

TP N°02: MORPHOLOGICAL STUDY OF GYMNOSPERMS

At present, the **gymnosperms** are essentially represented by the (about 5,000 species). (**gymnos:** naked - **sperm:** seed), in which the ovules and the seeds themselves are "naked" (not surrounded by closed envelopes). They have no ovaries; they are cone-bearing plants. cone-bearing plants. The sexual organs are grouped in unisexual cones, either male or female. but usually on the same foot. (Monoecious species). All conifers are woody ; they are trees (**pin**es, **ced**ars, **sequo**ias) or shrubs (junipers).They are woody plants with leaves reduced to needles or scales, and are highly resistant to drought and cold. Drought and cold.

MATERIALS AND METHODS

- Organ type and form plates,
- Herbarium species,
- Woody stems stored in the laboratory,
- Freshly harvested specimens,
- Photographs and slides.

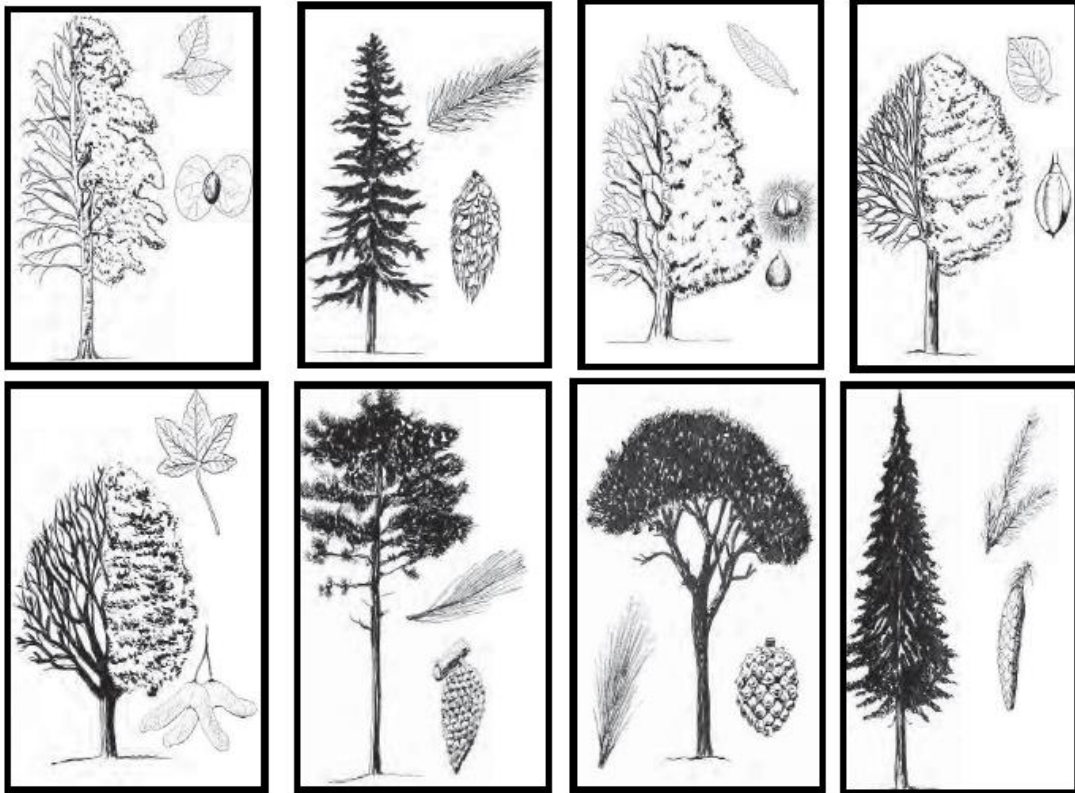
CHARACTERISTICS OF GYMNASPERMS

Gymnosperms are plants belonging to the phanerogam subdivision, which includes phanerogams, which are woody plants, trees, or shrubs with a characteristic conical shape. is very characteristic. Evergreen trees or shrubs. Mostly resinous (Exceptions: Taxus).

GENERAL ORGANIZATION OF AN GYMNASPERMS

RECOGNIZING THE MAIN TYPES OF GYMNASPERM TREES

Pines, like other conifers such as firs, spruces, larches, cedars, yews, and junipers, are tall trees. and junipers, are trees that can reach great heights. These illustrations show the winter and summer silhouettes, leaves, and fruits of each tree. Resin trees secrete resin, a viscous substance used in the manufacture of used in the manufacture of many products.



Pine cones have a distinctive appearance, hence the name conifer. (from the Latin cône fère je porte).

LEAVES

The leaves are small, either scale-shaped and more or less attached to the stem, as in cypress as in cypress, or needle-shaped as in fir, arranged in two opposite rows opposite rows (Taxaceae), two opposite leaves, whorled or closely (Cupressaceae), and alternate leaves, always acuminate (Pinaceae).

