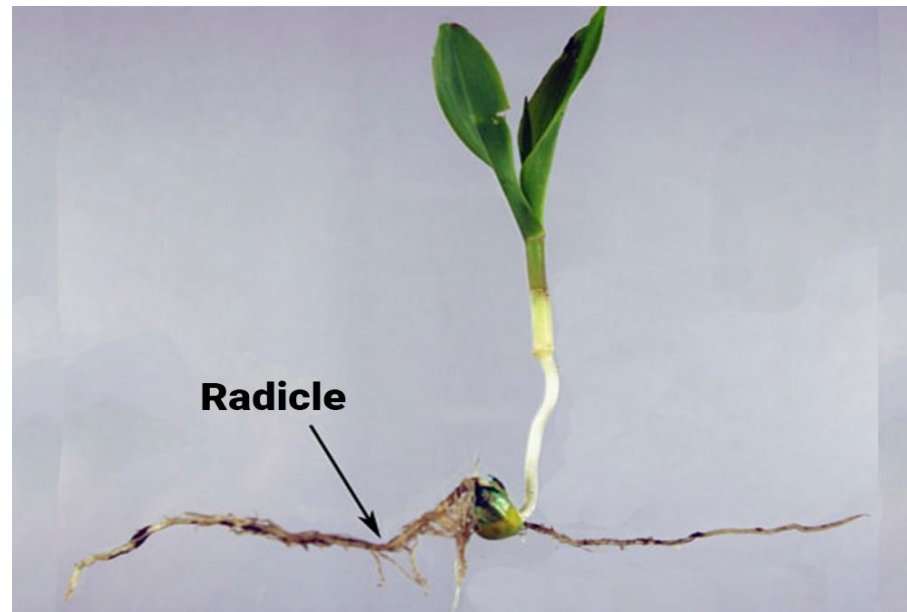


## Vegetative characters

1-Root: is non-green, cylindrical descending axis of the plant that usually grows into the soil and develops from the **radicle** which is the first structure that comes out when a seed is placed in the soil.



# Functions of Root

**a-Anchoring the plants to the ground soil and ensuring that it stands erect.**

**b-Absorption: Primary function of the roots is to absorb water and dissolved minerals from the soil.**

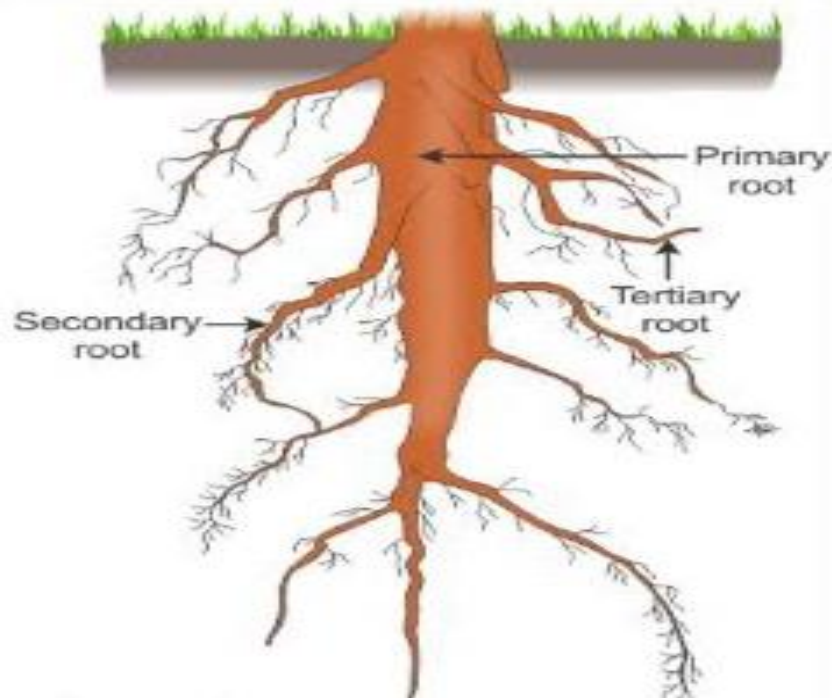
**c-Storage: Plants prepare food and store in the form of starch in the roots.**

**d-Reproduction: In some plants, the roots are a means of reproduction, this type of reproduction is called vegetative propagation.**

