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"STUDY THE PHYSIO-CHEMICAL PROPERTIES OF HAIR WASH SOIL OF KARDANA VILLAGE OF JASHPUR DISTRICT, SURGUJA DIVISION OF CHHATTISGARH, INDIA."

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Abstract:-

At present, shampoo or conditioner is used to clean and keep the hair soft. But in ancient times there was no shampoo or conditioner, so the question arises that what did the people of that time do to wash their hair? In fact the people of that time used soil to wash hair. During our research, we discovered such soil which is used for washing hair. This is called Multani Mitti for washing hair. This soil is very smooth. We will study the Physio-chemical properties of this soil in our research, which element is found in it, what is its physical properties. During this we will study the physical properties like that Conductivity, pH-value, percentage of Carbon etc. We will study the chemical properties like presence and quantity of Fe, Cu, Zn, Ca, Mg, S, N etc. And try to reach some conclusion.

Keywords*:* Hair wash soil, Multani mitti, Mudrachana Conductivity, Resistive, pH-value, Physical properties, Chemical properties etc.

Introduction: -

Hair wash soil is a special type of brown colored clay. It is a type of multani mitti which is used for washing hair. This soil is called Mudrachana soil by the local residents of this place. Hair wash soil is found in Kardana village of Jashpur district, which is located in Manora block of Jashpur district. This soil is found in mountainous areas and river banks. The local residents of this area, who use this soil to wash their hair, collect this soil in the month of January-February and dry it thoroughly, Before using it for washing hair, this soil is thoroughly grinded, then a small amount of soil is mixed with water and kept for half an hour. After this the hair is washed with it. Kardana village is 139 Km away from Ambikapur, the headquarter of Surguja division and the distance of this place is 488 Km from Raipur, the capital of Chhattisgarh. and geographical location position of the this research area is at 23°0'22.527"N latitude and 83°59'4.560"E longitude and no research has been done here.

Electrical Conductivity:-

Soil electrical conductivity, referred to as EC, is the ability of soil to conduct (transmit) or attenuate electrical current. EC is expressed in milliSiemens per meter (mS/m) or at times is reported in deci-Siemens per meter (dS/m). Over the years, soil scientists have used EC to measure soil salinity. However, soil EC measurements also have the potential for estimating variations in soil physical properties where soil salinity is not a problem, including texture, moisture, depth of top soil plus others. The important aspect to remember is that anything that affects conductivity in the soil will influence measurements, so it is important to ground reference to understand the driving variable(s) for soil EC measurements[1],[2].

pH-value :-

Soil pH is a measure of the acidity or alkalinity of the soil. A pH value is a measure of hydrogen ion concentration. Because hydrogen ion concentration varies over a wide range, a logarithmic scale (pH) is used: for a pH decrease of 1, the acidity increases by a factor of 10. It is a 'reverse' scale in that very acid soil has a low pH and a high hydrogen ion concentration. Therefore, at high (alkaline) pH values, the hydrogen ion concentration is low. Most soils have pH values between 3.5 and 10. In higher rainfall areas the natural pH of soils typically ranges from 5 to 7, while in drier areas the range is 6.5 to 9. Soils can be classified according to their pH value.6.5 to 7.5—neutral, over 7.5—alkaline, less than 6.5—acidic, and soils with pH less than 5.5 are considered strongly acidic[3]

LITERATURE REVIEW

In 2015, the research paper of SS Kekane, RP Chavan, DN Shinde, CL Patil, SS Sagar "A review on physico-chemical properties of soil" concluded that From the study of reviewing papers it is concluded that study of soil quality can be carried out by different parameters. Most of the parameters are quite higher or lower than acceptable limits. Therefore, it is very important to put a total ban on the human activities which are responsible for soil quality deterioration[4].

