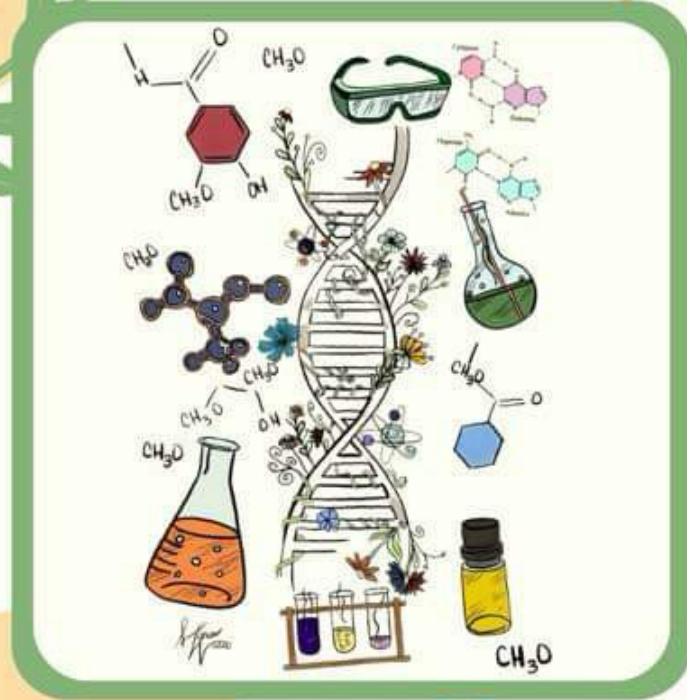


تفريغ عقاير



اسم الموضوع:

A taxonomic

Approach to the

Study of Medicinal

Plants and Animal

Derived Drugs **P.1**

إعداد الصيدلاني / ة: ياسمين خليل

A TAXONOMIC APPROACH TO THE STUDY OF MEDICINAL PLANTS AND ANIMAL DERIVED DRUGS



الادوية حفظ

ترتيب التصنيف المطلوب

نهاية الكلمة

Domain (Domains)

Kingdom (Kingdoms)

Phylum (Phyla)

Phyta

Class (Classes)

Op sida

Order (Orders)

ales

Family (Families)

aceae

Genus (Genera)

Thallo phytes

Species (Species)

Domain

Eukarya

Archaea

Bacteria

Kingdoms

plants

animals

parasites

minerals

Fungus

Phylum

Bryophytes

pteridophytes

Gymnosperms

angiosperm

Dicot

monocot

في مادة التشابتر مع ندرس
تصنيف phylum

1-In this chapter the principal plant families of pharmaceutical interest are arranged according to the botanical scheme of Engler.

2-The chapter is divided into six parts:

2-1 Thallophytes(bacteria, algae, fungi and lichens)

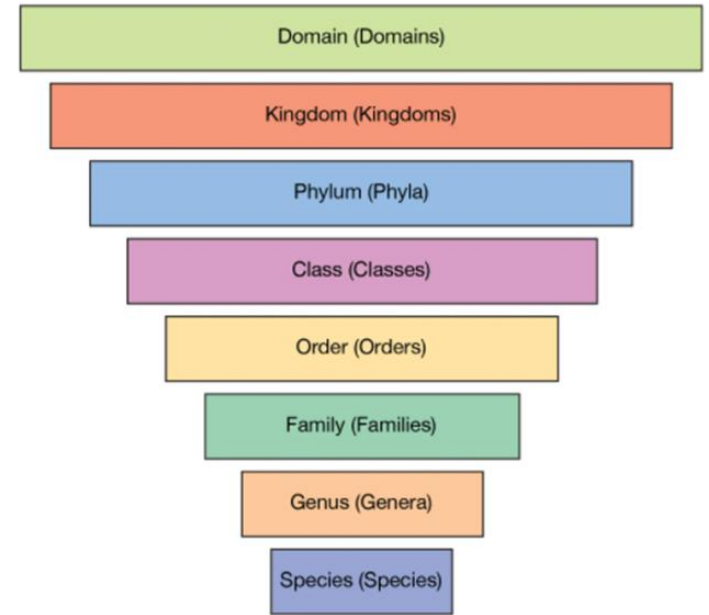
2-2 Bryophytes(liverworts and mosses)