# Types of Roots

## 1- Tap root (Dicotyledon, Gymnosperm):

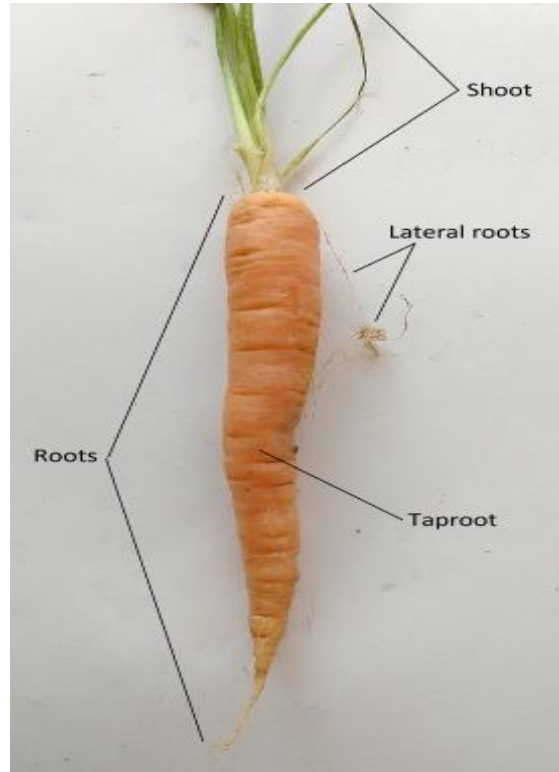
it is the main root of the plant, developing from the radicle and produces secondary roots that further branches into finer roots, and it say the plant has a tap root system, tap root has many types:



# 1- Tap root



**Normal tap root**  
*Vicia faba*



**Conical root**  
*Daucus carota*

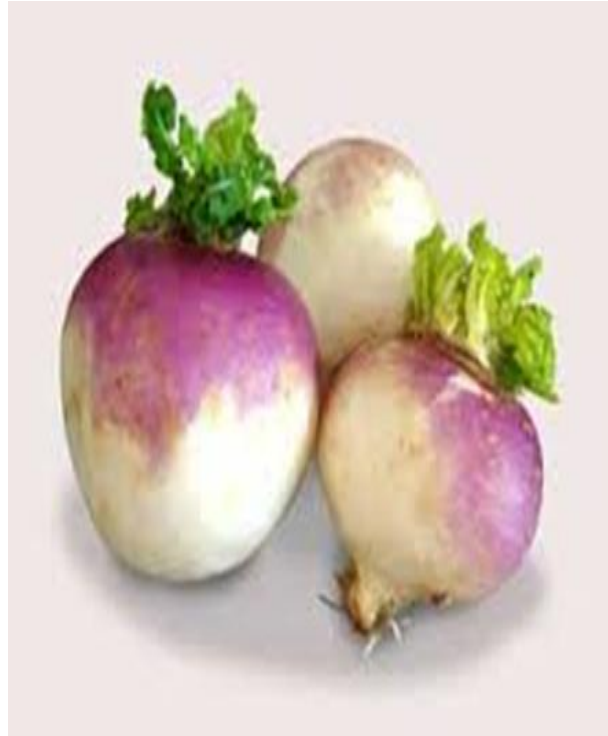


**Fusiform root**  
*Raphanus sativus*

# 1- Tap root



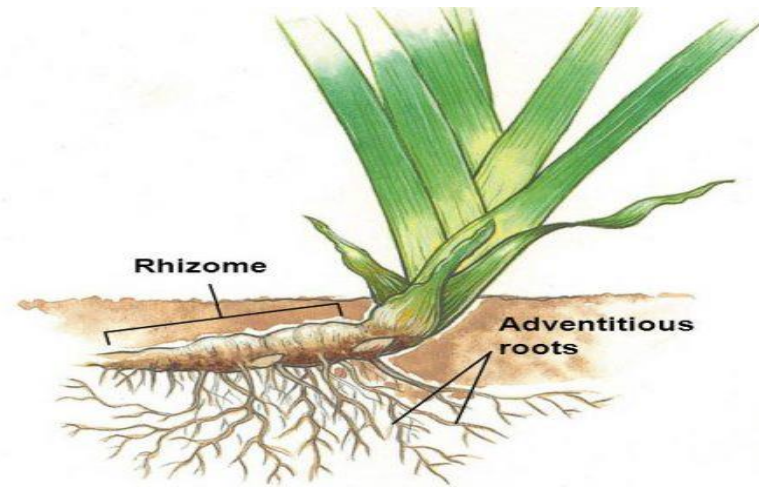
**Globiform root**  
*Raphanus*



**Napiform root**  
*Brassica rapa*

## 2- Adventitious roots

developing from any part of the plant other than radicle, it may develop from the base of the stem or nodes or internodes or from the leaves (Monocotyledon plants), and the plant has a fibrous root system, the types of this root are:





