

Caytoniales



Subject – Gymnosperms

Topic – Caytoniales

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- Caytoniales were a small group of extinct gymnospermic plants.
- First described by Hamshaw Thomas in 1925 from late Triassic period.
- Caytonia is a berry like cupules with numerous small seeds.

Examples of Caytoniales

- Leaves : Sagenopteris
- Microsporophyll : Caytonanthus
- Megasporophylls: Caytonia and Gristhorpia

General characteristics

- Caytoniales were small branched trees or shrubs.
- **Leaves (Sagenopteris).**
- Leaves petiolate.
- Petiole slender with 3 to 6 terminal leaflets.
- Leaflets arrangement was palmate in pairs.

Sagenopteris



Leaf



Leaf



Female sporophyll



- Each leaflet with distinct midrib.
- Leaf margin smooth with an acute apex.
- Venation similar to glossopteris.
- Upper and lower epidermis with thick cuticle.
- Stomatal development haplocheilic.

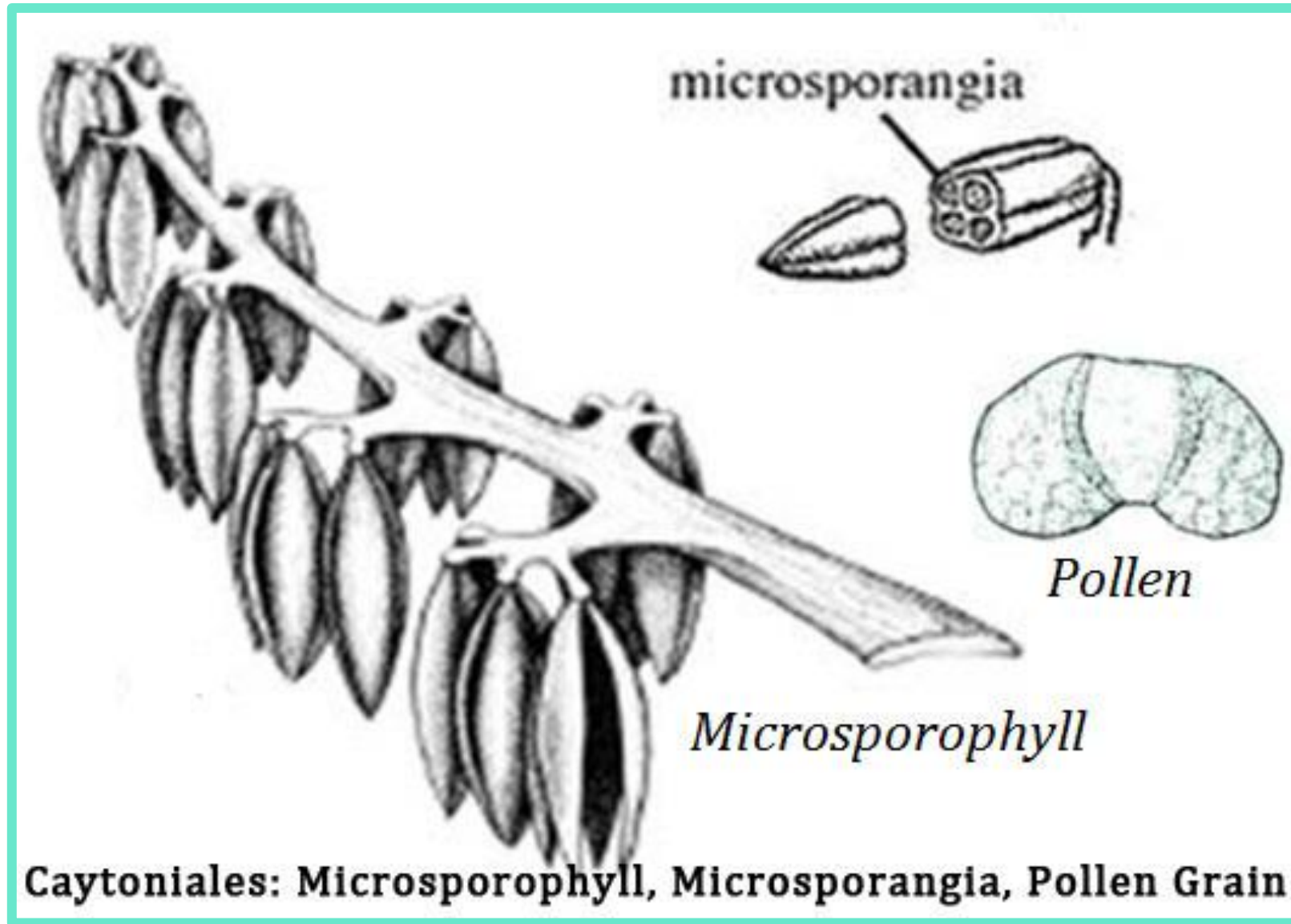
- Mesophyll differentiated into palisade and transfusion tissue.
- Leaflets fall by the formation of abscission layers , it is an Angiospermic character .
- Caytoniales had fertile branches with seed bearing cupules.
- Ovules were located inside the fleshy cupules with tough outer cuticle .