2-3 Pteridophytes(ferns, clubmoss and horsetails)

2-4 Gymnosperms(Spermatophyta → seed-bearing plants with unprotected ovules)

2-5 Angiosperms (Dicotyledons)

2-6 Angiosperms (Monocotyledons)



صفحة

Linnaean Taxa		
Taxa	Ending	
Kingdom		
Division	-phyta	✓
Class	-opsida	✓
Order	-ales	✓
Family	-aceae	✓
Genus	No standard ending	
Species	No standard ending	

phylum ←

An intro:-

→ Thallophytes and

Bryophytes are plant like [have like stem, roots and leaves]

Phylum

THALLOPHYTES

→ Thallophytes: plant like cause it has not true stem, roots, leaves

but Bryophyte may it has roots like, stem like

pter. do phytes have truly stem, truly roots, truly leaves

سؤال امتحان؟

What is the common [مشترک] between Thalphyte, Bryophyte, petridophyte ?
أنواع

→ They reproduce by Spores

مخروطيات → Gymnosperms differ from Angiosperm that its seeds are inside Cones مخروط but angiosperm's seeds are inside fruits



Thallo + Bryo have
no vascular system
(لاوعيةيات)

but petrida has
cause it has truly stem

1-The old term **'thallophyte'** ^{→ plant like} includes those plants which are not differentiated into root, stem and leaves. Engler divides them into 13 phyla.

2-They include:

A-Bacteria

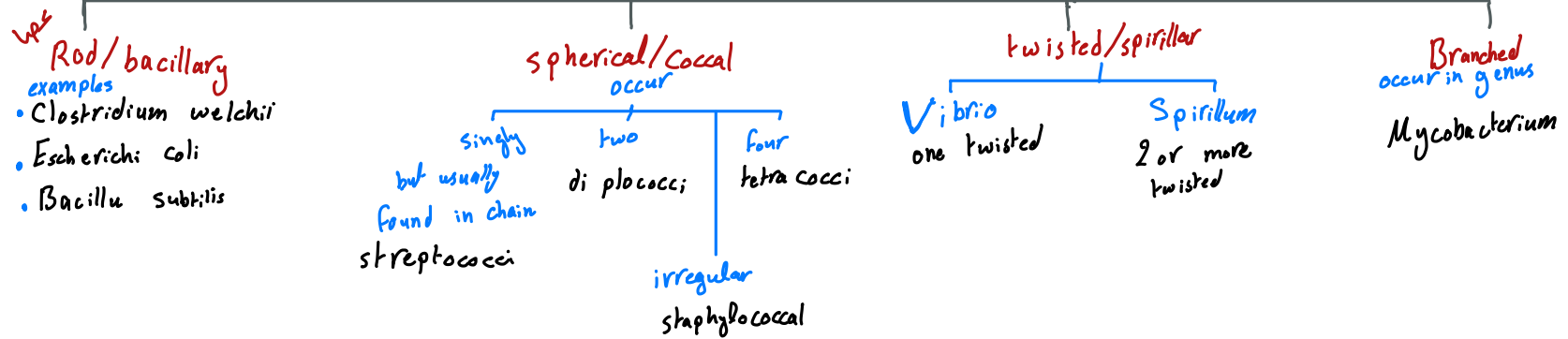
B- Algae

C-Fungi

D- Lichens.

