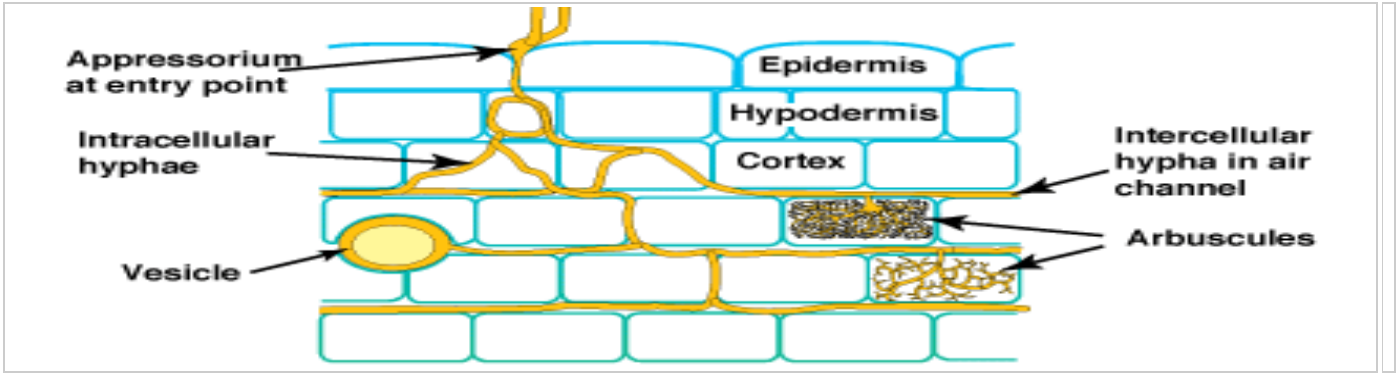
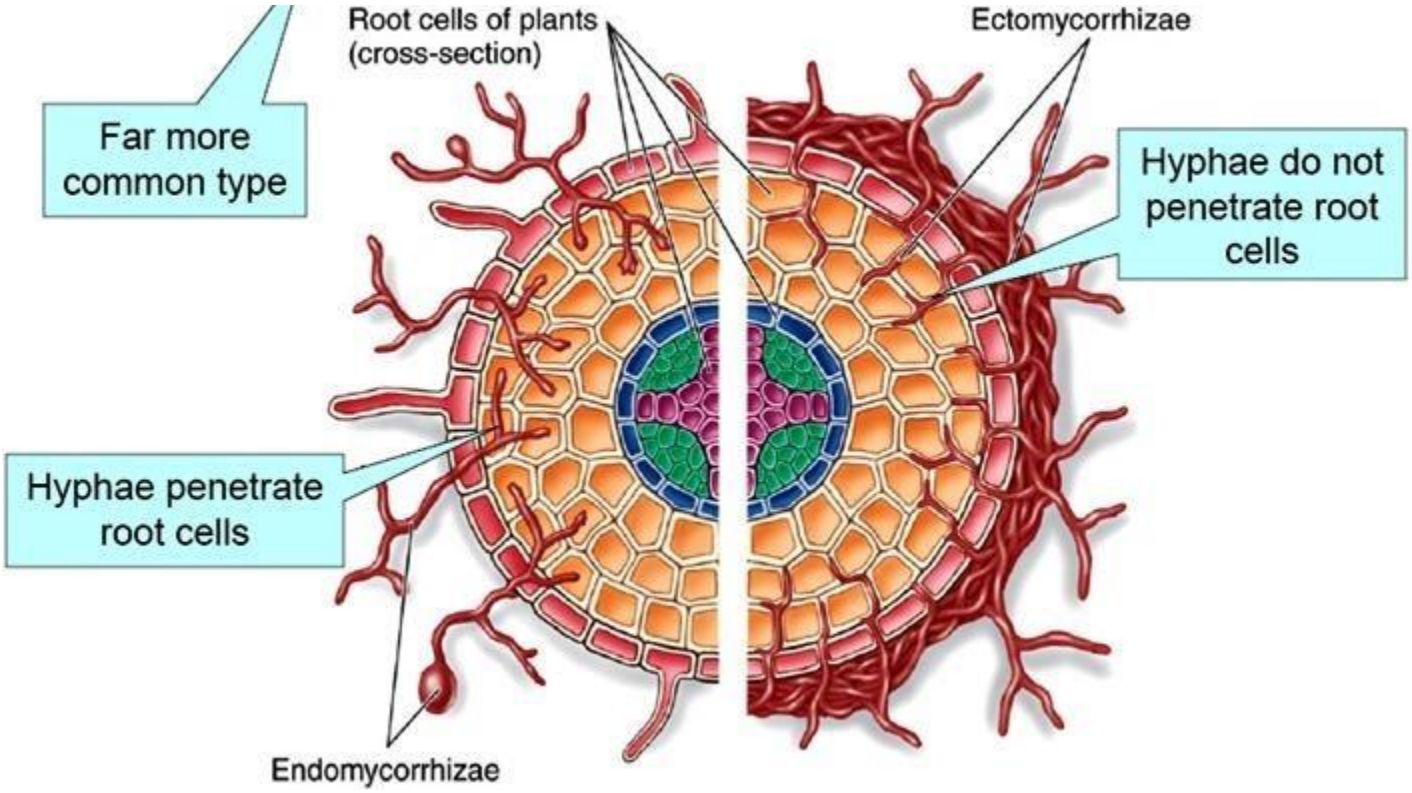
VA-Mycorrhizal association :

