc

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INTRODUCTION:

rock debris and organic materials are soil mixture on earth`s surface the soil can be defined as the earth upper most weathered layer in which mixed organisms and their death and decline products are found. Soil is the loose surface
material the covers most land it consists of inorganic particles and organic matter. The soil is vertical soil section of the depicts all of it horizons. The soil pro file extends from the soil surface to the parent rock material. the soil and analysis are the starting point, since it measures the level or contact presently in the soil, the soil analysis along with the information provided in the information shed, is interpreted and reported in terms of the nutrients, these have contributed in the development of various tapes of soils in India. India is predominantly an agricultural country Indian farming depends on the extent and soil qualities India is a country and experiences the diverse climatic conditions and other natural conditions climate natural

vegetation and rocks are the factors determined the quality of soil in a location the soil contains 50- 60% mineral 25-35% water 5-25% air and little percentage of organic matter 3 the management of soil testing based nutrients has emerged as a key issue in efforts to increase crop productivity and production the result of the soil analysis confirms which fertilizers recommended practices of the soil analysis confirms which fertilizer recommended practices of the concerned farmer the result of the soil analysis confirms which fertilizer recommended was the actual connecting link between agricultural research and its practical application in the fields of the farmer .farmer use large quantities of chemical fertilizers as nutrients whit out soil analysis for plants growth a small amount of fertilizer is needed the farmer the farmer must take into account that what is the requirement of fertilizer to their crop. Analysis is based on various physical and chemical parameters. soil analysis canimprove the crop fertility productivity and wastage of fertilizers .soil is composed of the organic and inorganic matter and it is essential for life on earth to exit .soil are 47% mineral particle size 4% organic matter ,26% air and 25% water etc (2) present study is an attempt to determine to amount of nutrients in soil of Barelpura and Viparpur in Dholpur district ,Rajasthan this knowledge will help farmers determine howmuch fertilizers they will apply to the soil to make production ,the objective of this paper was to analyse the physio -chemical status of soil of Barelura and Viparpur in Dholpur district of Rajasthan state.

STUDY MATERIAL

Material =five soil samples were collected from Barelpura and Viparpur in Dholpur district. soil sample collected (from the 0 to 8 cm depth) from were cleaned from plants and herbs remains

Soil samples were collected in plastic samples bags. plants residues and stone piece were removed by hand soil samples were air dried and passed through a 2 mm brass sieve. sample bag was stored at 24 c in oven until.

Soil carbonate is usually quantified by acid dissolution followed by the volumetric analysis of the released carbon dioxide (CO2). Soil carbonate and Bicarbonate extracted by employing (0.5 M NaHCO3) as described by Olsen et al.

Material: - Five soil samples were collected from Barelpura –village Dholpur district. Soil samples collected (from the 0 to 10cm depth) from field were cleaned from herb and plant remains.

Soil samples were collected in plastic sample begs. S-1, S-2, S-3, S-4, S-5, sample collected in plastic bags. and stone pieces were removed by hand.

Moisture content: - The soil moisture content also called water content is an indicator of the amount of water present in soil. this is water present in soil. the test five sample must be selected.it is sample collected for the measurement of natural moisture content. Soil sample immediately in the moisture can and close it to prevent loss of moisture by evaporation. remove the lid from the container and place the moisture can in the oven at 105 -150 ^{0}C this takes approximately 24 hours.

Chloride: -chloride is soluble ion exists as chloride ion chloride, a very soluble ion in nature. this is without chemical use of soil is best because chemical used a large quantity for a soil. its role in plant is believed to be osmotic and in balancing cell cationic. amount of chloride very from 0.2 to 2% prepare 1.5 soil suspension in distilled water. stir for one hour. filter with Whatman filter paper no. 50 ml filtrate in conical flask 2 ml of 2% K_2CrO_7 solution (indicator). Titrate against 0.02 $AgNO_3$until red color appears**.**

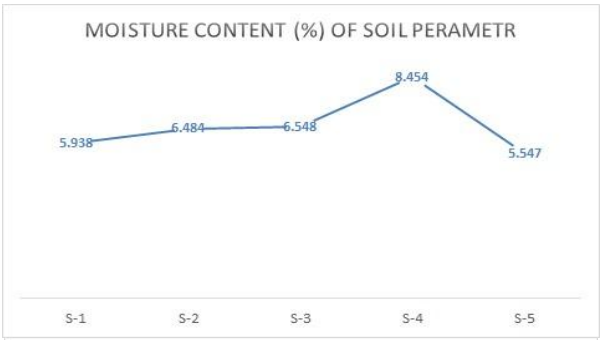
Calcium carbonate: - The method used in this study, for the determination of the solubility of calcium carbonate. it is soil present in the calcium carbonate. the method used in calcium carbonate

