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STUDY MATERIAL SCIENCE
CLASS-VII

‣ Soil

Percolation Rate of Water in Soil

Soil is porous, i.e. it has tiny pores in it. When water is poured over it, then some water gets absorbed in the soil and rest passes down the soil. The process of passing down water slowly through the soil is called percolation of water. Percolation rate is the amount of water (in mL) that is percolated through the soil in unit time, i.e. in minutes. The percolation rate differs in different soil types.

The rate of percolation can be calculated by using the following formula:

Percolation rate (mL/min) = Amount of water (mL)/Percolation time (min)

For example, if water in bottle 'A' percolates in 20 min, in 'B ', it percolates in f 15 min in bottle. While in bottle 'C', it percolates in 25 min, then the percolation rate (mL/min) will be calculated as follows:

For bottle 'A', Rate of percolation = 200mL/20min =10 mL/min

For bottle 'B Rate of percolation = 200mL/15min = 13 mL/min

For bottle 'C', Rate of percolation = 200mL/25min = 8 mL/min

Percolation rate is highest in sandy soil because it is very loose. On the other hand, clayey soil is very compact and therefore has the lowest rate of percolation. The rainwater moves or reaches to well faster and in a greater amount from sandy soil.

Since clayey soil can retain water in them. These are the best soil to grow paddy because paddy requires standing water in fields. The kutcha (unpaved) road due to percolation of water becomes dry after rain while pakka road does not.

Moisture in Soil

The soil contains some water in it which is called soil moisture.
Usually, 'moisture is present as a thin film around the soil particles. This moisture is absorbed by the roots of plants. Thus, the moisture content of the soil is very important for the growth of crops.

Absorption of Water by Soil

Soil contains moisture in it but it can still absorb or soak a lot of water. But soil has the limit to absorb water in it. The ability or capacity of the soil to absorb a limit of water is called absorption percentage. It can be calculated as follows:

Percentage of water absorbed $= Amount of water absorbed (in mL)/Amount of Soil (g) \times 100$

Different types of soil can absorb water to a different extent, i.e. some absorb more water while other absorbs less water. When we talk about the percentage of water absorbed by the soil, it means the mass of water absorbed by 100 g of soil.