MOHANLAL SUKHADIA UNIVERSITY UDAIPUR

DEPARTMENT OF ZOOLOGY

# Topic

# Soil Analysis

## B.Sc. 3rd

## Practical of Zoology

By

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# Soil Texture:

Soil texture (such as loam, sandy loam or clay) refers to the proportion of sand, silt and clay sized particles that make up the mineral fraction of the soil.

Texture is important because it influences:

- the amount of water the soil can hold
- the rate of water movement through the soil
- how workable and fertile the soil is

For example, sand is well aerated but does not hold much water and is low in nutrients. Clay soils generally hold more water, and are better at supplying nutrients.

**Aim:** To study the texture of Soil sample

**Material Required:**

Different Types Soil, Weight Machine, Different pore size sieves

**Principle:**

Texture is the size distribution of different mineral particles in the soil. It is composed of mainly 3 sized particles.

- **Clay-** Particles are smaller than 0.002 mm in diameter
- **Silt** -Particles are from 0.002 to 0.05 mm in diameter
- **Sand-** Particles ranges from 0.05 to 2.0 mm

Particles larger than 2.0 mm are called Gravel or Stones and most soils contain a mixture of sand, silt and clay in different proportions.

The amount of open space between the particles influences how easily water moves through a soil and how much water the soil will hold.

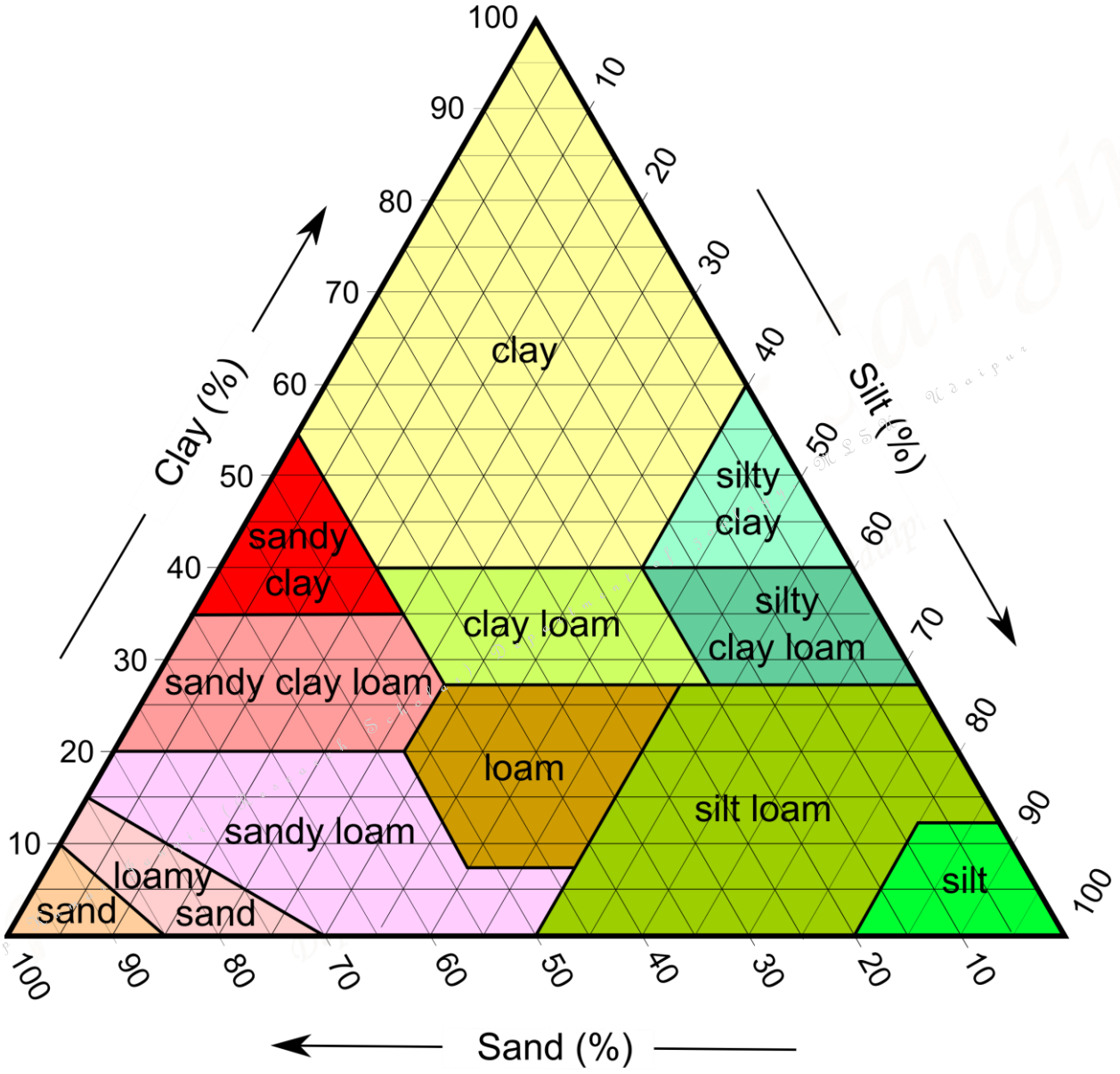
Too much clay, in proportion to silt and sand, causes a soil to take in water very slowly. Such a soil gives up its water to plants slowly. These soils are sticky when wet.