- Outer layers of the cupules were fleshy and fruit-like.
- Individual ovules had an apical tube like structure called micropylar canal.
- Mature ovule resembles a blueberry fruit.
- The extra protection of seeds in Caytoniales indicates they were predecessors of angiosperms

Microsporophyll

- Example : Caytonanthus
- Microsporophyll consists of dorsi - ventral and pinnate rachis.
- Each rachis bears pinnate on either side.
- Each pinnae branches irregularly.
- The ultimate branches of pinnae bear the synangia.

- Each branch bears two sporangia terminally.
- Each sporangium was with four pollen sacs .
- Pollen grains were produced in the pollen sacs in groups of four.
- Pollen grains were small , shape similar to that of pine trees

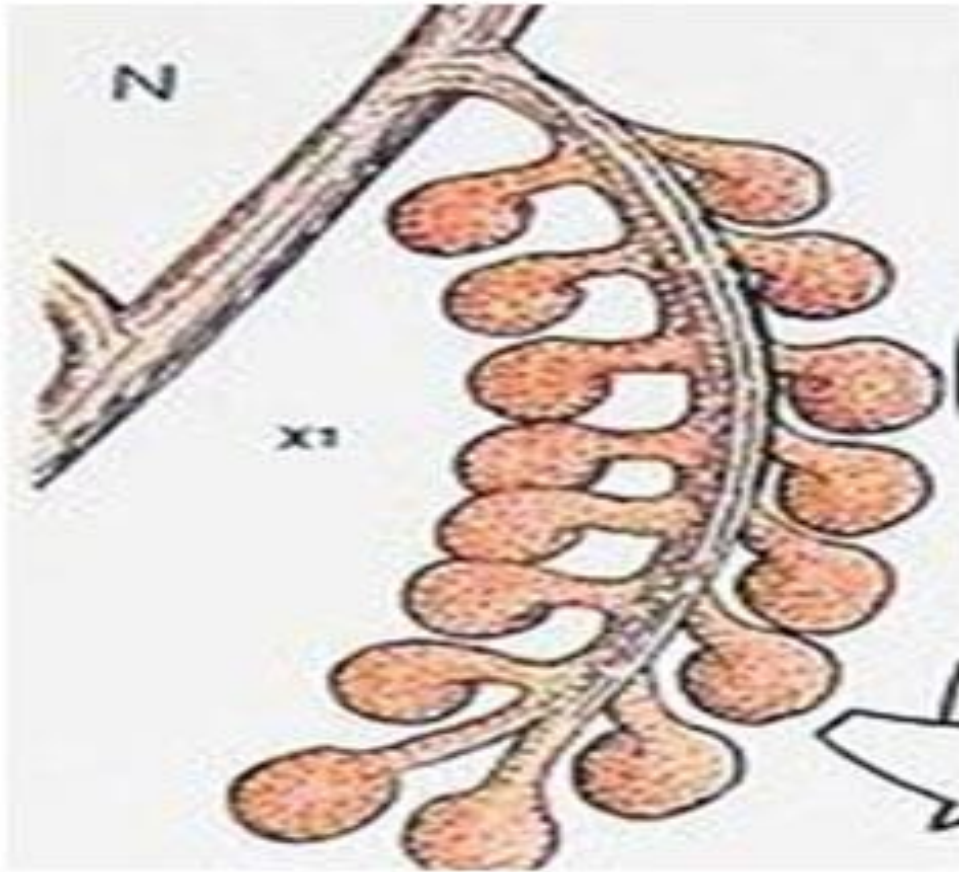


- Pollen grains winged.
- Pollination is achieved through the wind.