In 2015, the research paper of V.K. PHOGAT, V.S. TOMAR AND RITA DAHIYA" Soil Physical Properties" concluded that Physical properties have significant influence on the behaviour of soil for agricultural and engineering uses. Soil texture and structure determine the total porosity and the size distribution of pores which influence water, heat and air relationships in the soil. Soil texture is a static property but structure may be manipulated through management practices. It is essential to carry out the tillage operations at optimum soil moisture to avoid deterioration in soil structure. Management of physical, chemical and biological factors can help in maintaining proper soil physical conditions for plant growth. Soil aeration and soil temperature affect the quality of soils for plants and other organisms. Soil water has a major influence on both soil aeration and temperature. It competes with soil air and moderates soil temperature. Soil consistency, plasticity, compaction, strength etc., help in determining the stability of soil against loading forces from traffic, tillage or building foundations. Looking at the current stress on soil as a natural resource for food security and safety, due

emphasis is needed for maintaining soil physical fertility by adding organic materials, introduction of legumes in rotation, adoption of conservation tillage, etc.[5]

In 2017, the research paper of Prof. A. Balasubramanian Centre for Advanced Studies in Earth Science, University of Mysore, Physical Properties of Soils concluded that Soils contain a lot of mineral and organic constituents. Soil types are described according to these main constituents. A soil with a lot of sand is called as a sandy soil; soil with a lot of clay is called as a clay soil; and soil with a lot of organic material is called as an organic soil. Along with soil structure , the texture of soil is also important to determine the water-holding capacity, water movement, and the amount and movement of soil air in a given soil. All of these physical properties are very important to the health and type of plants and other organisms that can exist in a particular soil. The physical properties of soils is a major aspect of study in soil science, civil engineering and agricultural engineering.[6]

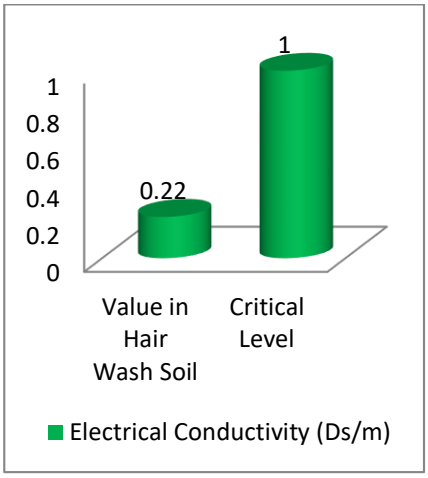
Material & Methods:-

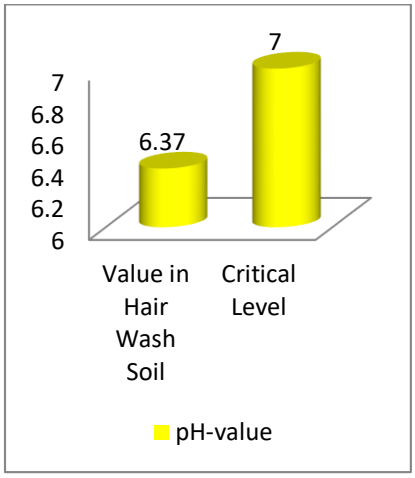
We have used experimental Method in our Research as Methodology. During this time we took a Hair wash soil sample 3 cm deep in the research found in the Kardana village, block Manora, district Jashpur. Determined the presence and quantity of Physio-Chemical properties such as Fe, Cu, Zn, Ca, Mg, S, N conductivity, pH-alue, etc. of the sample taken which are as follows-