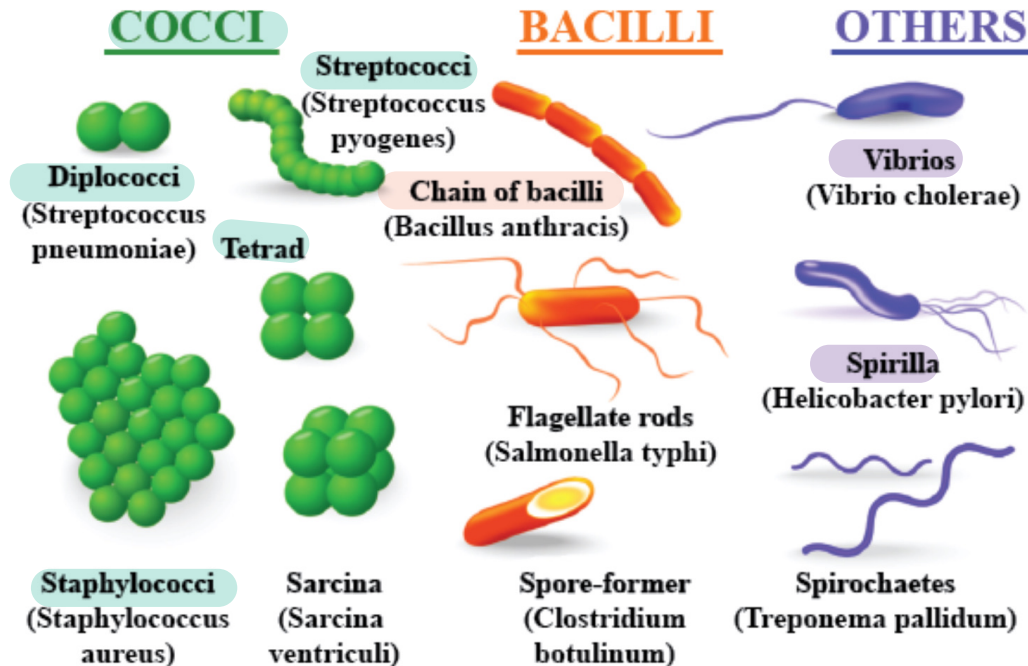
→ each one of these
is unicellular

A Bacteria :



SHAPES OF BACTERIA

المصورة خارج السلايد ان
سبب للتوضيح



تأخذ من السلايدين
البيانات

A-BACTERIOPHYTA

*-The **bacteria** are unicellular organisms, the great majority of which range in size from 0.75 to 8μm.

** - Bacteria **exist in a number of characteristic**

shapes, namely:

1. Rod-shaped or bacillary forms (e.g. *Clostridium welchii*, *Escherichia coli* and *Bacillus subtilis*).

2. Spherical or coccal forms, which can occur singly but are **usually found** in characteristic aggregates i.e. in chains (streptococci), in groups of two (diplococci), four (tetrads). Aggregates of irregular pattern are said to be of staphylococcal form.

3. **Twisted or spirillar** forms which, if having a **single twist**, belong to the genus *Vibrio*, while those with **more than one twist** belong to the genus *Spirillum*.

4. **Branched** forms which sometimes occur in the genus *Mycobacterium*.

→ Bacteria are able to **carry out** a very wide range of **chemical reactions**, some of which are used for identification and differentiation, in addition to forming the basis of many important industrial processes.

→ for example, in the **production** of **vinegar, acetone**.

→ The **production** of hydrogen sulphide from organic sulphur compounds.

B- Algae، طحالب، طحالب

نوع من أنواع
الطحالب
التي بالمسودة

diatom → unicellular algae, have a silica skeleton,

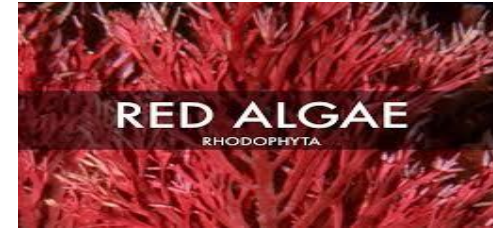
and show infinite variety in shape and in the sculpturing of the cell wall.