Megasporophyll

Example : Caytonia , Gristhorpia

- Megasporophyll were also pinnate.
- It consists of a dorsal - ventral rachis with a number of outgrowths.

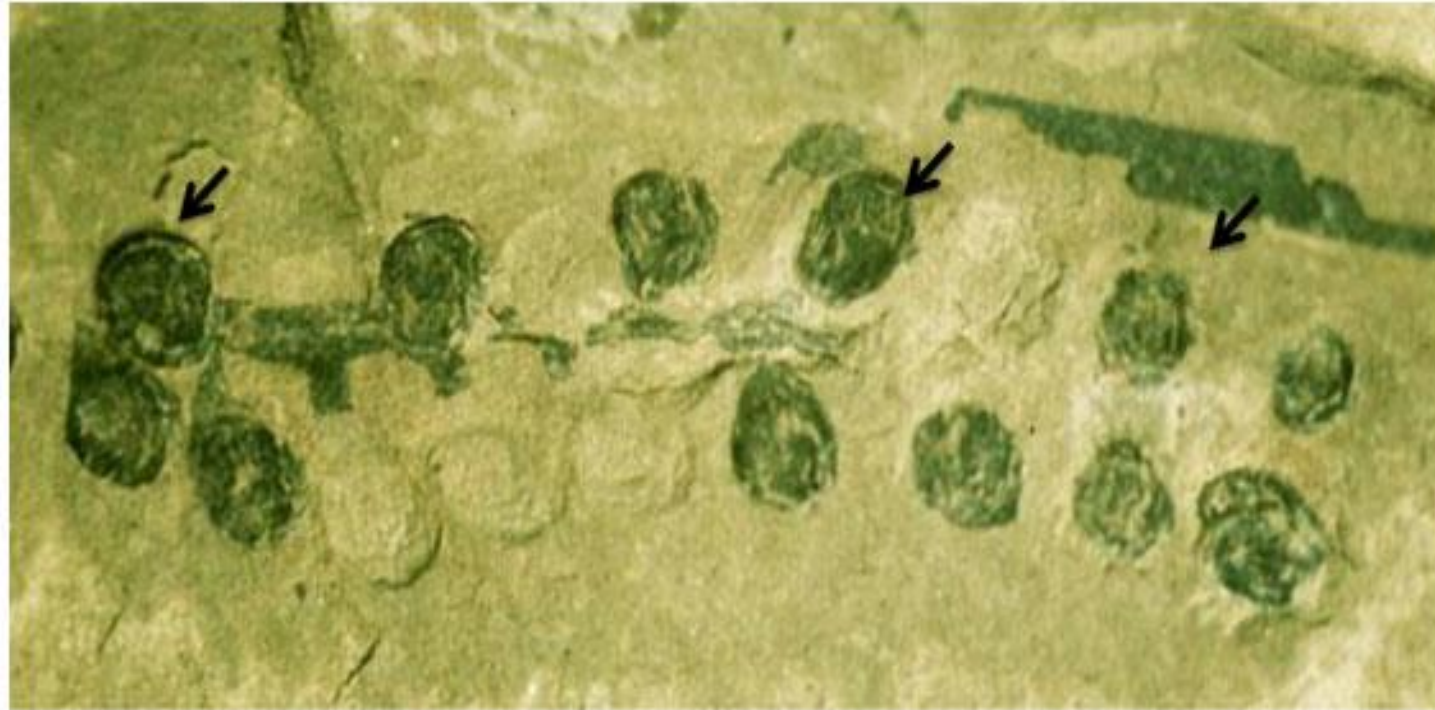


Caytonia
(Megasporophyll)



Caytonia
(L.S. of 'Fruit')

