

Fruits

BOT A_SEM-III (CC-6)

By

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- ✓ Part of sexual reproduction and found only in the members of the Angiosperms
- ✓ Develops from fertilized ovary, Protect the enclosed seeds and help in seed dispersal
- ✓ A fruit is a matured and ripened ovary, wherein the ovary wall gets converted into the fruit wall.
- ✓ A fruit consists of pericarp and seeds.
- ✓ The pericarp develops from the ovary wall and may be dry or fleshy.
- ✓ Seeds are fertilized and ripened ovules.

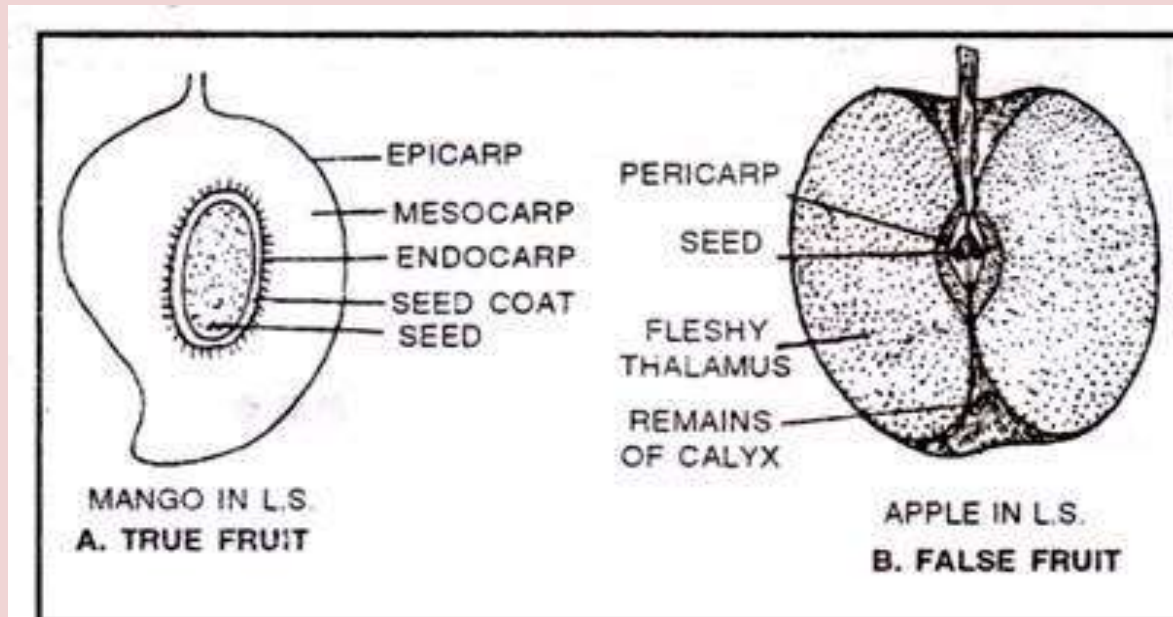
Pericarp composed of three layers

outer **exocarp**

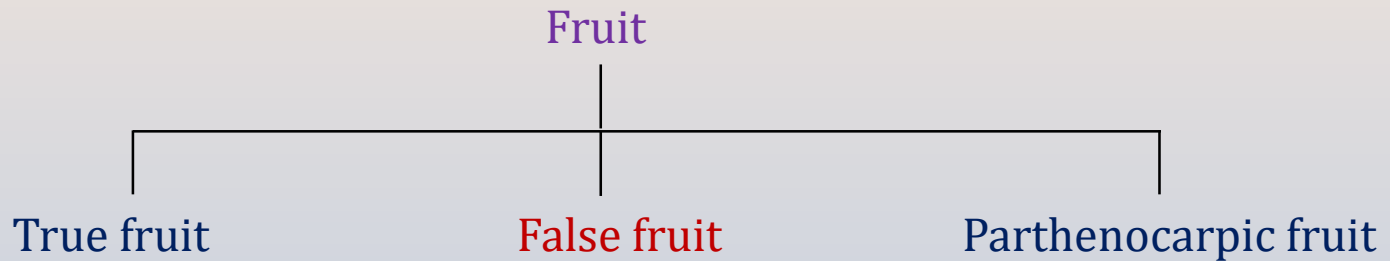
middle **mesocarp**

inner **endocarp**

} **pericarp**



Classification of fruits based on formation



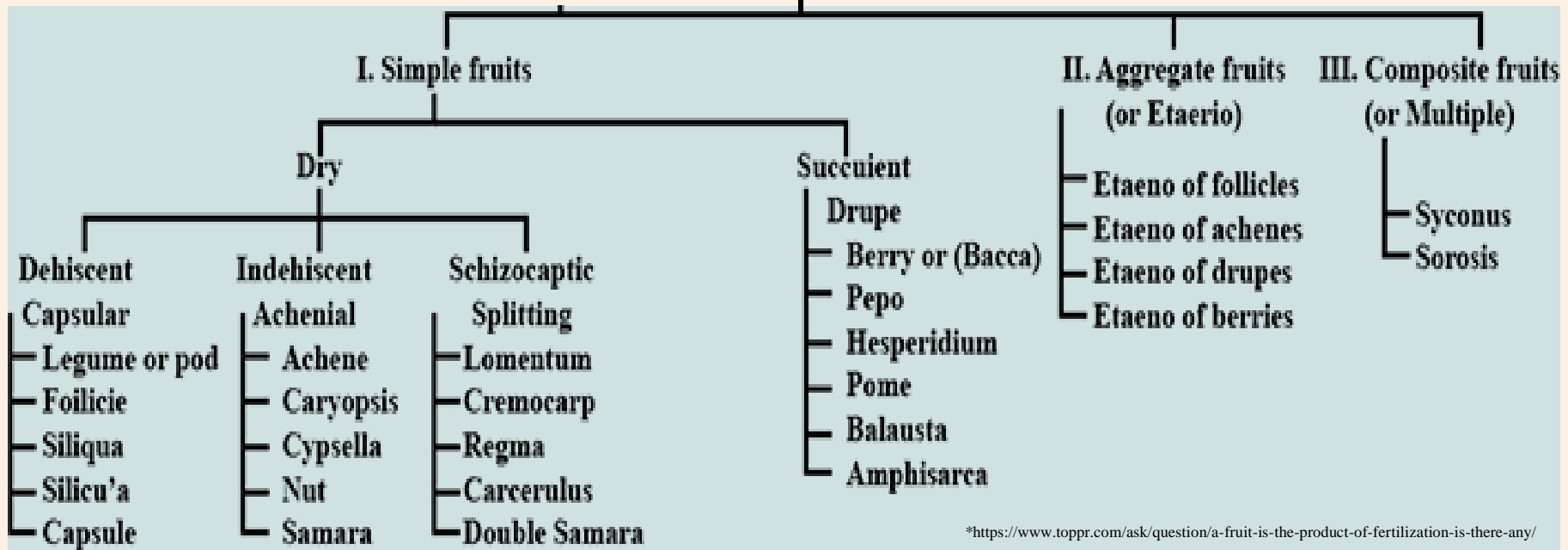
Fruit develops from only the ovary part without any floral (non-carpellary) part
e.g.: Mango, Tomato

In addition to the ovary the floral (non-carpellary) parts like thalamus (Apple)
Perianth (jack fruit)

Development of fruits without fertilization. They are seedless fruits.

Fruits

- Carpels are free or fused
- One or more flower take part in the formation of fruit



- ❖ Simple fruits developing from a single ovary of the flower.
- ❖ Aggregate fruits developing from several free carpels within the flower.
- ❖ Composite fruits involving several flowers or the whole inflorescence.

1. Simple Fruits:

- Develops from a single ovary of a single flower
- Containing one or more carpels
- Simple gynoecium
- Syncarpous gynoecium.

There are two categories of simple fruits—dry and fleshy.