## 2- Adventitious roots



Fibrous root  
*Triticum*

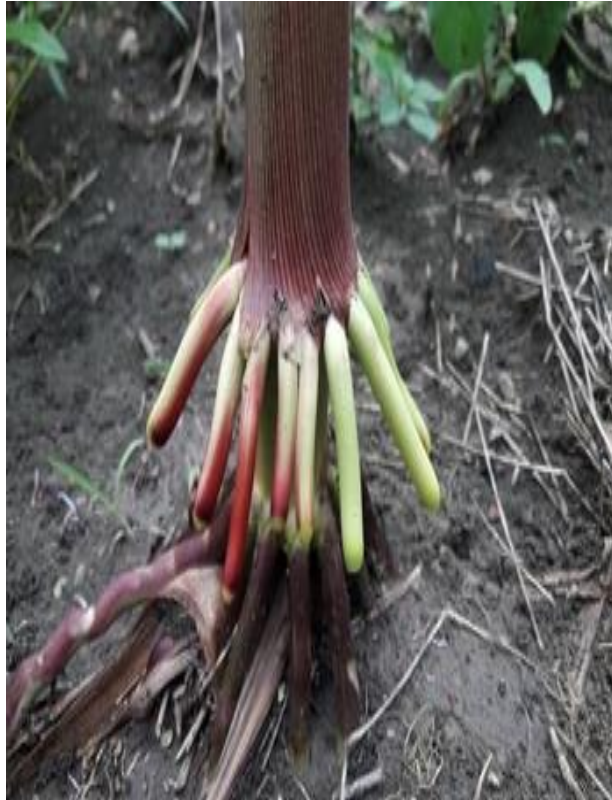


Fibrous root  
*Fragaria*



Tuberous root  
*Ranunculus*

## 2- Adventitious roots



**Prop root**  
*Zea mays*



**Parasite  
(Haustorial) root**  
*Cuscuta*



**Floating root**  
*Jussiaea*



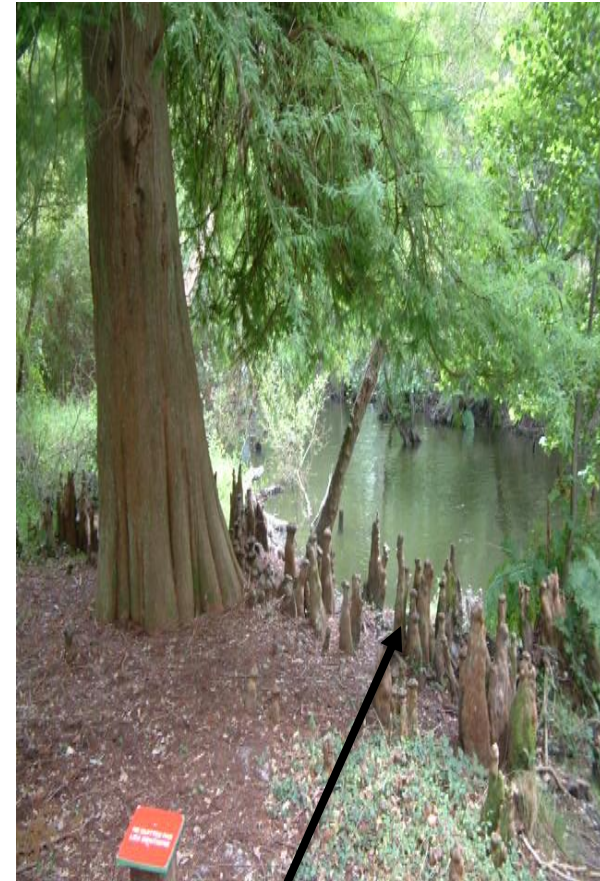
