

Soil Morphology: It is the visual observation of soil structure, shapes and arrangement of its components in the soil profile.

Soil Horizon: A layer of soil approximately parallel to soil surface differing in properties from adjacent layers below or above it is called soil horizon.

Soil Profile: A vertical section of the soil through all its horizons or layers and extending into the parent material is called soil profile.

Master horizon or layers: For describing a soil profile 5 master horizons are recognized which are designated as O, A, E, B & C.

Subordinate layers within these master horizons are designated by lower case letters e.g.

O_i, O_e & O_a .

① O Horizons: → Organic horizon

→ Top most horizon in organic soils.

→ Derived from dead plant & animal residue

→ Dark in color

→ Usually occur in forested areas, absent in grass land regions.

specific O horizon are.

O_i : Organic horizon of original plant & animal residues slightly decomposed.

O_e : " " " " Intermediately / partially decomposed

O_a : " " " " Highly decomposed.

A horizons: → Top most mineral horizons.

- consist of a mix of partially decomposed organic matter
- Dark colored as compared to lower layers.

E horizons:

→ E horizons are those of maximum leaching of clay, & iron & Aluminium oxides.

- Eluviated horizon → (leaching)
- Light colored
- occurs below A horizon

B horizons → Illuviation (deposition)

→ subsurface horizon in which deposition of materials occur from both above & below layers.

→ B horizon has accumulation of Fe & Al oxides, silicate clays → In acid regions, CaCO_3

→ In humid regions CaSO_4 & soluble salts accumulate.

C-horizons: The C-horizon is the unconsolidated material underlying ~~rock~~ the solum i.e. true soil (A & B) → It may or may not be the same as Parent material from which solum formed.

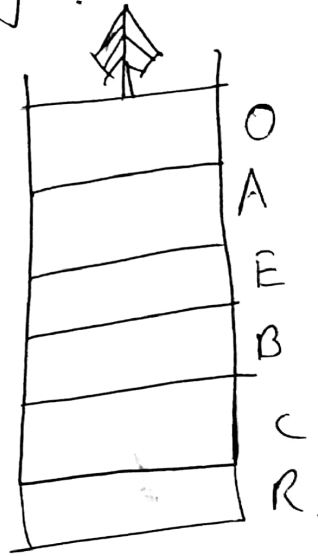
→ It is outside the zone of major biological activities.

→ It ^{upper layer} become part of upper solum by weathering & erosion.

layers: These are unconsolidated rock with little evidence of weathering. (3)

Soil developmental processes.

Pedology: Study of pedon
↓
Science that deals with the formation, morphology & classification of soil bodies as landscape component.



Pedogenesis This word composed of

i) Pedon — It is a 3 dimensional body of soil with lateral dimension large enough to permit study of horizons shapes & relations. (smallest unit of soil).

ii) genesis — mode of formation

So pedogenesis — mode of formation of soil pedon i.e. a soil.

Pedogenic processes : → Internal soil building processes.

① Calcification: A process^{where} by accumulation of CaCO_3 takes place in Cca horizon in soil profile that is called calcification (acid region).

② Decalcification: Removal of CaCO_3 from one or more soil horizon or eluviation of carbonate within a soil body.

→ Humid regions

③ Salinization: It is accumulation of soluble salts like sulfates & chlorides of Ca, Mg, Na & K resulting in a salty or saline horizon.

→ Arid regions

④ Desalinization: Removal of soluble salts from saline soil horizon is called desalinization.

→ It is removal of soluble salts by leaching.

⑤ Sodication: It involves the accumulation of sodium ions on exchange sites in a soil especially in clay resulting in Natric horizon.

→ It causes soil dispersion.

⑥ Desodication → leaching of Na & salts from natric horizon is called desodication.

→ Removal of Na ion from exchange sites by applying Ca & Mg salt

→ causes soil flocculation (removal of dispersion)

⑦ Silicification / podzolization chemical migration of Fe & Al oxides and/or OM resulting in accumulation of silica in layers eluviated or development of E horizon.

Podzolization is defined as process by which sesquioxides are translocated in a soil profile → low rainfall, forest vegetation & acidic condition are favourable for silicification

⑧ Desilicification / gleyization: chemical migration of silica out of soil column & thus accumulation of sesquioxides is called desilicification or gleyization. High temp, high rainfall favor this.

⑨ Glyzation / Gleyization It is reduction of iron under anaerobic / ^{waterlogged} conditions with production of bluish to greenish gray matrix colors with or without yellowish brown, brown or black mottles & ferric & manganese concretions.