Course – BSc Botany

Semester- II

Paper Name - Archegoniate / BOT CC204

Topic - *Rhynia*

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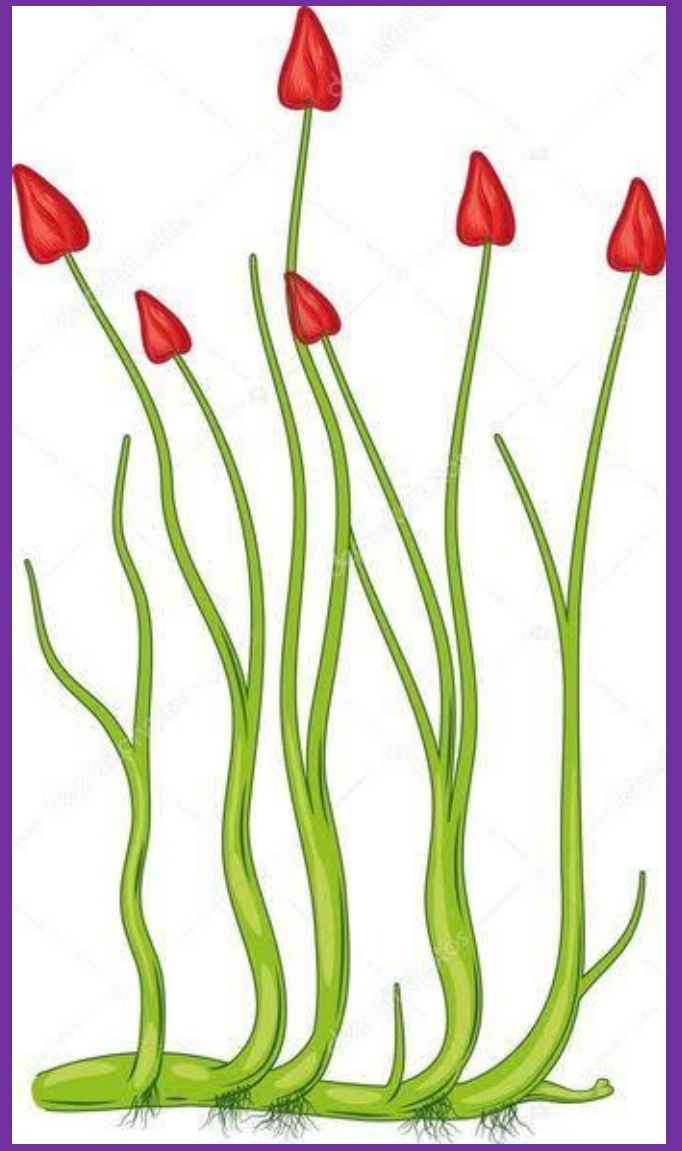


INTRODUCTION

- The fossils of the genus *Rhynia* were discovered by Kindston and Lang (1917).
- All 25 genera in this order are fossil.
- They become extinct during the upper Devonian .

