

Pteridophyta.

Define classification. Classify Pteridophytes upto its class along with ^{characters} classes as proposed by K. R. Sporne (1975).

Ans: Classification may be defined as the arrangement or grouping of plants according to particular system and in accordance with rules of nomenclature.

K. R. Sporne (1975) divided the ^{Division} Pteridophyta in six (06) classes which are as follows: -

Table of Classification.
K. R. Sporne
1975

class: I: Psilopsida

characters:

- i) All members are extinct.
- ii) Plants are rootless & leafless.
- iii) Aerial shoots either di or trichotomously branched.
- iv) sporangia are terminal in position or borne on the apices of lateral branches.

Ex: Rhynia, Cooksonia, Trimerophyton, Zosterophyllum etc.

Class - 2: Psilotopsida

Characteristics:

- i) Members are extant (living).
 - ii) Plants are rootless.
 - iii) Sporophytic plant body is differentiated into aerial shoots and rhizome.
 - iv) Rhizoids arise in tufts from rhizome.
 - v) Aerial shoots are dichotomously branched and provided with reduced leaves.
 - vi) Stem is protostelic in nature.
 - vii) Sporangia are terminal & may occur solitary or in groups.
 - viii) Spores homosporous and arranged in tetrads.
- ex: Psilotum, Tmesipteria.

Class - 3: Lycopsidea

Characteristics:

- i) Includes both extinct & extant members.
 - ii) Sporophytic plant body differentiated into root, stem & leaves.
 - iii) Leaves are microphyllous & have single unbranched mid vein.
 - iv) Sporangia associated with sporophyll, may or may not aggregated to form strobilus.
 - v) Either homosporous or heterosporous.
 - vi) Gametophytes are exosporic or endosporic.
 - vii) Vasculature either protostelic or leptostelic.
- ex: - Hydrophyllum, Selaginella, Isoetes,
Phylloglossum, Lylites

Class - 4: Sphenopsida

Characters :-

- i) All members are extinct except one, ex. Equisetum
- ii) Sporophytic plant body is differentiated into root, stem & leaves.
- iii) Stem is differentiated into nodes and internodes and with longitudinal ridges & furrows.
- iv) Leaves are arranged in whorls at the nodes.
- v) Sporangia are borne on sporangiophore.
- vi) Stem may be protostelic or siphonostelic
- vii) Either homosporous or incipient heterosporous.
- viii) Antherozoids are multiflagellate.

Ex: Equisetum (living form),
Sphenophyllum (fossil " "),
Calamites (" ") etc.

Class - 5. Pteropsida

Characters :-

- i) Includes both extinct & extant members.
- ii) Sporophyte differentiated in root, stem and leaves.
- iii) Majority members possess short & stout rhizome.
- iv) Leaves are megaphyllous, pinnately compound & covered with saccate.
- v) Mostly siphonostelic, or dictyostelic or even

- vii) Sporangia are grouped together to form loci
 - viii) Sporangial development may be eusporangiate or eusporangiate type.
 - viii) young fronds (leaves) are circinate coiled.
 - ix) Majority homosporous (ex. Pteris), some are heterosporous (Marsilea)
- Ex: Dryopteris, Pteris, Polypodium, Azolla, Salvinia, Marsilea etc.

Class - 6. Progymnospermopsida

Character:

- i) All members are extinct.
- ii) Plants arborescent (tree like) in habit & profusely branched.
- iii) Secondary growth present.
- iv) Ultimate branches either naked or covered with microphyllous leaves with various degree of flattening.
- v) Free sporing (without seeds)
- vi) Plants have gymnospermic secondary wood & pteridophytic reproduction.

Example :- Archaeopteris, Aneurophyton etc.

Classification of Pteridophyta

(Acc. to K.R. Sreenivasan, 1975)

