Quadrant II – Transcript and Related Materials

Programme: Bachelor of Science (First Year)

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Unit 1: Pteridophytes.

Module Name: Vegetative and asexual reproduction in *Equisetum*.

Module No: 15

Name of the Presenter: Ms. Pratiksha S. Dabolkar.

Notes

<u>Vegetative reproduction in *Equisetum*</u>

- The underground rhizome of some species of *Equisetum* for e.g. *Equisetum arvense*, *Equisetum telmateia,* forms tubers which help in vegetative propagation.
- These tubers develop due to irregular growth of some branched part at the nodes of rhizomes.
- Oval shaped - *E. arvense* and Pear shaped- *E. telmateia.*
- After the detach from the parent plant the tubers remains in the soil, and on favourable conditions they germinate into new plant bodies.

<u>Asexual reproduction in *Equisetum*</u>

- The plant *Equisetum* is a sporophyte, i.e. it bears spores and reproduces by asexual methods.
- *Equisetum* is **Homosporous**.
- Spores are produced inside **sporangia**.

- Sporangia of *Equisetum* are borne on stalked structure known as **Sporangiophores**.
- Sporangiophores are aggregated into definite **cones** or **strobili**.
- Strobili are terminal in position.

The Strobilus

- The Strobilus of *Equisetum* is composed of a central thick axis.
- On this axis a number of T-Shaped Peltate Sporangiophores are densly packed.
- Number of sporangiophores varies from few to many.
- A ring like outgrowth also appears near the base of the strobilus and this is known as annulus.

Sporangiophore

- The sporangiophore, is umbrella shape.
- It can be divided into two regions

A. Stalk- cylindrical portion attached at right angles to the axis of strobilus.
B. Disc – a shield like structure attached to the distal or outer end of the stalk.

- Sporangia are produced from the under surface in the form of ring near the edge of the disc.

Structure of mature sporangium

- At maturity each sporangium is an elongated, cylindrical and sac- like structure attached to the inner side of stalked , shield-shaped sporangiophores.
- The wall of sporangium is at first 3-4 layered thick, but finally, two jacket layer remains.
- Internal to jacket, spores are produced in tetrads and Homosporous (all alike).

Dehiscence of sporangium

- At maturity, the axis of strobilus elongates and results in separation of sporangiophores from each other.
- Due to loss of water, sporangiophores shrink and fall apart exposing the sporangia.
- The sporangia dehisce by longitudinal slits, down the side next to the sporangiophore stalk and the spores are dispersed.

Spore dehiscence

- The elaters help in dehiscence of sporangium and in the dispersal of spores.
- At maturity, when the sporangia lose water, elaters gets uncoiled and exert pressure on the wall of sporangium. This results in the opening of sporangium along the longitudinal slits and the spores are dispersed in masses.