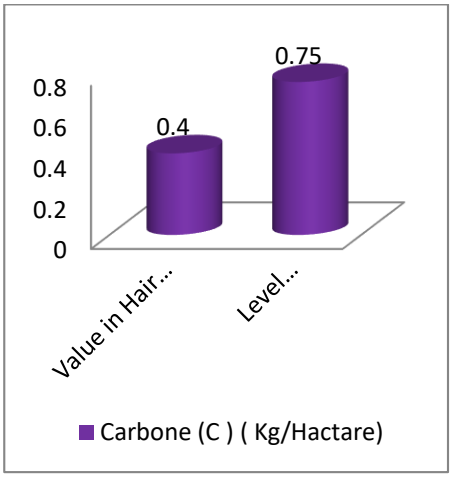
Sl.No.	Physio-chemical properties	Unit	Value in salt Soil	Level Description/Critical Level
01	**Electrical Conductivity**	**Ds/m**	**0.22**	Less than 1.0-Normal
02	**pH-value**	**pH-Scale**	**6.37**	Between 5.5-`6.5 Medium Acidic
03	**Carbone (C)**	**Kg/Hactare**	**0.40**	Less than 0.50- Lower
04	**Zinc (Zn)**	**mg/Kg**	**0.3**	0.6
05	**Cupper (Cu)**	**mg/Kg**	**0.1**	0.2
06	**Iron (Fe)**	**mg/Kg**	**1.7**	4.5
07	**Manganese (Mn)**	**mg/Kg**	**0.8**	3.5
08	**Boron (B)**	**mg/Kg**	**0.2**	0.5
09	**Molybdenum (Mo)**	**mg/Kg**	**0.1**	0.2

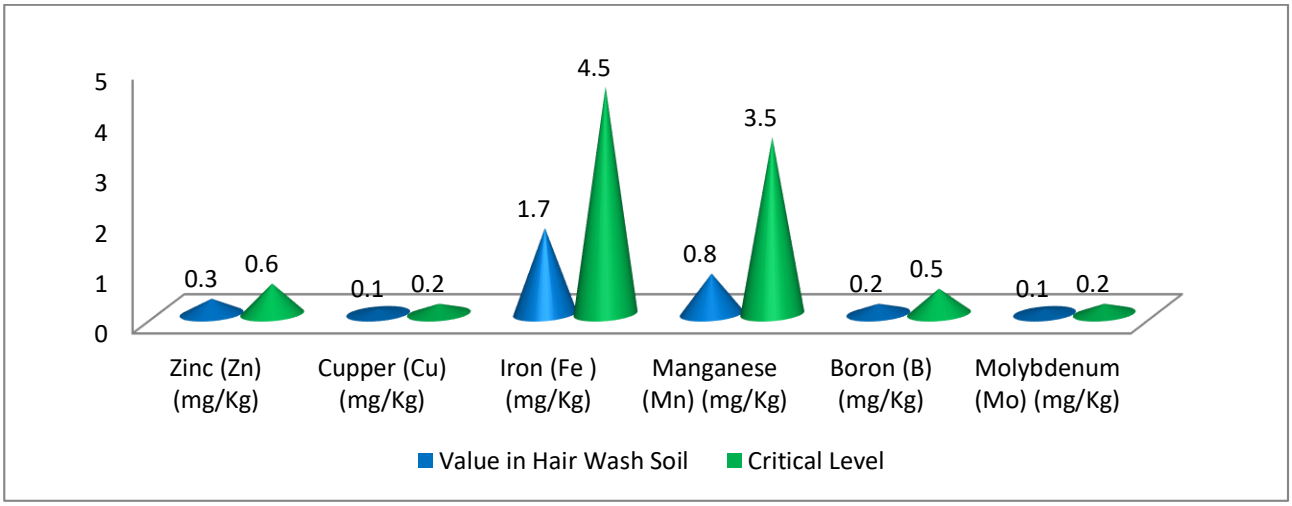
Result & Discussion :-

The conductivity of the Hair wash soil found in the Kardana village is much lower than normal only 22% of critical level of conductivity, so this soil will not be a saline soil. Obtained a pH-value of 6.37 which means that the Hair wash soil found in it is neutral. The amount of organic carbon was obtained in range of the lower value 0.50.









The chemical properties of Hair wash soil found in the Krdana village were tested when Zn content was found to be 50% less than the critical level, Cu was obtained only by 50% compared to the critical level, Iron was obtained only 37.7% compared to the critical level Happened, Similarly Mn , B , and Mo obtained only 22.8% , 40% and 50% as compared to critical level. The amount of all these chemical elements is very less.

Conclusion:-

The nature of the Hair wash found in the Kardana village, district Jashpur is not saline as well as neutral. The amount of iron and magnesium in the Hair wash soil here is very less. Copper and molybdenum are likely to be found in Hair wash soil.

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