1.1. Dry fruits

- Pericarp remains dry and hard
- Pericarp is not differentiated into three layers

a) Dehiscent Fruits (Capsular Fruits)- dry fruit which at maturity open/burst along the suture to release their seeds

b) Indehiscent Fruits (Achenial Fruits)- dry fruit which do not open/burst at maturity

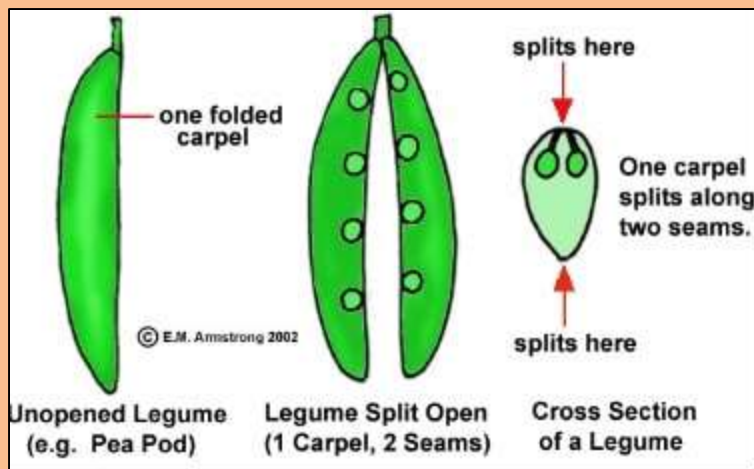
c) Schizocarpic Fruits (Splitting Fruits)- instead of dehiscing, rather splits into number of segments, each containing one or more seeds

1.2. Succulent or Fleshy Fruits

- Pericarp is fleshy or fibrous
- Pericarp is differentiated into three layers

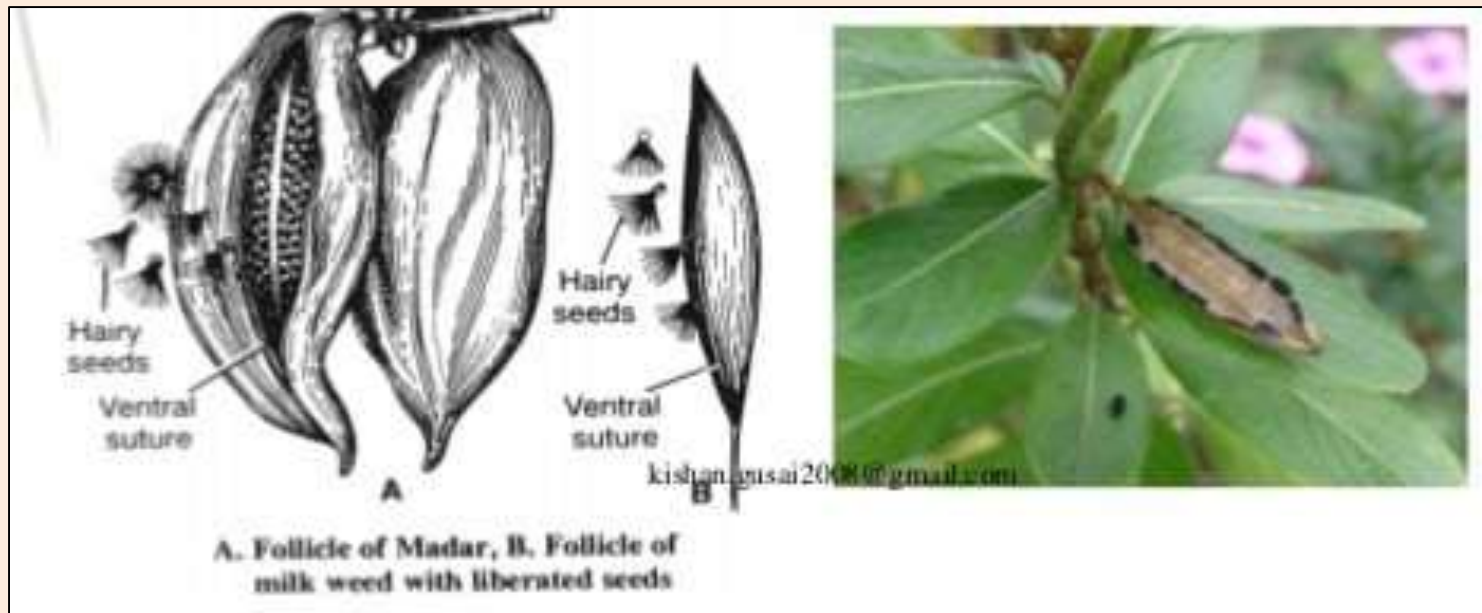
1.1.1. **Legume:** A dry dehiscent Fruit developing from superior monocarpellary ovary and dehiscing along two suture.

