Lab.2

Study of some physicals and chemicals criteria of the soil

1- **Physical Criteria :**

A-Temperature: The temp. of the soil effect on the type and numbers of M.O according to the different seasons.

B-Humidity: The amount of the water in the soil affect by many factors ex: Structure of the soils temp.

Procedure

1- Weighing clean, empty and dry watch class or petri dish.

2- Weighing 10g of the soil and put it in the petri dish then put the petri dish in the oven at 105^{C} for 8-12 hr.

3- Take the sample directly to the desiccator containing $Cacl_2$ for 1hr or more to withdraw the ruminate of the water or the vapor.

4- Weighing the Sample and the watch glass directly after drying then do the following equation :

$$\text{Relative humidity} = \frac{\text{Weight of petri dish with hummed sample - Weight after desiccation}}{\text{Weight after desiccation}} \times 100$$

2- Chemical criteria:

A - Measuring the pH: It's measured the hydrogen ion concentration in the soil by two method:

1. Electric method:

by using pH meter, The pH meter has electrode that insert into the soil suspension, the scale range from (1-14) .

2.Colorimetric Method:

In this may we use chemicals sensitive indicators to the pH variation.

Procedure

1- Take 1g of the soil and put in clean test tube with 5ml of Kcl as buffer. Close the test tube and shake sample by use vortex.

2- Leave the test tube to precipitate the soil then filter the supernatant .

3- Take 3 drops to 3 holes in porcelain Plate

*The first hole as a control (Just soil suspension).

*The second hole contains 1drope of soil suspension and 1drop of methyl red indicator.

*The 3rd hole contain 1drop of the soil suspension. and 1drop of promothymal blue indicator.

4- Mix the soil suspensions with the indicators and estimate the pH according to the color which formed. according to the table:

Indicator	**Color**	**pH-value**
Methyl Red 0.02% (AI coholic)	Red	4.5
	Red orange	5-5.5
	Yellow	6.5
	Green Light	6.5-7
Bromothymal blue 0.04% (Aqueous)	Green. Blue	7-7.5
	Blue	8

Note: This method is outdated and not currently supported.