Classification of Gymnosperms:

The group Gymnosperms is a very large class which includes both living and fossil forms. Due to ample records of fossil forms the classification has become somewhat complicated. In older times gymnosperms were kept among angiosperms. It was Robert Brown (1827) who first of all recognised these plants due to presence of naked ovules and placed them in a distinct group called gymnosperms. Bentham and Hooker (1862-83) in their 'Genera Planterum' placed this group in between dicotyledonae and monocotyledonae.

The classification of gymnosperms is quite controversial because several genera and a few orders like the cordiatales and cycadeoidales are known only in fossil state. Several workers have classified Gymnosperms differently from time to time. Some of the important classifications are as follows:

The pioneer workers in this field are Coulter and Chamerlain (1917) divided the gymnosperms directly into seven orders viz.

1. Cycadofilicales

2. Bennettitales

3. Cycadales

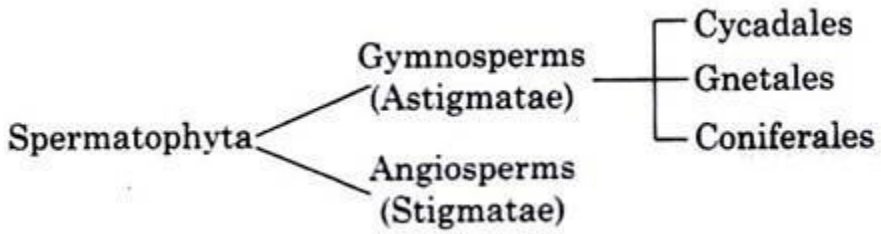
4. Cordaitales

5. Ginkoalea

6. Coniferales

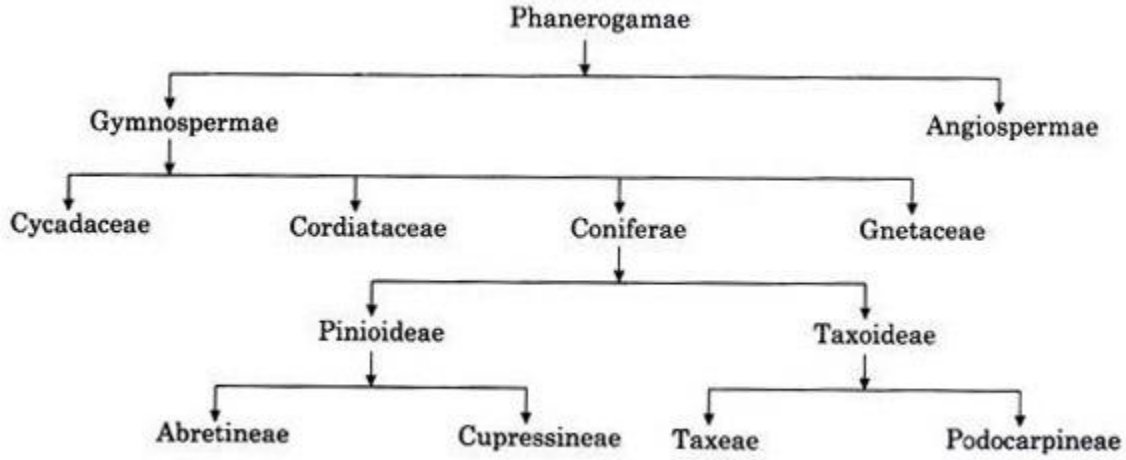
7. Gnetales

Van Tieghem (1898) treated gymnosperms as one of the two divisions of Spermatophyta and further divided it as follows:

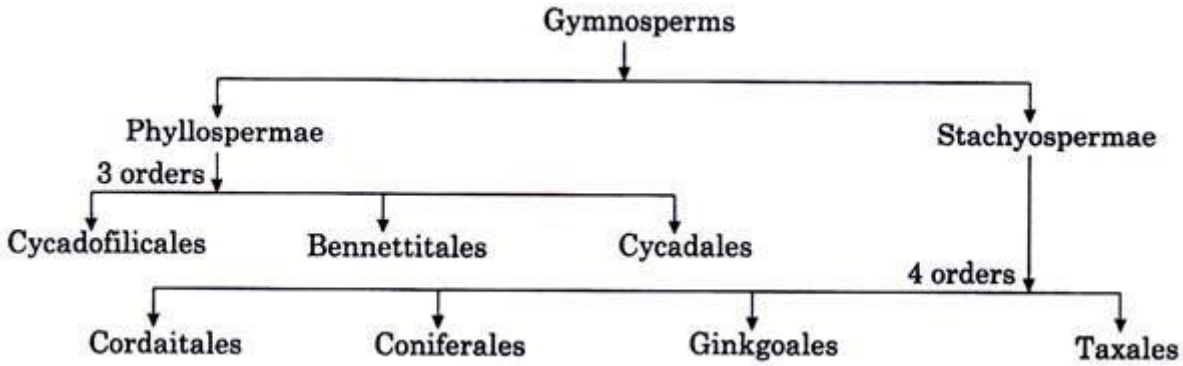


Eichier (1883) considered gymnosperms as one of the two divisions under Phnanerogamae. The second division is Angiospermae.