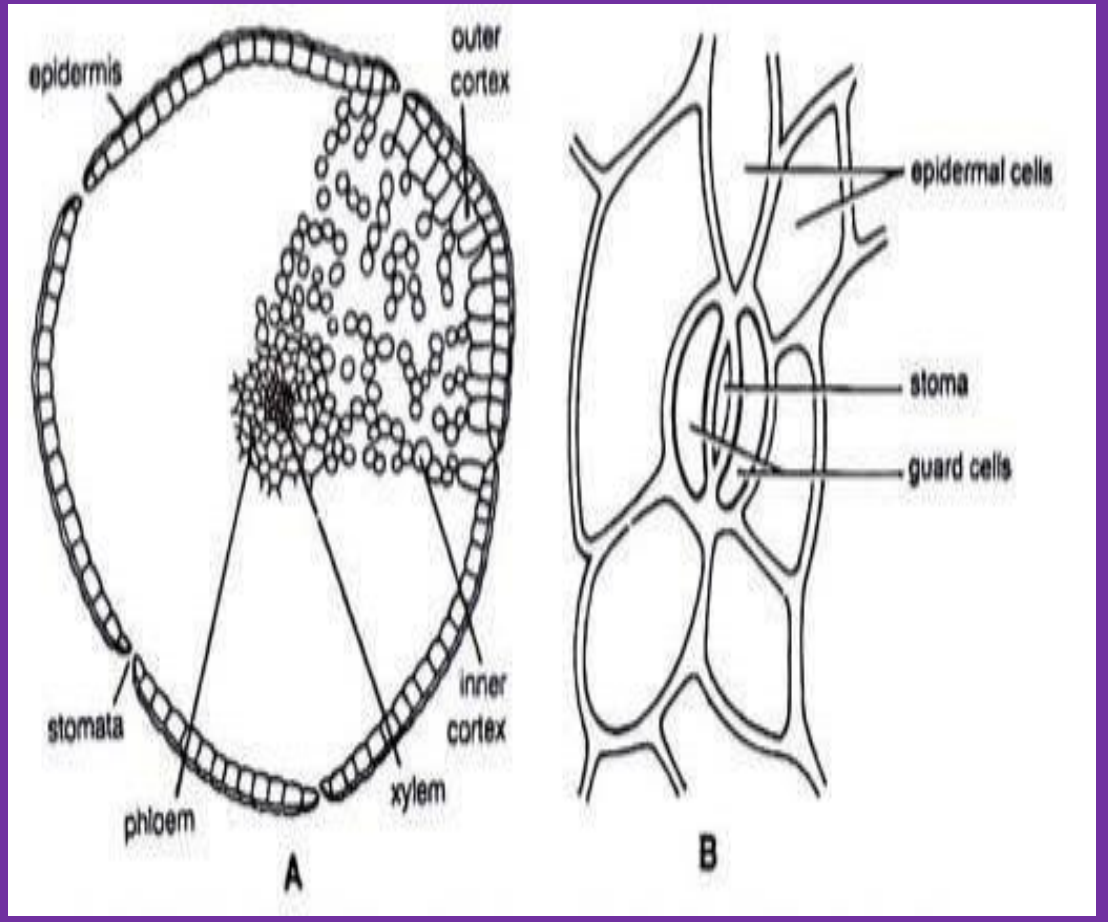
- Two important spp. Of *Rhynia, viz.*
- *Rhynia major & Rhynia gwynne- vaughani.*
- The plant body of *Rhynia* is sporophytic.
- Both species are herbaceae.
- The aerial branches end in tapering vegetative apices or borne- shaped terminal end .

CLASSIFICATION

- DIVISION- Pteridophyte
- SUB DIVISION - Psilophyta
- CLASS – Psilophylopsida
- ORDER - Psilophycales
- FAMILY - Rhyniaceae
- GENUS - Rhynia