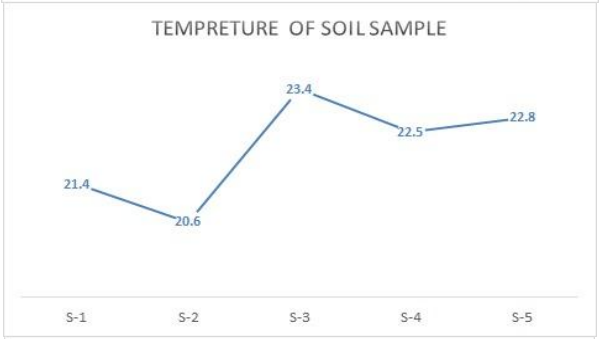
Carbonate, bicarbonate, phosphate: - The soil sample is capacity of the soil sample to neutralize a strong acid and the alkalinity. the alkalinity is generally given by the salts of carbonates,bicarbonates, phosphate etc. they prepare 1.5 soil solution take 100 ml of sample in conical flask add two drops of phenolphthalein. If the solution colorless. if color change to pink after addition of phenolphthalein. this is PA. Now add 2-3 drops of methyl orange point to the same sample and continue titration further until the yellow color change to pink, the point of the soil present in all chemical.

The carbonate is usually quantified by acid dissolution by the soil. The volumetric analysis of the released carbon dioxide. It is soil present in carbonate and bicarbonate chemical. The soil carbonate and bicarbonate extracted by employing (0.5M NaHCO3) as described by clean.

It is organic matter is oxidized with chromic acid (Potassium dichromate + H2SO4) . the soil in present the organic and inorganic matter. This method is widely used in Indian laboratories. The total organic content of the soil samples was estimated by using the (3) titration method. The soil present in all chemical. It is the soil mixed present in chemical.

SOME GRAPHS OF SOIL SAMPLE





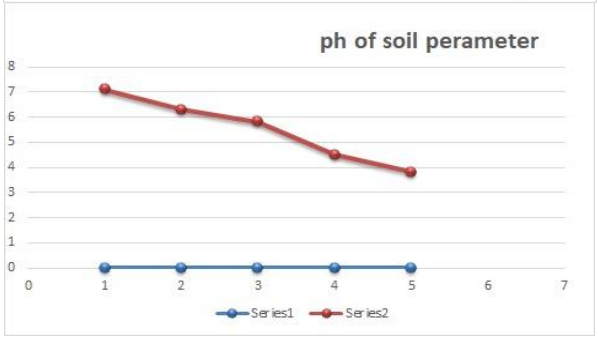
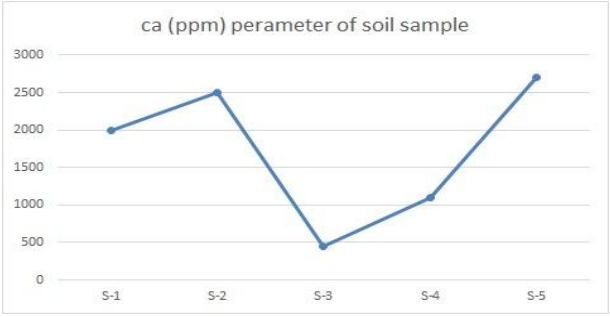


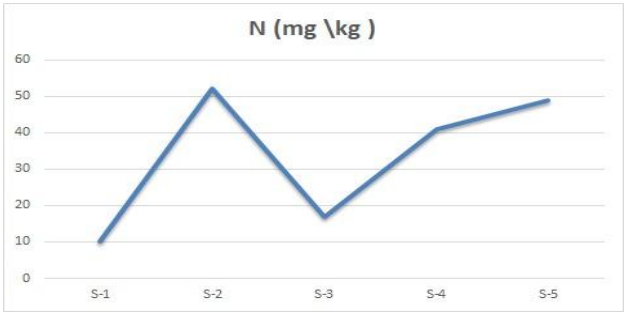
TABLE OF SOIL ANALYSIS.