- ✓ Legume develops from a simple ovary with two rows of ovules.
- ✓ The fruit dehisces along both the sutures i.e. ventral as well as dorsal, following maturation and drying.
- ✓ It is characteristic of family **Leguminosae** i.e peas (*Pisum sativum*), beans (*Phaseolus sp.*), peanuts.
- ✓ Exception peanuts



1.1.2. Follicle: A dry dehiscent many-seeded fruit developing from superior monocarpellary ovary and dehiscing along one suture

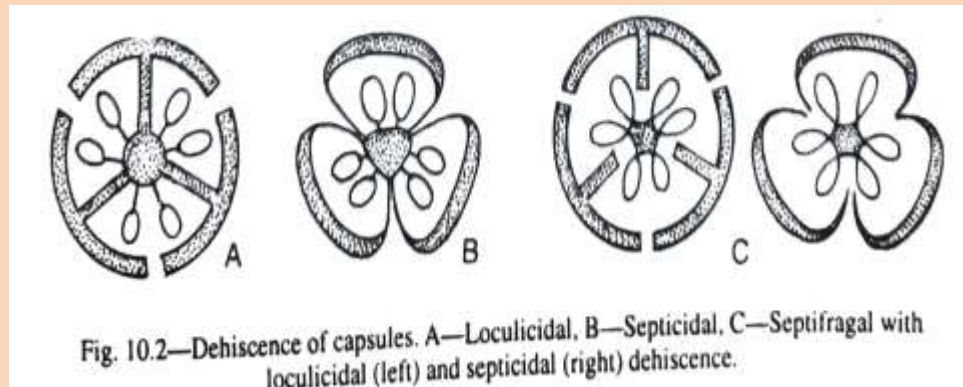
- ✓Follicle develops from a simple ovary with two rows of ovules.
- ✓The fruit dehisces only along the ventral following maturation and drying.
- ✓*Calotropis prorera*, *C. gigania* (Asclepiadaceae), *Alstonia scholaris*" (Apocynaceac)