GYMNOSPERMES

Coniférophytes

Feuilles en aiguilles
regroupées en faisceau



Feuilles en aiguilles
en touffe et solitaire



Feuilles en aiguilles isolées



Feuilles en écailles



Feuilles en écailles



Leaf types

They are also highly resistant to drought and frost and assimilate carbon dioxide at low temperatures. Assimilate carbon dioxide at low temperatures.

FLOWERS

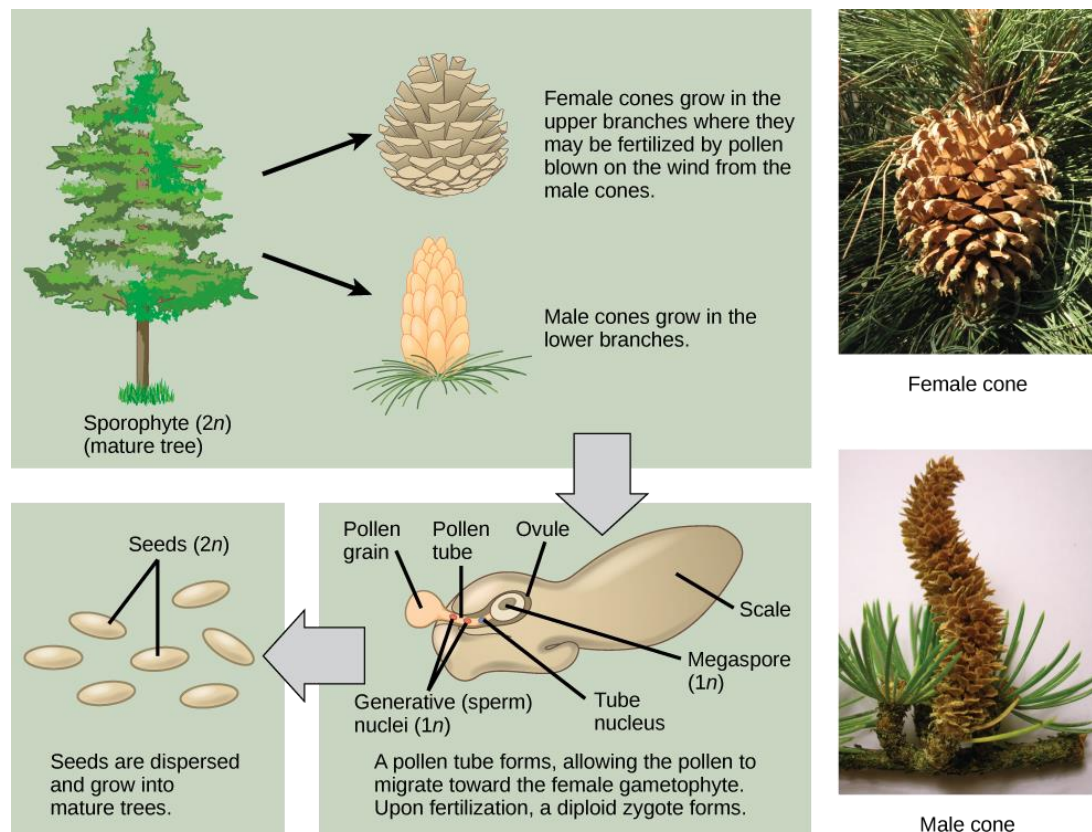
Their aperiath flowers (totally without perianth), which have no perianth perianth, flowers around the pistil, and unisexual stamens, except in *Taxus*. The species are monoecious or dioecious. The species are monoecious or dioecious. Flowers, whether male or female The flowers, whether male or female, are arranged in unisexual catkins.

FRUIT

The fruit is either a true cone with more or less numerous scales, or a galbule or cone, or a galbule or cone with fleshy, ascending bracts giving the fruit a baccian appearance, or a Baccian appearance, or a very special fruit consisting of an ovoid seed surrounded by a kind of red skin. then red (Arille), the whole being bacciform, as in the case of *Tetraclinis articulata*.

THE CONE

Female and male cones of gymnosperms :



SEXUAL ORGANS

Their sexual organs are grouped into unisexual cones, either male or female, but generally borne on the same but generally borne on the same plant, called a monoecious species. Pinion cones. On the left, mature cones, closed then open; note the helical arrangement of the (carpels); apical view showing release of seeds, pine nuts, with woody Seeds, pine nuts, with woody shell and leafy wing.

WORK TO DO

- Diagram of a branch of an Aleppo pine.
- Observation and description of some gymnosperm leaf forms from the from the herbarium.
- Diagram of two types of leaves (scale and needle).
- Observation and determination of some stem types on display in the anatomy laboratory.
- Diagram of a gymnosperm cone.