S.N NO.	Soil sample	S-1	S-2	S-3	S-4	S-5
1	PH	7.1	6.3	5.8	4.5	3.8
2	HARDNESS (ODP)	0.5	1.2	1.8	2.1	0.9
3	Ca (ppm)	2000	2500	450	1100	2700
4	Na (EPS)	5	7	13	8	6
5	Mg (%)	7	4	3	2	5

s.no	Soil sample	S-1	S-2	S-3	S-4	S-5
6	N(mg/kg)	10	52	17	41	49
7	Moisture contact(%)	5.938	6.548	6.845	8.454	5.547
8	temperature	21.4	20.6	23.4	22.5	22.6

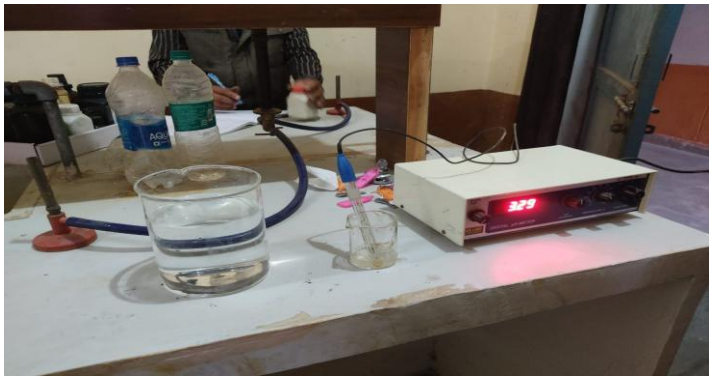


THE MAYOR SOURCES OF SOIL POLLUTION



Pollutants like acids washed off from the atmosphere (acid rain).
Pesticides and herbicides sprayed in field.
Excessive use of artificial fertilizers.
Solid wastes like garbage, trans, ash, building materials, plastic, bottles and cans.
Storage and disposal radioactive waste from the power plant.
Seepage from a landfill.
Discharge of industrial waste into the soil.
Percolation of contaminated water into the soil.
Rupture of underground storage tanks.
Deforestation and soil erosion.

Chemical analysis of soils: -
The five-soil sample were investigated for chemical analysis parameters such as calcium carbonate, alkalinity,carbonate,bicarbonate, organic content and chloride. soil sample present in chemical. the result obtained from the present investigation as well as relevant discussion have been summarized under following table. the sample are present in chemical, it is without chemical soil good quality.The calcium carbonate ($CaCO_3$) and carbonate content of soil sample from five sites showed soil sample from five sample are sandy lightly calcareous and moderately calcareous .the PH value is indicated that soils from these five place are alkaline .the value of electrical conductivity showed that all soil from all five sites .soil sample are from alkalinity and acidity .number for the sample S-1 ,S-2 ,S-3 ,S-4 ,S-5 ,for the soil .soil sample in nature .the physic –chemical mechanisms and presumably create a stable a stable soil .it is different location soil sample .it is all chemical soil sample .soil sample similar result alkalinity present in soil collected from different locations of Dholpur in Rajasthan



Conclusion: -

The soil contains low soluble salt and are poor in organic matter. Soil is of open character usually loose and friable. Soil sample was organic and inorganic compound. Soil sample mixed was chemical. The soil survey data of Dholpur district clearly indicates that the soils are slightly natural to moderately alkaline in reaction with low soluble salt content soils of Dholpur district were low in organic carbon and available nitrogen, medium in available phosphorous and high in available potassium status. on the basis of overall nutrient index, soils of Dholpur district are very low in available nitrogen, adequate in available phosphorous the soil samples in organiccarbon and available phosphorous, available nitrogen. it is five soil samples in Dholpur district. The five soil samples S-1, S-2, S-3, S-4, S-5 in Dholpur district. The organic matter (%) range from 1.4 to 3.6 % the organic soil matter includes all the death plant material and live or dead animal .most living thing in soil including plant ,insects ,bacteria and fungi are dependent on organic matter for nutrients and energy .soil have very organic compound .soil is present in five sample S-1,S-2,S -3,S-4,S-5.Soil sample present in organic compound and inorganic compound .organic matter holds soils open, allowing the infiltration of air and water ,and may hold as much as twice its weights in water. soil sample present in PH ,temperature , water holding capacity electrical conductivity ,moisture content etc. soil sample in organic and inorganic compound .organic matter is

required for plant growth and metabolism .inorganic phosphate supplied to the soil as a fertilizer is rapidly converted in to unavailable form physio – chemical study of soil is based on various parameter like a total organic carbon ,available nitrogen (N) , available phosphorus (p2o5) of soil village- Barelpura, post-Viparpur, district-Dholpur , Rajasthan state. Physio - chemical character like pH, water holding capacity, moisture content and organic.