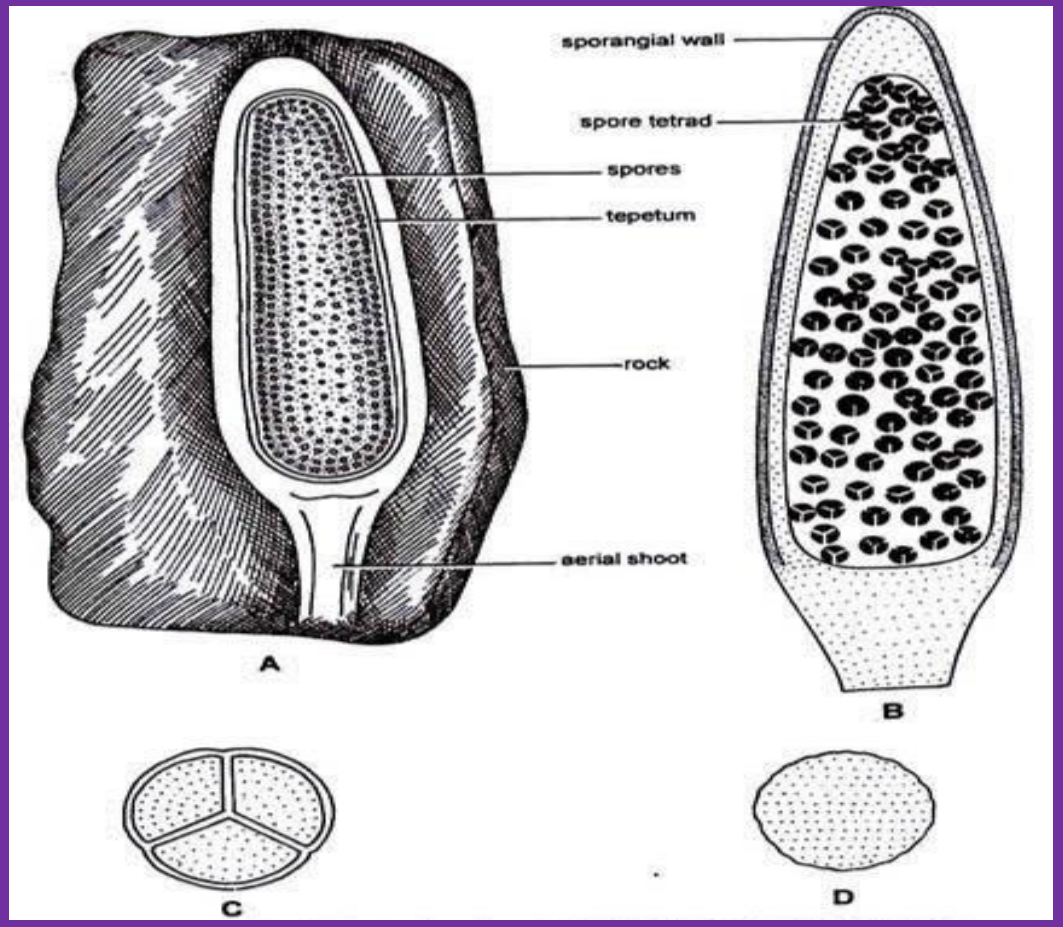
INTERNAL STRUCTURE

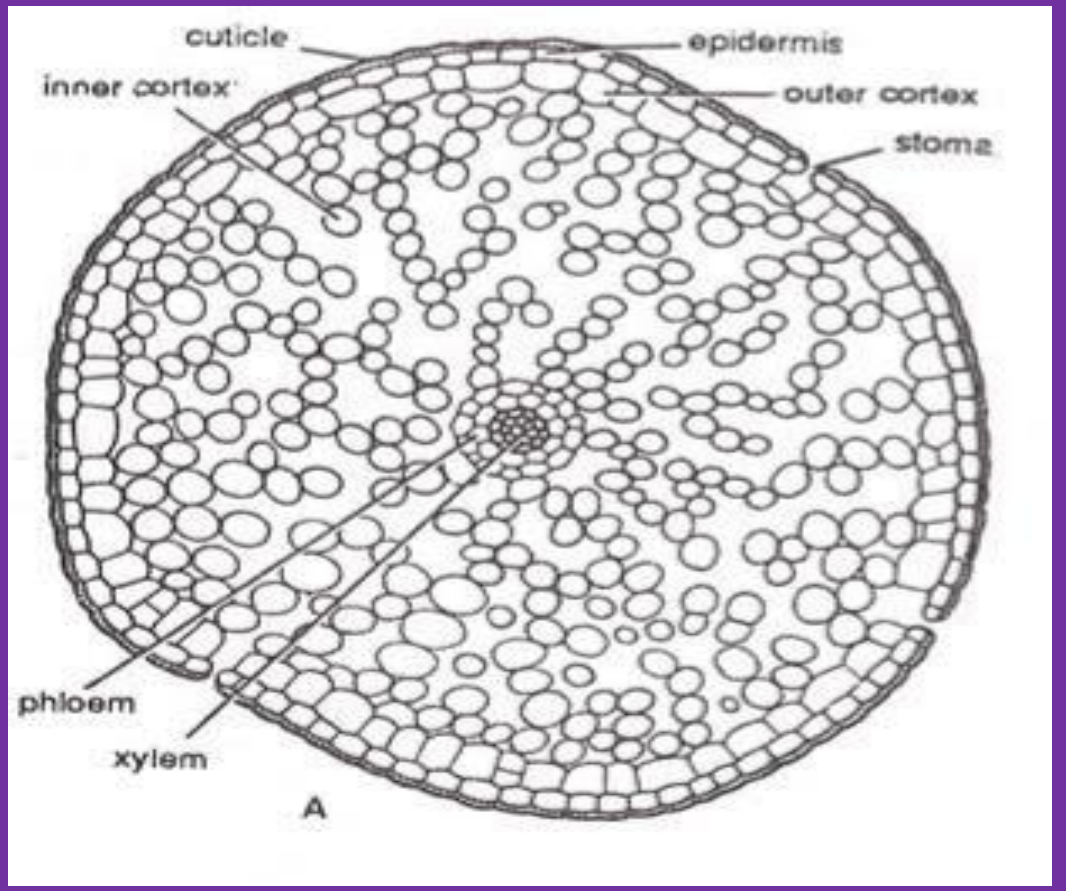
- EPIDERMIS: One cell thicked with well defined cuticle .
- Fusiform cell.
- Stomata present in aerial part, absent in rhizome .
- Unicellular rhizoids present in rhizome .