2-Phaeophyta

-Brown Algae

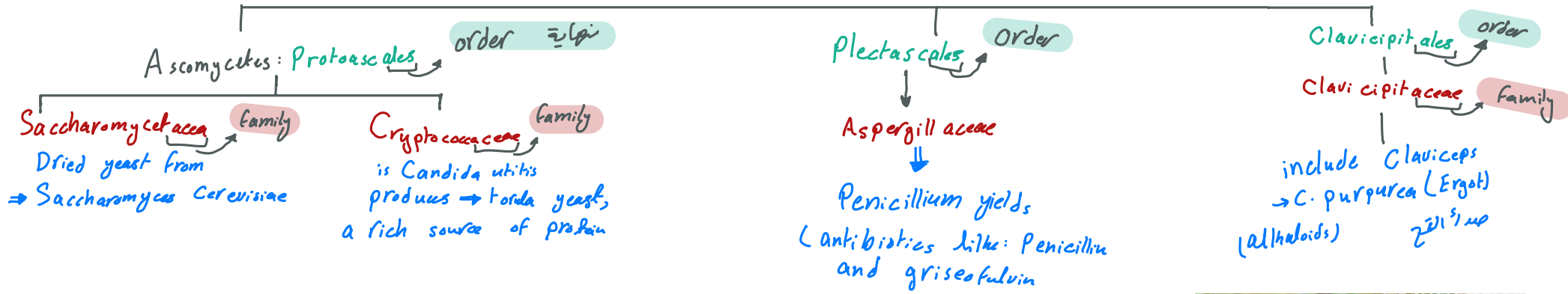
-Red Algae



→ *Chondrus crispus* (yields carrageen or Irish moos) ⇒ mask for cough drug's taste
كنافة البحر، الطحلب الغرضوفى، كوندريس



① Fungi



تفريع السلالات
البجارية

أغلب الفطريات تنبت مواد
تساعد البنية تنمي صلابتها و تقوى
معلقة زماركية معها عكس
البكتيريا التي تسبب أمراض

فطور، فطر C- FUNGI

1- ASCOMYCETES: PROTOASCALLES

1-1 Saccharomycetaceae:

Dried yeast is prepared from a strain of
Saccharomyces cerevisiae.



1-2 A member of the related family

Cryptococcaceae is *Candida utilis*, which
produces torula yeast, a rich source of
proteins



Candida utilis

2-PLECTASC**ALES**

2-1 Aspergillaceae

→ *Penicillium* yields important antibiotics such as penicillin and griseofulvin

3- CLAVICIPIT**ALES**

3-1 Clavicipitaceae

Genera of the Clavicipitaceae include *Claviceps*

(10 spp.) → *C. purpurea* (**Ergot**) (alkaloids) صدی



D- LICHENS

اشنة

خطرات طحالب

1- A lichen is a symbiotic association of an alga and a fungal partner. Some, particularly in arctic regions, are used as food.

as mask for
cough drug's taste

2- Iceland moss, *Cetraria islandica*, has been used for disguising the taste of nauseous medicines and with other species for the treatment of cough.

مثال دواء (مضاد):

septangin

3- Many lichens have antibiotic properties.