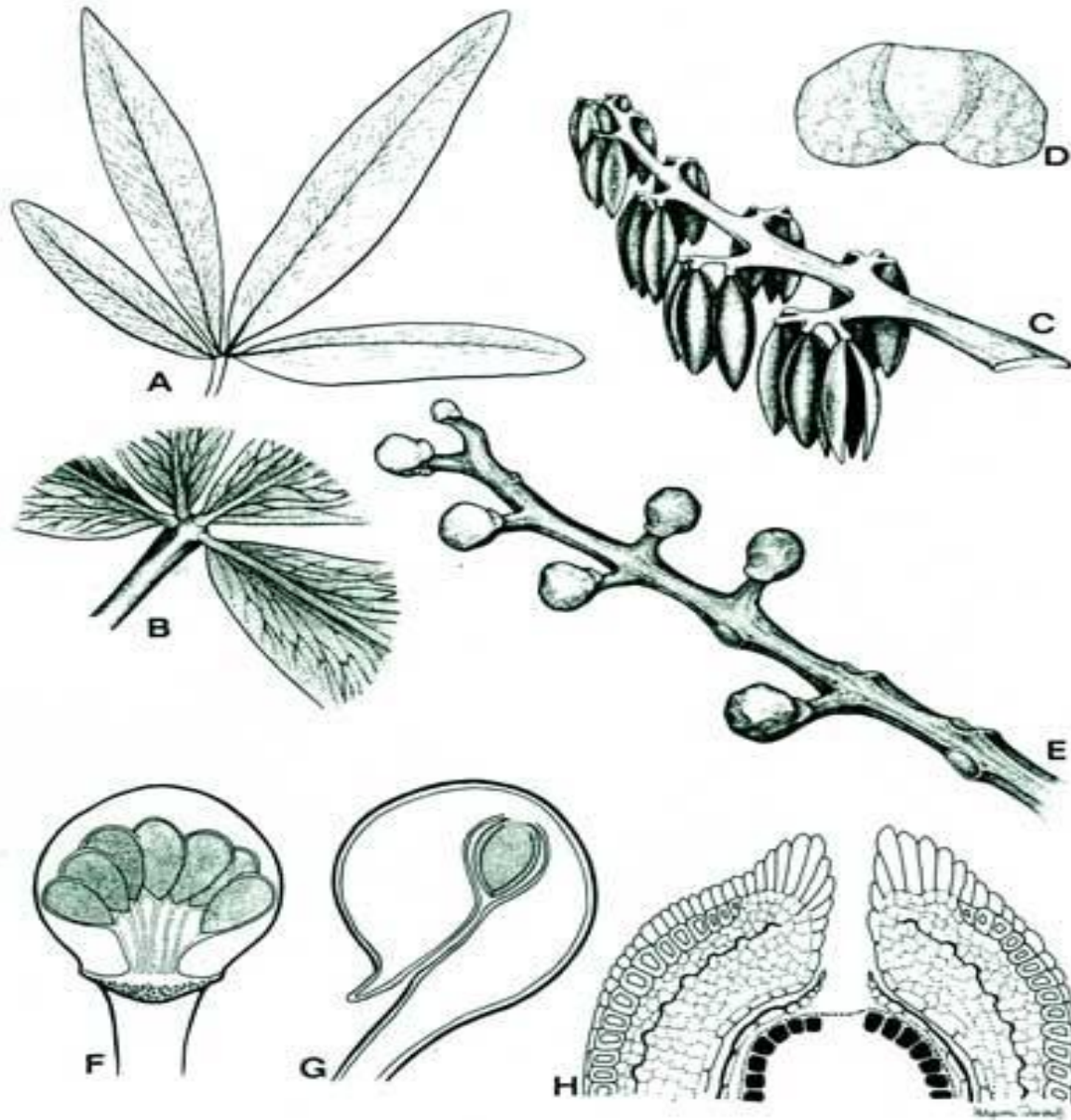
- Outgrowths were staked and with swollen tips.
- These outgrowths were called the fruits.
- The swollen portion of the rachis contains many ovules internally.
- After maturation , the fruits also fall by abscission.
- Fruits surface is very smooth.
- Seeds were pendulous , orthotropous , oval or flattened.



Caytonia – Megasporophyll with 'Fruits'



Sagenopteris: Leaves of Caytoniales



A) leaf structure

B) Venation

C) Microsporophyll

D) Pollen grain

E) Pollen sacs

F) Cupule

G) Pollen sac structure

H) Ovule

Thank You!
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