- CORTEX : It is differentiated into outer cortex and inner cortex .
- STELE : A Protostele was present in the central part of the axis as well as rhizome .
- The xylem was composed of tracheids .
- The Phloem was represented by 4-5 layer of thin walled elongated cell with oblique end wall .

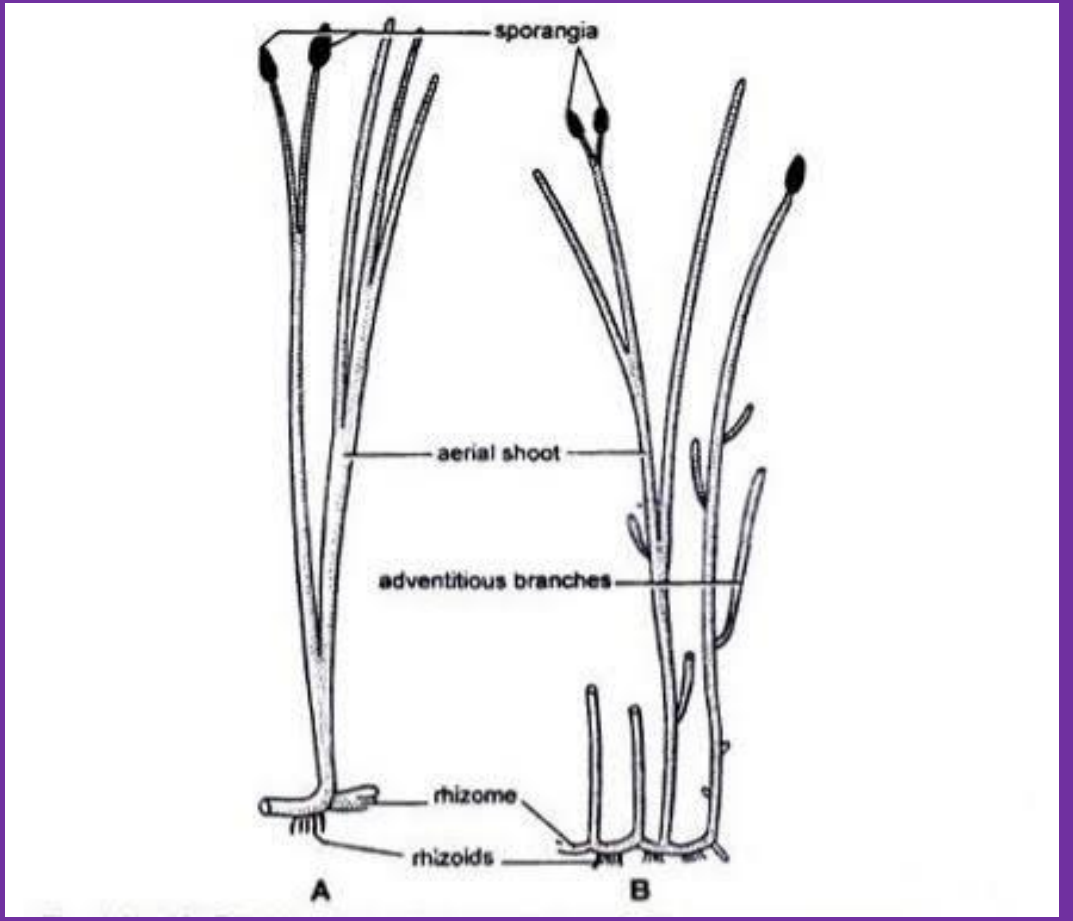
SPORANGIA


sporangial wall
spore tetrad
spores
tepetum
rock
aerial shoot
A
B
C
D


cuticle
epidermis
inner cortex