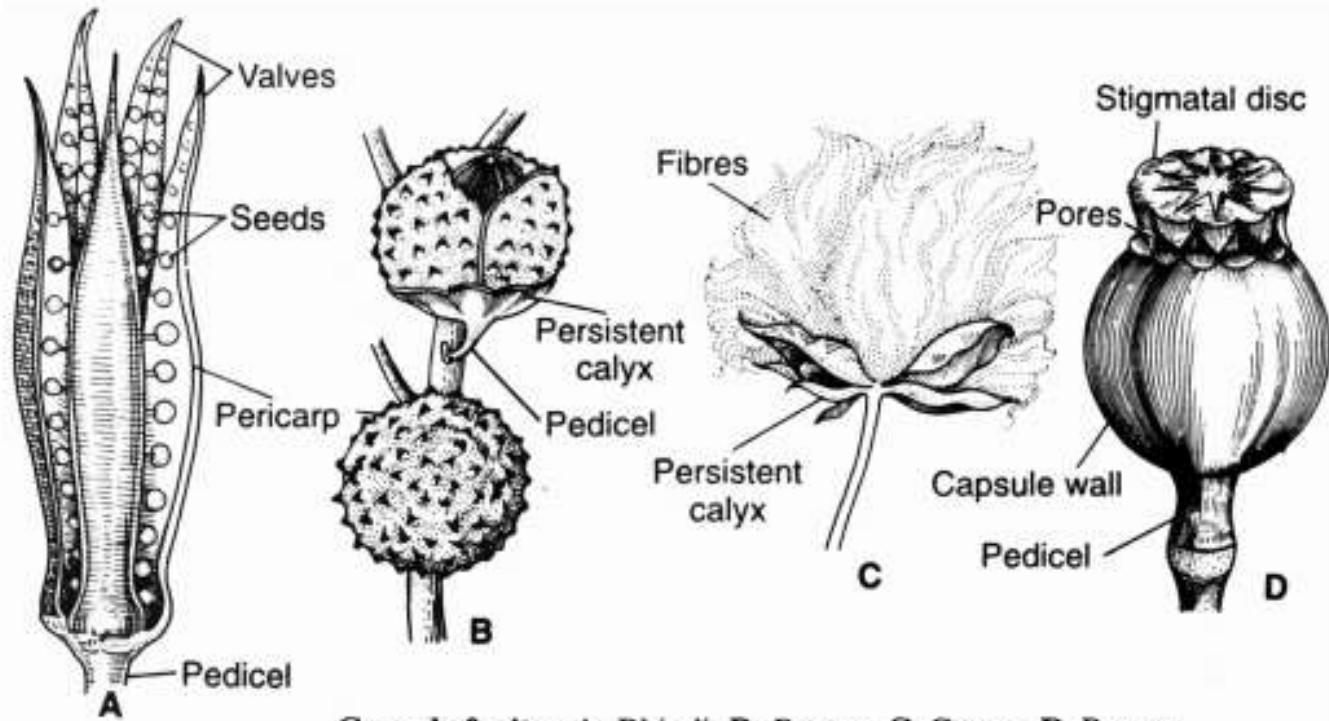




1.1.3. **Capsule:** It is a simple dry many seeded dehiscent fruit developing from a multi-carpellary syncarpous ovary.

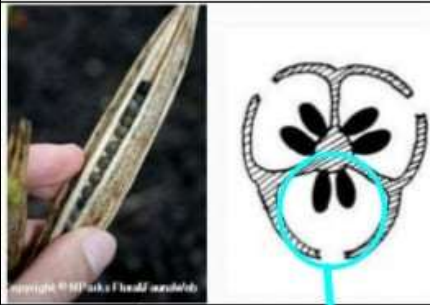
- A. **Septicidal:** Capsule splitting along septa (joints of the ovary) and valves remaining attached to septa as in *Linum*, *Rhododendron* sp.
- B. **Loculicidal:** Capsule splitting along locules/ dorsal sutures (midrib of each ovary) and valves remaining attached to septa, as in family Malvaceae (*Hibiscus*, *Gossypium*).
- C. **Septifragal:** Capsule splitting so that valves fall off leaving seeds attached to central axis as in *Datura*.
- D. **Poricidal/porose capsule:** one which opens with round holes/pores. (poppies)
- E. **Denticidal:** Capsule opening at top exposing a number of teeth as in *Primula* and *Cerastium*.





