Gymnosperms

We come from the Greek words “gymnos” (naked) and “Sperma” (seed), hence known as “Naked seeds.” We are seed-producing plants, but unlike angiosperms, we produce seeds without fruits. We develop on the surface of scales or leaves, or at the end of stalks forming a cone-like structure. We are naked seed plants, i.e. the ovule is not enclosed by the ovary. We have two phases in its life cycle (Gametophytic and Sporophytic). The sporophytic plant body is dominant and it is differentiated into root, stem, and leaf. We have well-developed vascular tissues (xylem and phloem). The water-conducting tissue is the tracheid and the food-conducting tissue is the sieve cell. They have cones in which sporangia and spores are produced.

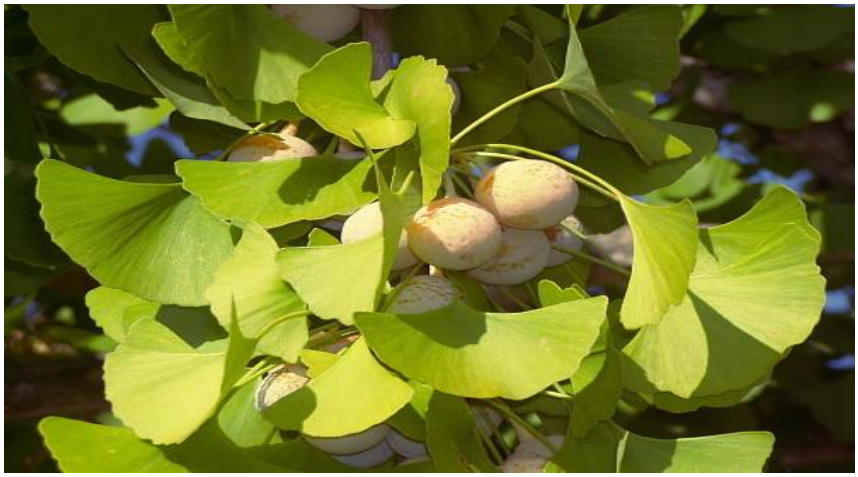
Classification of Gymnosperms

We are classified into four different types. They are

Cycadophyta

We are dioecious (meaning: individual plants are either all male or female). We are seed-bearing plants and the majority of the members are now extinct. We flourished during the Jurassic and late Triassic eras. Nowadays, plants are considered relics from the past. We usually have large compound leaves, thick trunks, and small leaflets which are attached to a single central stem. They range in height anywhere between a few centimeters to several meters. Cycads are usually found in the tropics and subtropics. Some of our members have adapted to dry arid conditions and some also have adapted to oxygen-poor swampy environments

Ginkgophyta



We Ginkgophyta has only one living species. All other members of our class are now extinct. The Ginkgo trees are characterized by their large size and their fan-like leaves. Also, Ginkgo trees have a large number of applications ranging from medicine to cooking. Ginkgo leaves are ingested as a remedy for memory-related disorders like Alzheimer's.

Ginkgo trees are also very resistant to pollution, and they are resilient against diseases and insect infestations. In fact, they are so resilient that after the nuclear bombs fell on Hiroshima, six Ginkgo trees were the only living things to survive within a kilometer or two of the blast radius.

Gnetophyta

Just like any other member of us, Gnetophytes are also relics from the past. Today, only three members of our genus exist. Gnetophytes usually consist of tropical plants, trees, and shrubs. We are characterized by flowery leaves that have a soft coating. This coating reveals an ancestral connection with the angiosperms. Gnetophytes differ from other members of this class as they possess vessel elements in their xylem.

Coniferophyta

We are the most commonly known species among the gymnosperm family. We are evergreen; hence we do not shed our leaves in the winter. We are mainly characterized by male and female cones which form needle-like structures.

Coniferous trees are usually found in temperate zones where the average temperature is 10 ℃. Giant sequoia, pines, cedar, and redwood are examples of Conifers.

Economic Importance of Gymnosperms

- Woods of many of our conifers are used in the paper industries. E.g. Pinus, Agathis
- We are the source of softwood for the construction, packing, and plywood industry. E.g. Cedrus, Agathis

- Turpentine, an essential oil, extracted from the resin of Pinus is used for paint preparation. It is also used medicinally to get relief from pain, bronchitis, etc.,
- Seeds of Pinus gerardiana are edible.
- Ephedrine is an alkaloid extracted from Ephedra. It cures asthma and respiratory problems
- Araucaria bidwillii is an ornamental plant