has no leaves, roots
or stem

has antibacterial
effect



Iceland moss - Cetraria islandica



shutterstock.com - 238277716

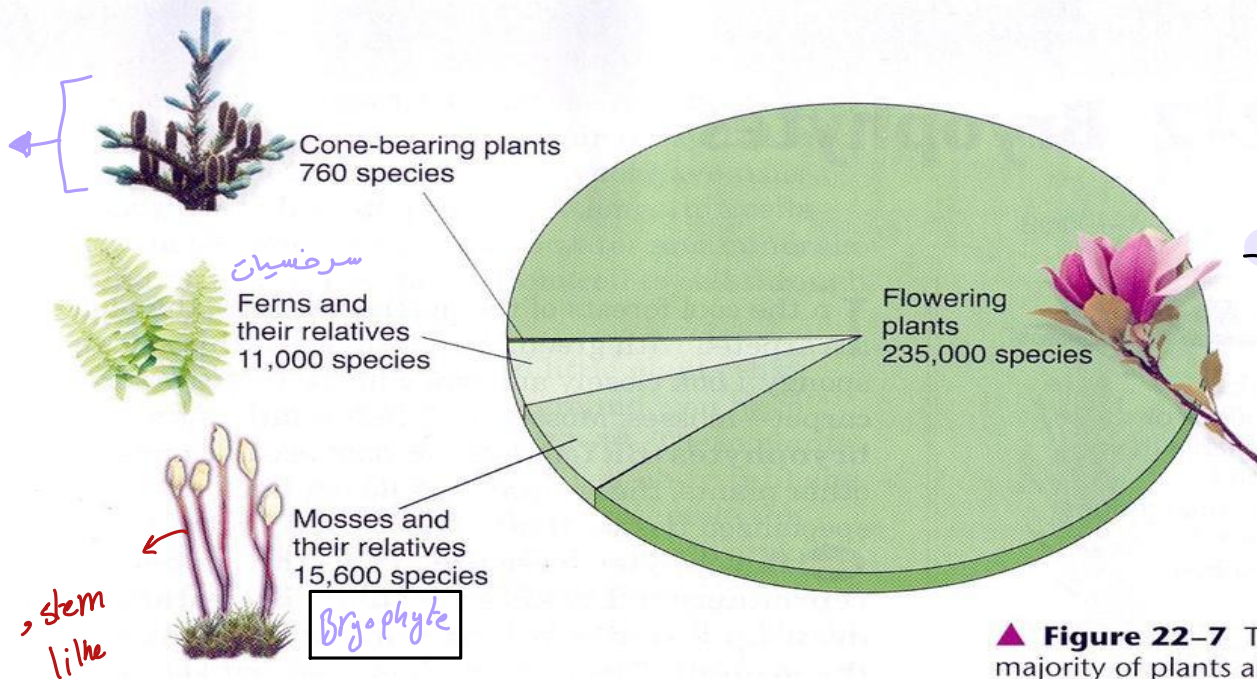


Iceland moss

BRYOPHYTA حزازيات

→ phylum

the least



what is the majority
of plant alive today?

→ flowering plant (angiosperm)

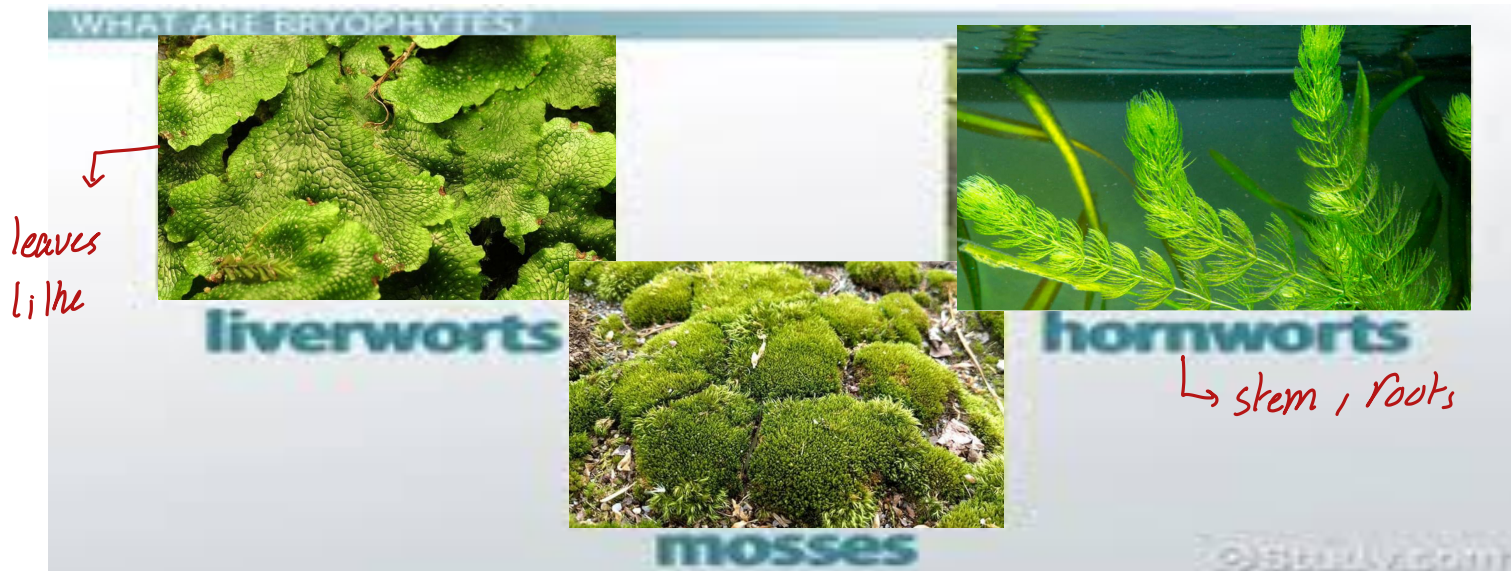
▲ **Figure 22-7** The great majority of plants alive today are angiosperms, which are also known as flowering plants. **Interpreting Graphics** What is the second largest group of plants?
mosses

1-The phylum is divided into two classes, Hepaticae (liverworts) and Musci (mosses).