Capsule fruits : A. Bhindi, B. *Datura*, C. Cotton, D. Poppy

1. Locullicidal



Single Locule

2. Septicidal



Septum

3. Septifragal



Valves, Seeds attached to central collumn

4. Sutural



Calotropis

5. Poricidal



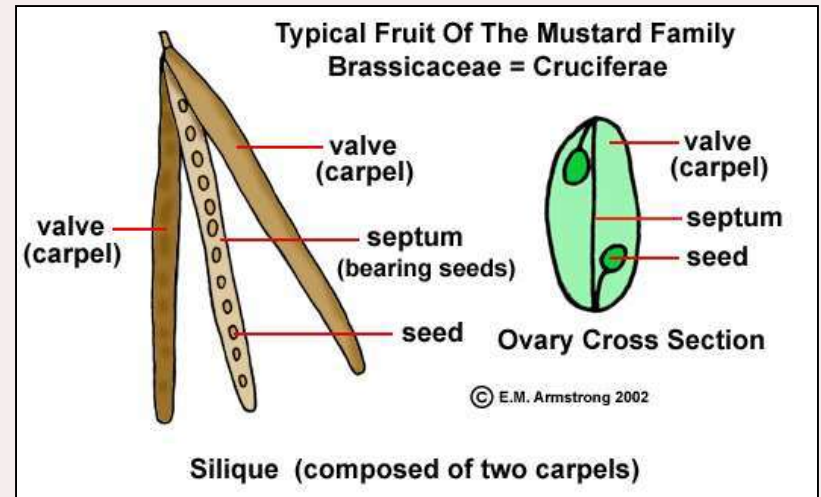
Poppy

6. Circumscissile



Eucalyptus

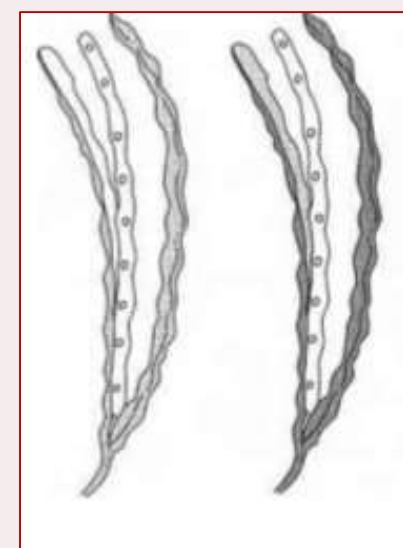
1.1.4. **Silique:** Fruit developing from bicarpellary syncarpous superior ovary, which is initially one chambered but subsequently becomes two chambered due to the formation of a **false septum** called **replum**



✓ It is an elongated fruit dehiscence occurs along both the sutures from the base upwards (base to apex).

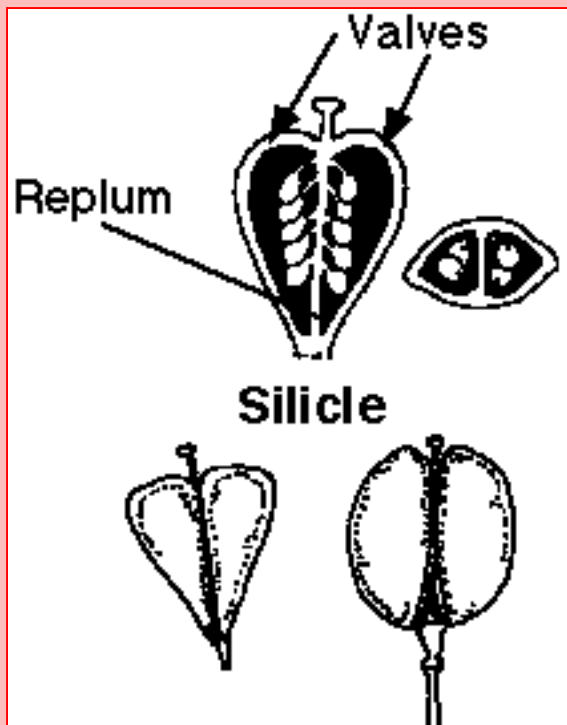
✓ valves separating from septum and seeds remaining attached to the rim (replum).

✓ Characteristic of the family Brassicaceae.



1.1.5. Silicula: Fruit similar to siliqua but short and flattened, It is almost as broad as long.

Capsella bursapastoris (Shepherd's purse)



Shepherd's purse

DRY DEHISCENT FRUITS

Follicle
(delphinium)



Legume
(pea)



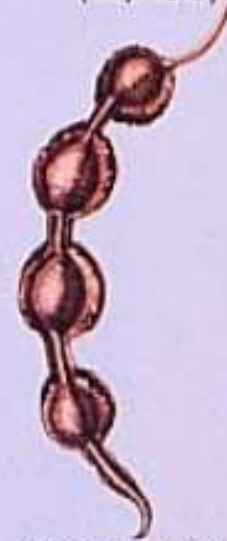
Silique
(cabbage)



Silicula
(shepherd's purse)



Lomentum
(Sophora)



Porose capsule
(poppy)



Circumscissile capsule
(*Anagallis*)



Loculicidal capsule
(*Iris*)



Valvate capsule
(campion)



Septicidal capsule
(foxglove)



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Simple, Dry Dehiscent

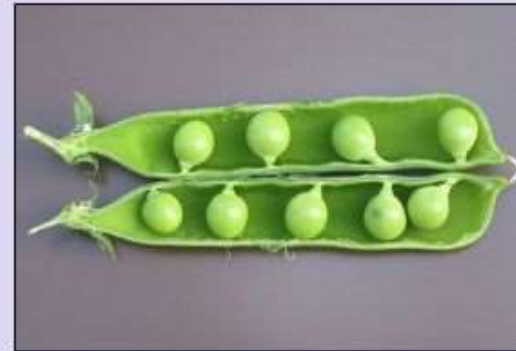
B. Dry dehiscent fruits



Follicle



Siliqua



Legume/Pod



Loment/Lomentum

Thank you

.....to be continued