outer cortex
stoma
phloem
xylem
A

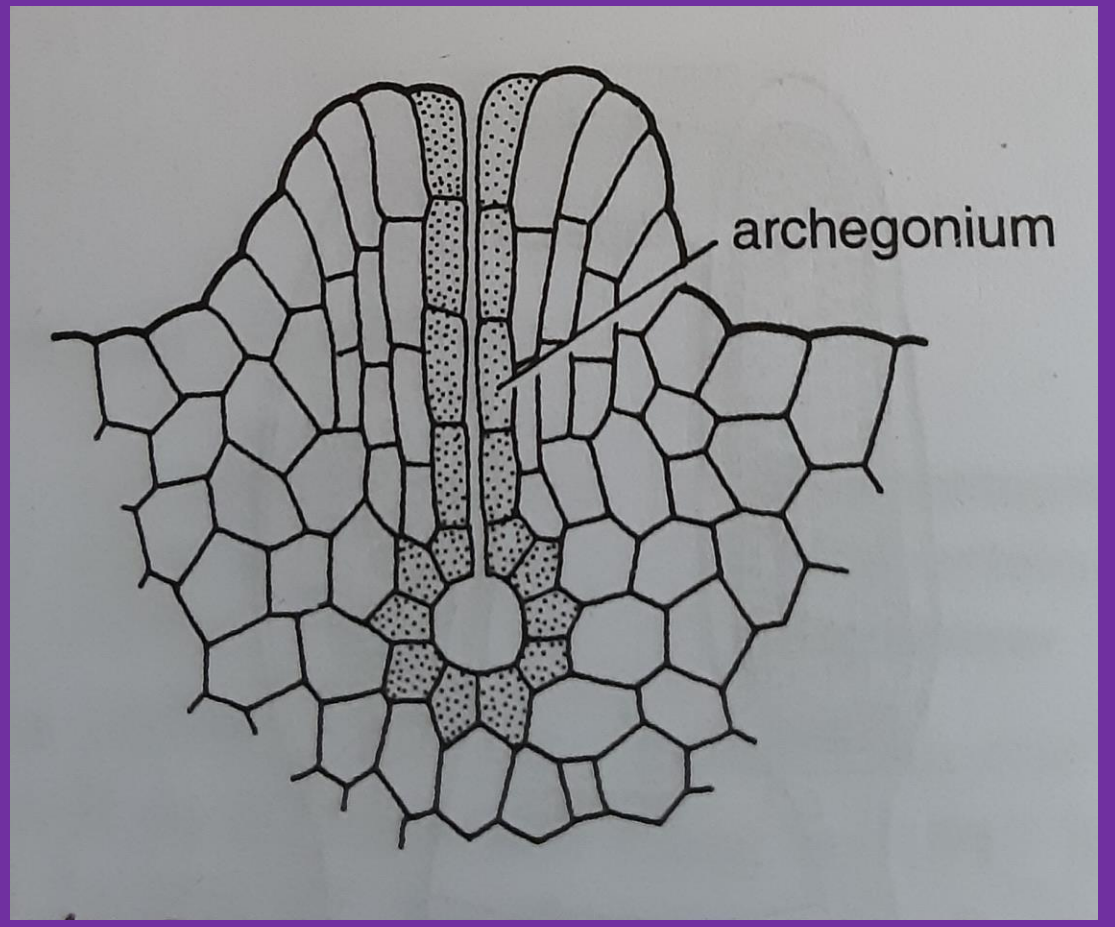
- Sporangia were oval or slightly cylindrical .
- The sporangia were forked dichotomously like the stem.
- All spores were homosporous.
- The wall of sporangium was thick and any means of dehiscence.

- The sporangia did not have any specialized mechanisms of dehiscence .
- Liberation of spores mechanism of dehiscence took place by the decay of sporangial jacket.