# Procedure:

- Pass the soil through Sieves of diameter 2mm pore size mash to remove gravel or larger particles.
- Now collect the separated soil and weight about 200gm soil sample.
- Pass the sample through 2mm, 0.05mm, 0.002mm and separate them individually and weight it.
- Find the % of the particles and determine the texture.

Calculation:

| Texture Group | Percentage |
| --- | --- |
| Sand | …….. |
| Silt | ……. |
| Clay | ……. |


clay
silty clay
sandy clay
clay loam
silty clay loam
sandy clay loam
loam
silt loam
sandy loam
loamy sand
sand
silt
Clay (%)
Silt (%)
Sand (%)
100
90
80
70
60
50
40
30
20
10

**Result:**.....

.....

# Moisture Content

**Aim:**

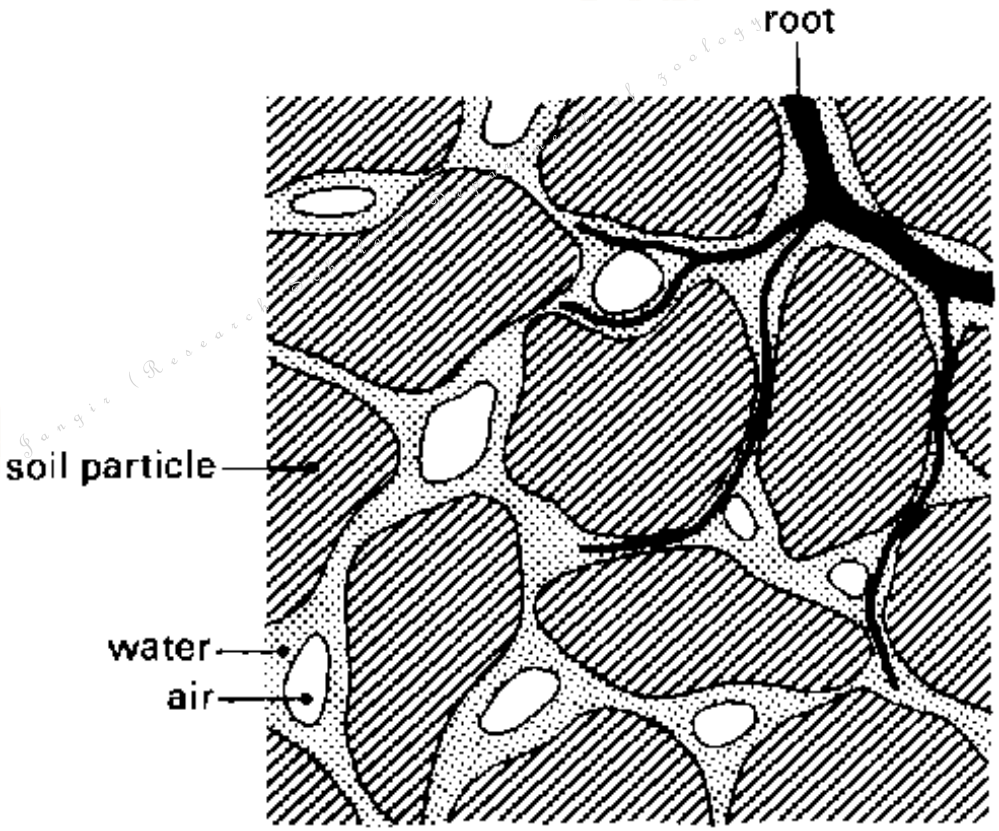
Estimation of moisture content in the soil sample

**Requirement:**

Soil, Polythene Bag, Weight machine, Soil container, Oven

**Principle:**

Soil moisture is expressed as Moisture % that represent the % of water in the soil.



## Procedure:

- Collect fresh sample of soil about 10 cm deep from the ground level
- Take an empty box and weight it.
- Fill the box with soil and weight it
- Place this container in the oven at 105° C for 24Hr. Till constant weight not attained
- Now weight the soil sample after drying.

## Observation:

Weight of box = 25gm

Weight of box + Weight of soil = 925gm

Weight of box + Weight of dried soil ($W_2$) = 800gm

# Calculation:

Weight of wet Soil ($W_3$) = $W_2 - W_1$

= 925-25

= 900gm

Weight of dried Soil ($W_4$) = $W_3 - W_1$

= 800-25

= 775gm

Amount of moisture in the soil ($W_5$) = $W_3$ - $W_4$

= 900 – 775

= 125gm

$$\% \boldsymbol{Moisture} = \frac{\boldsymbol{Amount\ of\ Moisture\ in\ soil\ (W_5)} * \mathbf{100}}{\mathbf{weight\ of\ Dried\ Soil}}$$

$$\% \boldsymbol{Moisture} = \frac{125 * 100}{775}$$

Moisture = 16.12%

# Result:.....

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Thank
You
So
Much