Micorrhizal association is very essential for the plants because it has several benefits like absorption of nutrients,increases drought resistance,enhance plant efficiency in absorbing water and nutrients from soil.Because ,AM fungi are very useful in the agriculture .because it serve as biofertilizer as it helps in the absorption of phosphorus and other nutrient uptake. Vesicular-arbuscular mycorrhiza (VAM) is formed by the symbiotic association between certain phycomycetous fungi and angiosperm roots. The fungus colonizes the root cortex forming a mycelial network and characteristic vesicles (bladder-like structures) and arbuscules (branched finger-like hyphae). which has the ability to dissolve the phosphates found in abundance in the soil. Apart from increasing the availability of phosphorus, VAM provides the plants with the necessary strength to resist disease germs and unfavourable weather conditions.All VAM fungi are obligate bio trophic as they are completely dependent on plants for their survival.

Types of mycorrhizal association :

Mycorrhizae are commonly divided into ectomycorrhizae and endomycorrhizae. The two types are differentiated by the fact that the hyphae of ectomycorrhizal fungi do not penetrate individual cells within the root, while the hyphae of endomycorrhizal fungi penetrate the cell wall and invaginate the cell membrane and cortical cells. Endomycorrhizal Fungi form exchange mechanisms on the inside of the root cells, intracellularly (and the hyphae extend outside the root). Ectomycorrhizal Fungi form exchange mechanisms outside of the root cells, extracellularly.





Isolation of mycorrhizae: 1.sieving method 2.floatation method

Sieving method

⇩

Soil sample and sterile water

⇩

Hot water

⇩

Filter and sieve

⇩

spores separated from soil particle

⇩

mix with carrier material

⇩

use when required biofertilizer

2.**Floatation method:**

Soil sample and strile water

⇩

Separate the soil particle using membrane filter

⇩

Centrifuge at 3000rpm for 30 min

⇩

Spores separated from soil particles

⇩

Mix with carrier material

⇩

Use when required as bio fertilizer

Mass production of VAM :

Spores and antibiotic solution (streptomycin 200ppm for 10 min)

⇩

Wash spores with mercury chloride

⇩

Wash with distilled water

⇩

Inoculate the plant pot

⇩

Keep in green house for 3 to 4 weeks

⇩

Up root the plants

⇩

Check for colonization

⇩

again keep for field growth(1-2 month)

⇩

macerate the root

⇩

check the moisture content (5%)

⇩

use as biofertilizer

Application of mycorrhizae :

1. Increase nutrient uptake of plant from soil

2.Increase diversity of plant

3. Produce uniform seedlings

4.Significant role in nutrient recycling

5.more tolerant to adverse soil chemical which limit the crop production

6.Increase plant resistance to diseases and drought

7.Stimulate the growth of beneficial micro organism

8.Improve soil structure 9.Increases uptake of water from soil

10.Increases absorption of phosphate by crops

11. They protect plants during stress condition