DISCUSSION: -

we collected five soil sample for analysis and investigation and we founded parameter of soil sample eg.PH and ca, temperature, moisture contains and hardness, Naand nitrogenThe soil survey data of Dholpur district clearly indicates that the soils are slightly natural to moderately alkaline in reaction with low soluble salt content soils of Dholpur district were low in organic carbon .Physico-chemical parameters were studied and determined using standard procedures. The results showed that there was slight variation in some physico-chemical parameters in the study area. It is evident that mostly all the values of physico-chemical parameters fall within the permissible limits. The quality of soil samples from most of the physico-chemical parameters was acceptable but for some sites soil needs to be treated before using it for crop cultivation and concluded that the quality of soil samples under the study area is almost suitable for crop cultivation, agricultural use, such work would be beneficial for the farmers to improve the soil fertility and crop quality. The data obtained clearly indicates that the area is good for cultivation of wheat, millet gram, maize, cotton etc. A small amount of soil sample was analyzed which actually represents the area which is profitable for the farmers. and available nitrogen, medium in available phosphorous and high in available potassium status. on the basis of overall nutrient index, soils of Dholpur district are very low in available nitrogen, adequate in available phosphorous the soil samples in organic carbon and available phosphorous, available nitrogen. it is five soil samples in Dholpur district. The five soil samples S-1, S-2, S-3, S-4, S-5 in Dholpur district. The organic matter (%) range from 1.4 to 3.6 % the organic soil matter includes all the death plant material and live or dead animal .most living thing in soil including plant ,insects ,bacteria and fungi are dependent on organic matter for nutrients and energy .soil have very organic compound .soil is present in five sample S-1,S-2,S -3,S-4,S-5.Soil sample present in organic compound and inorganic compound .organic matter holds soils open, allowing the infiltration of air and water ,and may hold as much as twice its weights in water. soil sample present in PH ,temperature , water holding capacity electrical conductivity ,moisture content etc. soil sample in organic and inorganic compound .organic matter is required for plant growth and metabolism .inorganic phosphate supplied to the soil as a fertilizer is rapidly converted in to unavailable form physio – chemical study of soil is based on various parameter like a total organic carbon ,available nitrogen (N) , available phosphorus (p2o5) of soil village-barelpura, post-Viparpur, district-Dholpur , Rajasthan state. Physio - chemical character like pH, water holding capacity, moisture content and organic.

REFRENCE: -

1. **Upadhyay K. K**., M.K.Singh & A. C. Pandey (2020) "Physico-Chemical Study of Soil in Dholpur City", International Journal of Theoretical & Applied Sciences, 12(1): 01-03.
2. **Upadhyay K. K.,** Lone R., Khan R., & Wani K.A. (2013). Calcium Level in Agricultural Soil from Gwalior City after Harvesting of Wheat (Triticum aestivum). Academic Journal of Plant Sciences, 6(3), 119-121.
3. Chandak Nisha, Maiti Barnali Pathan Shabana, Desai Meena and Kamlesh Shah. Analysis of soil samples for its Physico and chemical Parameters. Newest International Referred Journals, 2017, Vol:3 Page: 36-40. ISSN:2349-3372
4. Arushi Makkar, Anshu SibbalChatli, Akshita Sharma, Parneet Kaur4, Navdeep Kaur5, Ekta Goswami. Analysis Of Soil Samples from Various Areas of Punjab. International Journal of Research in Engineering, Science and Management, 2018, Volume-1, Issue-11, 496-498.
5. Jackson ML. Soil Chemical Analysis. Prentice-Hall of India, Private Ltd. New Delhi, 1973, 327-350.
6. Weyl PK. 1961. The carbonate saturate ter. J. Geology. 69:32-44.
7. Hassett JJ. The mechanism of Magnes ion inhibition of calcium carbonate precipitation and its relation to water quality. Dissertation, Utah State University, 1970.
8. Olsen SR, Cole CV, Watanabe JS, Dean LA. Estimation of available phosphorus in soil by extraction with sodium bicarbonate. USDA circular No. 1954, 939.
9. Wagh GS, Chavhan DM, and Sayyed MRG. Physicochemical Analysis of Soils from Eastern Part of Pune City. Universal Journal of Environmental Research and Technology, 2015, Volume 3, Issue 1: 93-99 2013 ISSN 2249 0256 Available Online at: www.environmentaljournal.org
10. Jain Swanti A, Jagtap MS, Patel KP. Physio-chemical Characterization of Farm land soil used in some villages of Lun Wada Taluka Dist. Mahi Sagar (Gujarat) India. International Journal of Scientific and Research Publications, 2014, Volume 4, Issue 3, 1-5, 1 ISSN 2250-3153
11. Pilania PK, Panera NM, Vaghasiya P, Mirani MK and Panchal NS. Analysis of Soil at Great Rann of Kutch of Gujarat State in Western India, Life Sciences Leaflets, 2019, 51-61. http://lifesciencesleaflets.ning.com
12.. Pravin R. Chaudhari, Dodha V. Ahire, Manab Chakravarty and Saroj Maity. Electrical Conductivity as a tool for determining the physical property of Indian soil, International Journal of Scientific and Research Publications, 2014, Volume 4, 1