GAMETOPHYTE STAGE IN *RHYNIA*

- Some palaeobotanish suggest that some specimen of *Rhinia* which were considered to be sporophytic axes were probably its gametophyte

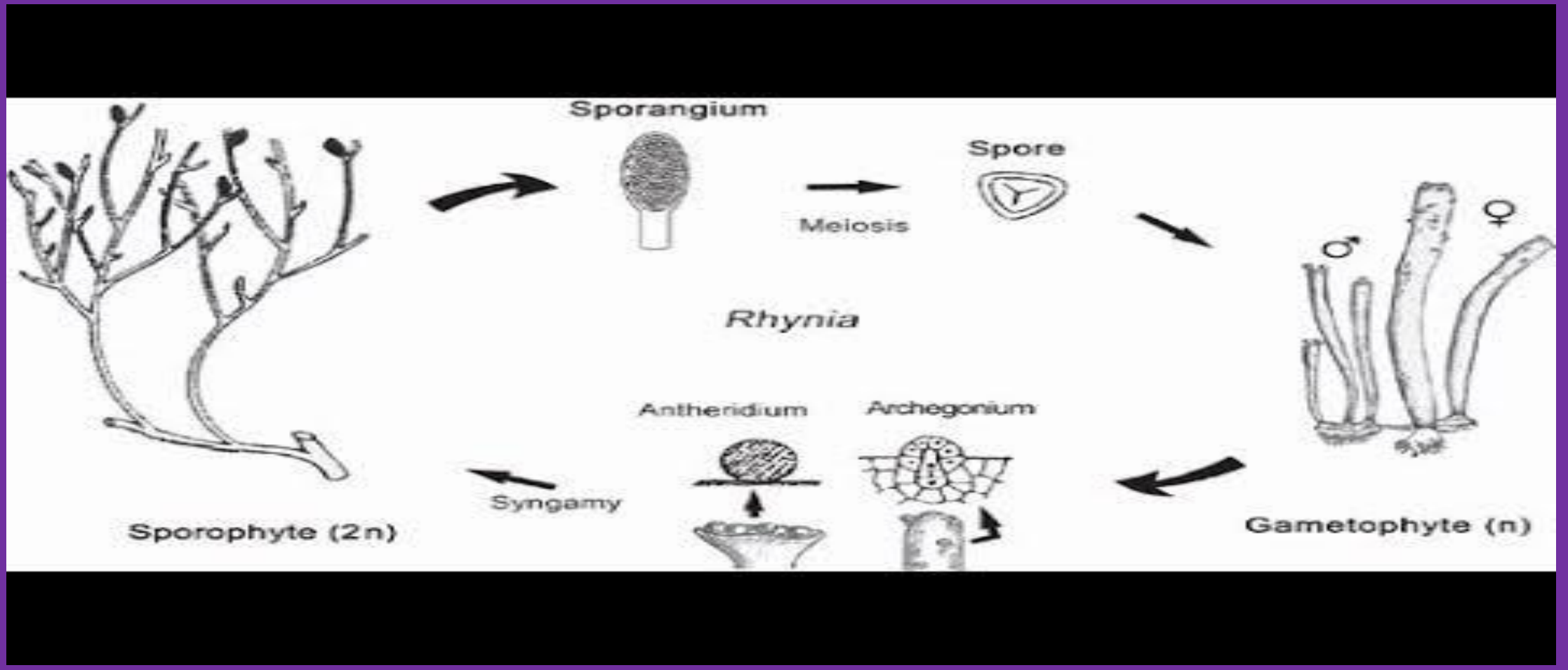


- Pant (1960) regarded the small size R. gwynne-vaughan to the gametophyte part of R. major .
- Marker (1961) opined that the underground creeping parts of Rhynia is the gametophyte but not the rhizome .
- Puri (1961) is of opinion of the plants described is sporophyte may be gametophyte.

ROLE OF *RHYNIA* PLANT IN THE EVOLUTION

- Prosphenopsid line
- Pro- pteropsid line
- Progymnospermopsid line
- Psilophytaceous line

LIFE CYCLE


Sporangium
Spore
Meiosis
Rhynia
♂
♀
Antheridium
Archegonium
Syngamy
Sporophyte (2n)
Gametophyte (n)

CONCLUSION

- It is believed that *R.gwynne- Vaughan* is the gametophytic generation of *R.major.*
- Primitive vascular plants & their role in evolution of higher vascular plants provides a clear remarks that Rhyniaceous plant posses so simple structure that we can say without any hesitation that they represent one of the stages in the evolution of vascular land plants.

THANK – YOU