## 2- Adventitious roots



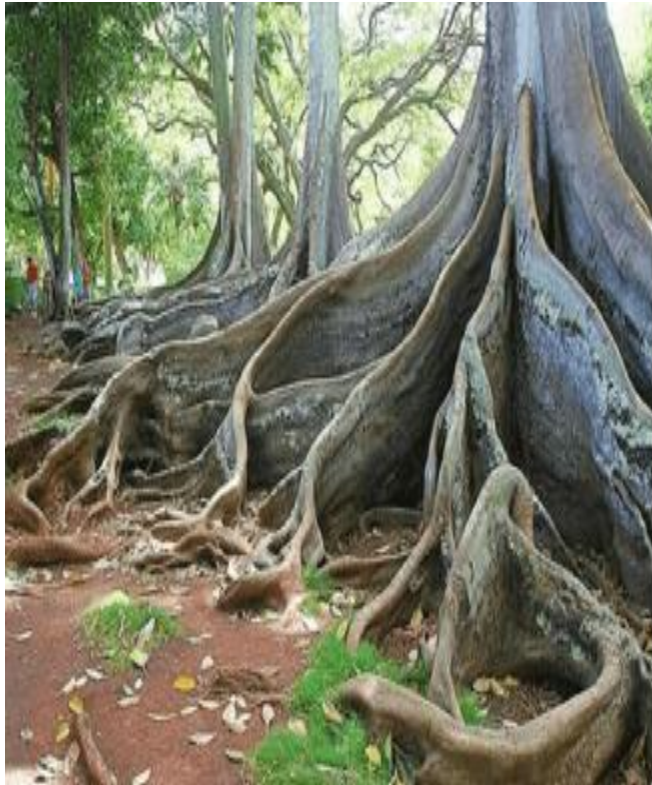
Aerial root  
*Hedera helix*



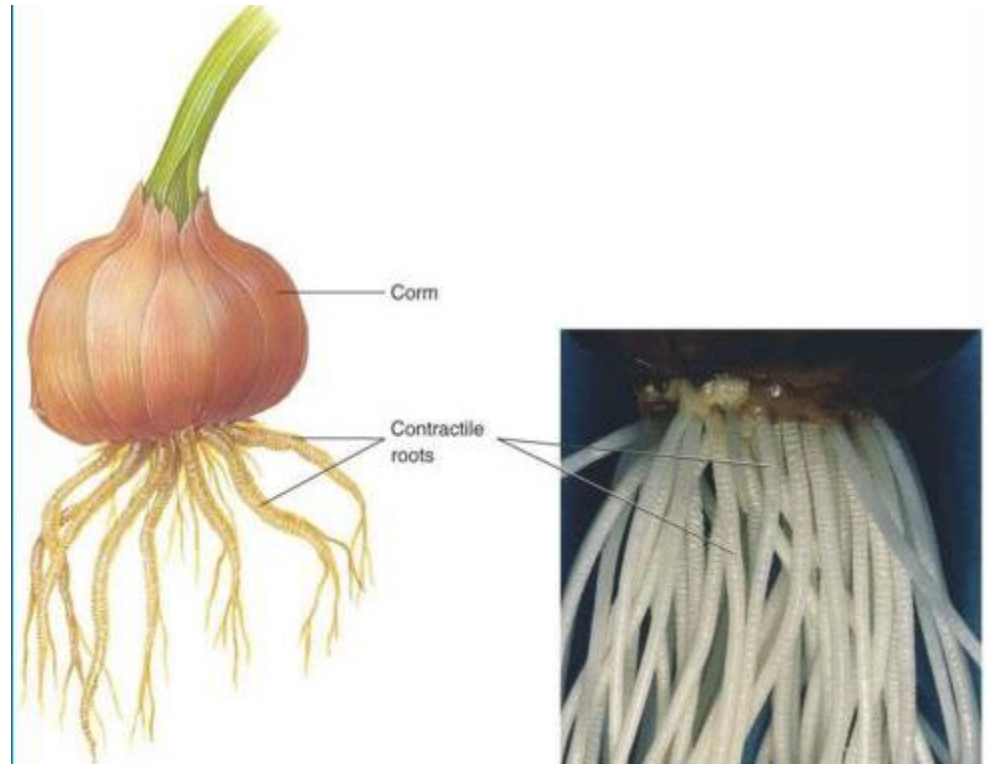
Aerial root  
*Ficus bengalensis*



Aerating root  
*Taxodium*



**Buttress root**  
*Terminalia*



**Contractile root**  
**Some Monocot.**  
**plants**