2-The pharmacologically active terpenoids (sesquiterpenes, diterpenes) and

aromatic compounds of the bryophytes have been well studied.

Mosses and liverworts are **tiny plants** that produce spores instead of flowers and seeds.



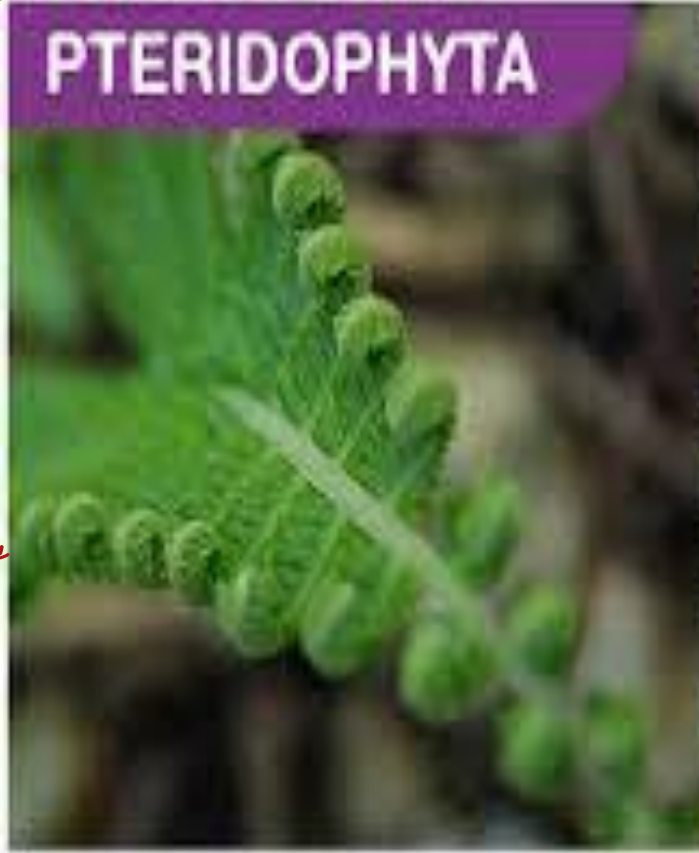
PTERIDOPHYTA سرخسيات

← اطل نباتات
وجدت على
سطح الارض
دم

true plants

but they
reproduce by
themselves ;
cause they
don't have
seeds

So, they reproduce
by spores.



Horsetail

Equisetum arvense

- used in herbal medicine and are listed in BHP
- It's used to treat inflammation and mild infection of genito + urinary tract

التهاب الجهاز البولي، التهاب

* dried sterile stems

Lycopodium

Lycopodium clavatum

- used in limited extent in medicated snuffs, dusting powders and lubricants, used as powder for rubber gloves but maybe cause an irritation then dermatitis for hand skin

PTERIDOPHYTA سرخسیات



1- The Pteridophyta includes the Filices (ferns),
Articulatae (horsetails) and Lycopside
(club mosses).

horsetail



2- The dried sterile stems of the horsetail أذنان الخيل,
Equisetum arvense are used in herbal medicine
and are listed in the *BHP* (*British Herbal Pharmacopoeia*).