Eicher (1889) classified the seed plants as:



Birbal Sahni (1920) divided the gymnosperms into two divisions:



Taylor (1981) divided the gymnosperms into six divisions:

Division 1. Progymnospermophyta

Division 2. Pteridospermophyta

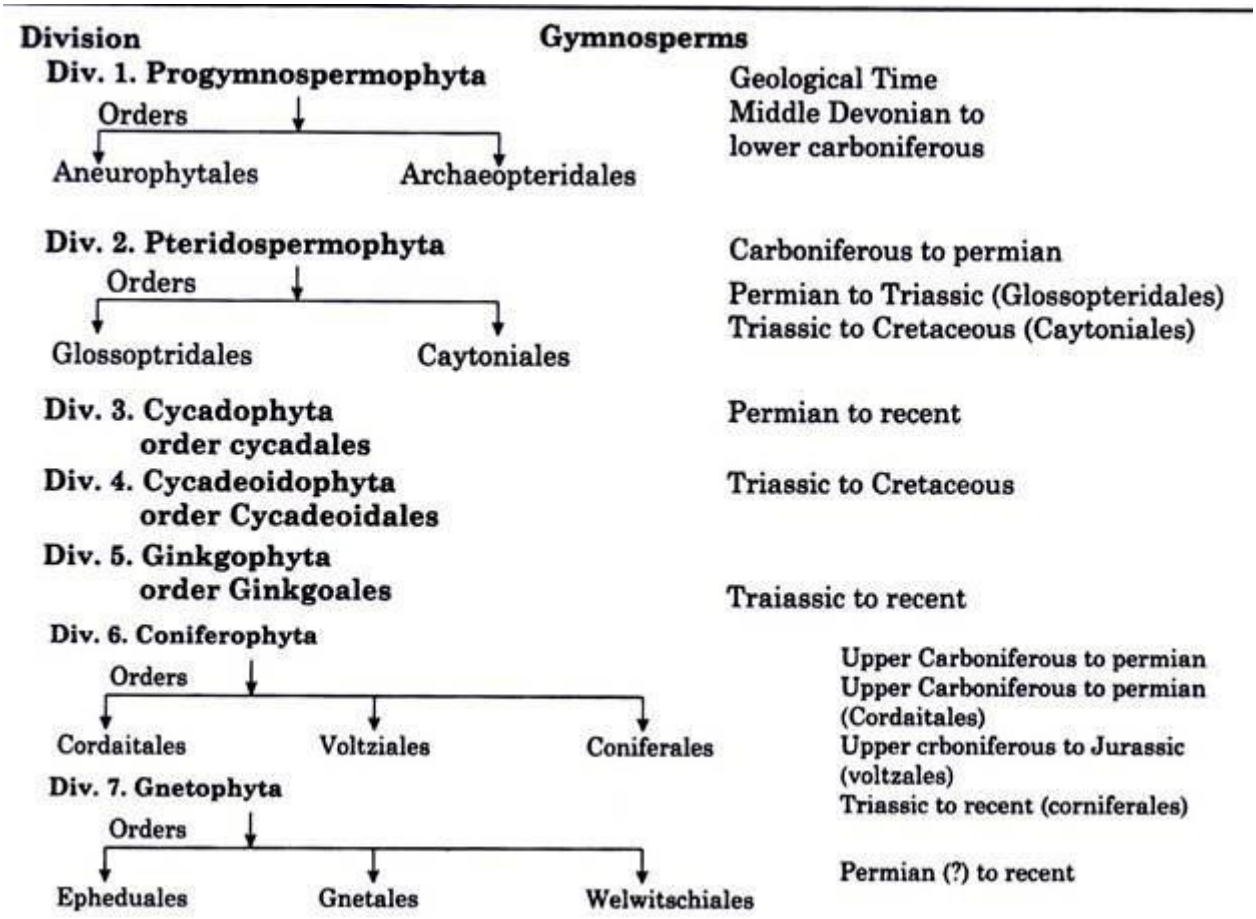
Division 3. Cycadophyta

Division 4. Cycadeoidophyta

Division 5. Ginkgophyta

Division 6. Coniferophyta

Gifford and Foster (1989) raised the important groups to the rank of division.



Recently in 2011, new classification and linear sequence of extant (still existing) gymnosperms based on previous molecular and morphological, phylogenetic and other studies was proposed by Maarten J.M., Christenhusz and co-workers.

It is as follows:

Sub-class I. Cycdidae:

order A. Cycadales

Family 1. Cycadaceae

1 genus, 107 species e.g. Cycas

Family 2. Zamiaceae

9 genera, 206 species e.g. Zamia, Microcycas ec.

Sub-class II. Ginkgoidae:

Order B. Ginkgoales

Family 3. Ginkgoaceae

1 genus, 1 extant species e.g., Ginkgo

Sub-class III. Gnetidae:

Order C. Welwitschiales

Family 4. Welwitschiaceae 1 genus, 1 species Welwitschia

Order D. Gnetales

Family 5. Gnetaceae

1 genus, 30 species e.g. Gnetum Order E. Ephedrales

Family 6. Ephedraceae

I genus, 40 species e.g., Ephedra

Sub-class IV Pinidae:

Order F. Pinales

Family 7. Pinaceae

II genera 225 species e.g. Cedrus, Pinus, Picea etc

Order G. Araucariales:

Family 8 Araucariaceae 3 genera, 41 species, e.g. Araucaria

Family 9.Podocarpaceae 19 genera 180 species e.g. Phyllocladus, Halocarpus etc.

Order H. Cupressales:

Family 10. Sciadopityaceae

1 genus, 1 species e.g. sciadopitys

Family 11.

Cupressaceae 29 genera

130 species e.g. Cunninghamia, Cupressus etc.

Family 12. Taxaceae

6 genera 28 species e.g., Austrotaxus, Pseudotoxus etc.