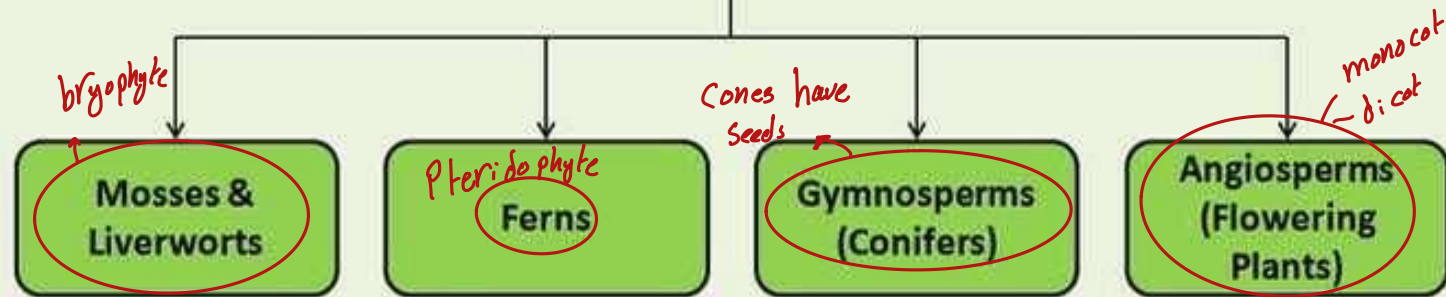
Preparations are used
internally to treat inflammation and mild infections of
the genito(تناسلي)-urinary (بولي) tract (UTI).



3- The spores of lycopodium (*Lycopodium clavatum*) are
used in limited extent in medicated snuffs, dusting
powders and lubricants. As a dusting powder for rubber
gloves it has been known to give rise to dermatitis



Plant Kingdom



2 Types of Seed Plants

- Angiosperms



- Gymnosperms

تصل البذور داخل مخروط

GYMNOSPERM



التفرع الأكبر (الأب الأكبر)

الأب

Spermatophyta(division), **Gymno-** and **angio-**
spermae(subdivision), **mono-** and **dicot**(classes),

الأحفاد

suffix

-ales (order), **-aceae**(family), X y (**G. spp.**→Latin
name)

أحفورة

1-The **division Gymnospermae** contains many **fossil members**. نبات من عصر جيولوجي سالف (متحجرة في اديم الارض)

2-Of the 11 orders in the Engler classification, it is
only necessary to mention five orders and 10
families (In **this course** 4 orders and **5 families**).

أشجار على حاريط

Gymno sperm

improve
short memory

Order	ales	Family	aceae
Ginkgo	ales	Ginkgo	aceae
Coniferales		Pinaceae, Cupressaceae	
Gnetales		Ephedraceae	
Taxales		Taxaceae	

nasal
congestion
(احتقان الأنف)

↳ Taxd : the first ant
Cancer

GINKGO ALES

→ Ginkgo aceae

With the exception of *Ginkgo biloba* (جينكو)



maidenhair-tree, the plants of this order are found only as fossils.
حفورة /

Ginkgo biloba (leaves) → In recent years, increasing use for the **treatment** of various diseases associated with the **ageing process**, (improve short term memory)
الشيوخه /

→ Diterpenoids (constituents) flavonoids



maidenhair
tree
(only fossils)



TAXALES

→ Taxaceae

1- An order of only → one family, which includes the genera *Taxus* (10 spp.), *Pseudotaxus*,

2-1 common yew *Taxus baccata* (1)
(خشب الطقسوس، رجل الجراداة)

→ produces valuable wood.

2-2 All parts of the plant are very poisonous

3- In addition to alkaloids, a cyanogenetic glycoside and antitumour agent have been reported in the genus.



طالها قتيمة

دوائية (أورعلاجية)

بعض بنسفيد من خشبها

عشانه هيلع هي (مض)

anti cancer

② ساقالامنعان → is an anti cancer ✓
4* *Taxus brevifolia* (the Pacific yew)

4-1 The bark of this species yields the promising anticancer drug taxol a nitrogenous diterpene.
The 1st anti cancer



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اللّهم اغفر لنا ولآبائنا، وأمّهاتنا،
وأبنائنا، وذريّاتنا، ولإخواننا، وأخواتنا،
وذوي أرحامنا، ومن أحبنا فيك ومن
أحببناه فيك، ومن أوصانا بالدّعاء ومن
أوصيناه بالدّعاء، من كان منهم ميتاً
ومن كان منهم حيّاً برحمتك يا أرحم
الراحمين".

