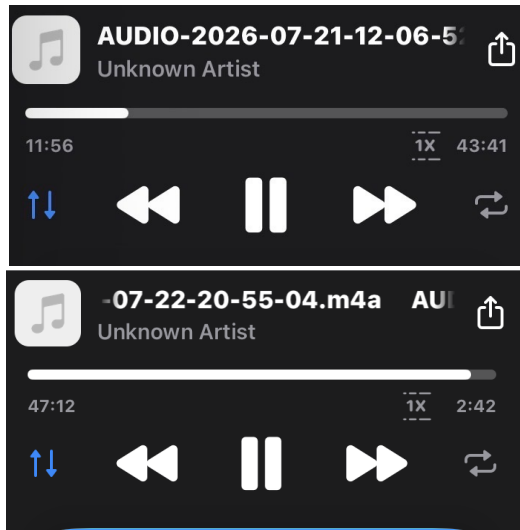


Pharmacognosy

Morphology of different parts of medicinal plants



Dr. Rand Shahin

References:

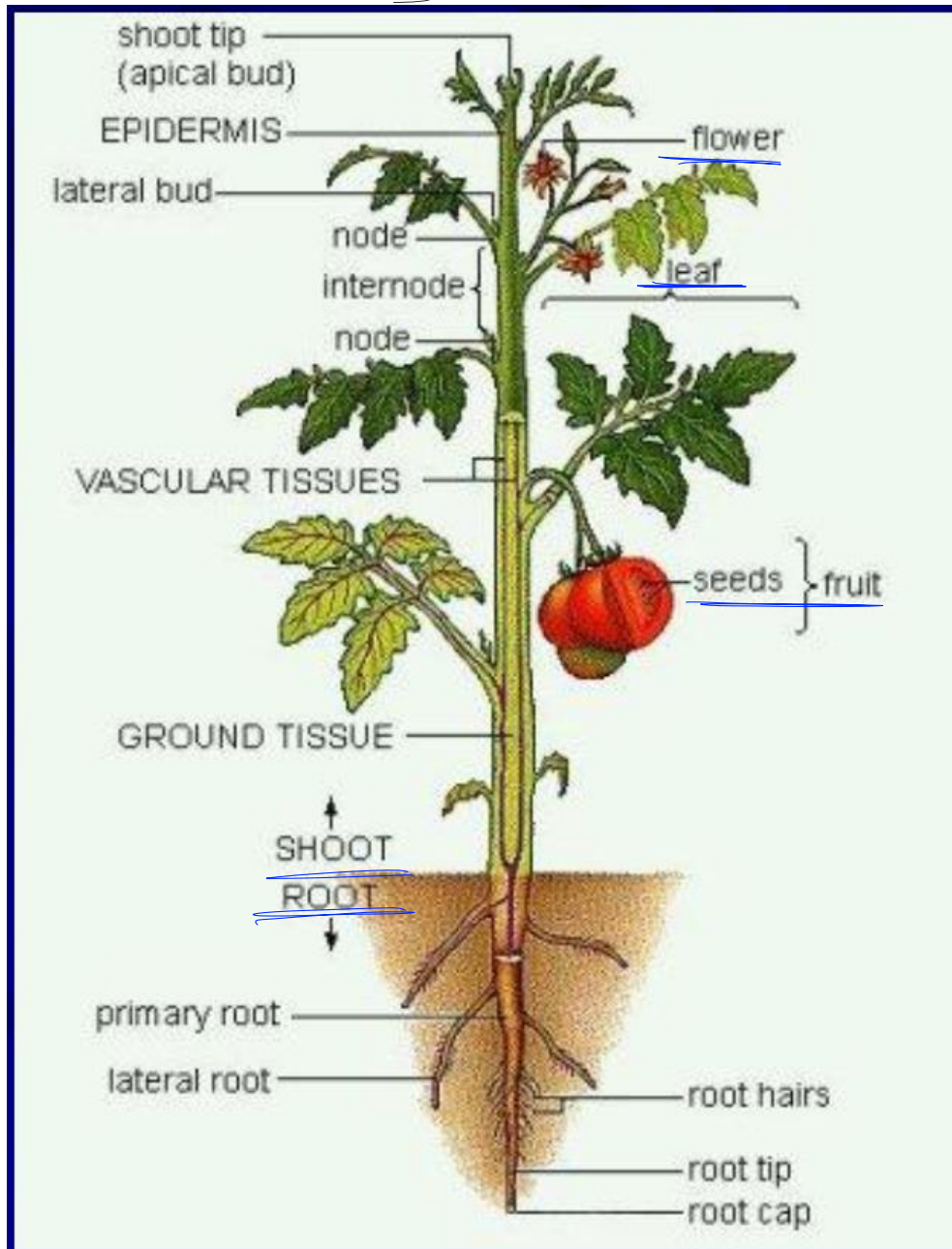
Prof. Madiha AminHassan

Prof. Talal Abu rujai

Dr. Jamila Dibbas

الدكتورة صكتهم نغض الأبيار إلى ليستة صغف فقط

A flowering plant



Epidermis: The epidermis consists of a single layer of cells covering the whole plant. Epidermal cells show great variety in form, giving characteristic patterns when seen in surface view (straight, wavy, beaded,... walls).

Plant tissues

- A tissue is an aggregation of cells of common source, structure and function in intimate union
- Classification of plant tissues:
- Tissues may be classified into

جانب سے مقررہ شکل و رنگ

A. Simple plant tissue

- Those composed of one kind of cell only. E.g. parenchyma and collenchyma.

B. Complex plant tissue

- Those made up of two or more kinds of cells. E.g. xylem and phloem.

A) Leaves

- Aloe : (الصبار) Aloe vera
- Family: Xanthorrhoeaceae



or jelly form
The juice of Aloes contained in the large pericyclic cells of the leaves. When the leaf base is cut, the juice flows out and collected

Aloe is recommended for the treatment of atonic constipation and suppressed menstruation.

A) Leaves

2- الشاي (Black/Green) Tea

• *Camellia sinensis* F. Theaceae.

- black tea-fully fermented leaves that are roasted (40mg caffeine/cup).

- green tea-steamed, dried, non fermented leaves (20mg/cup).

green tea contains higher concentrations of the active catechin constituents compared to black tea.

هناك نوعان من الشاي الأخضر
النوع الأول هو الشاي الأخضر
النوع الثاني هو الشاي الأخضر

أوراق شاي دمج

أوراق شاي دمج



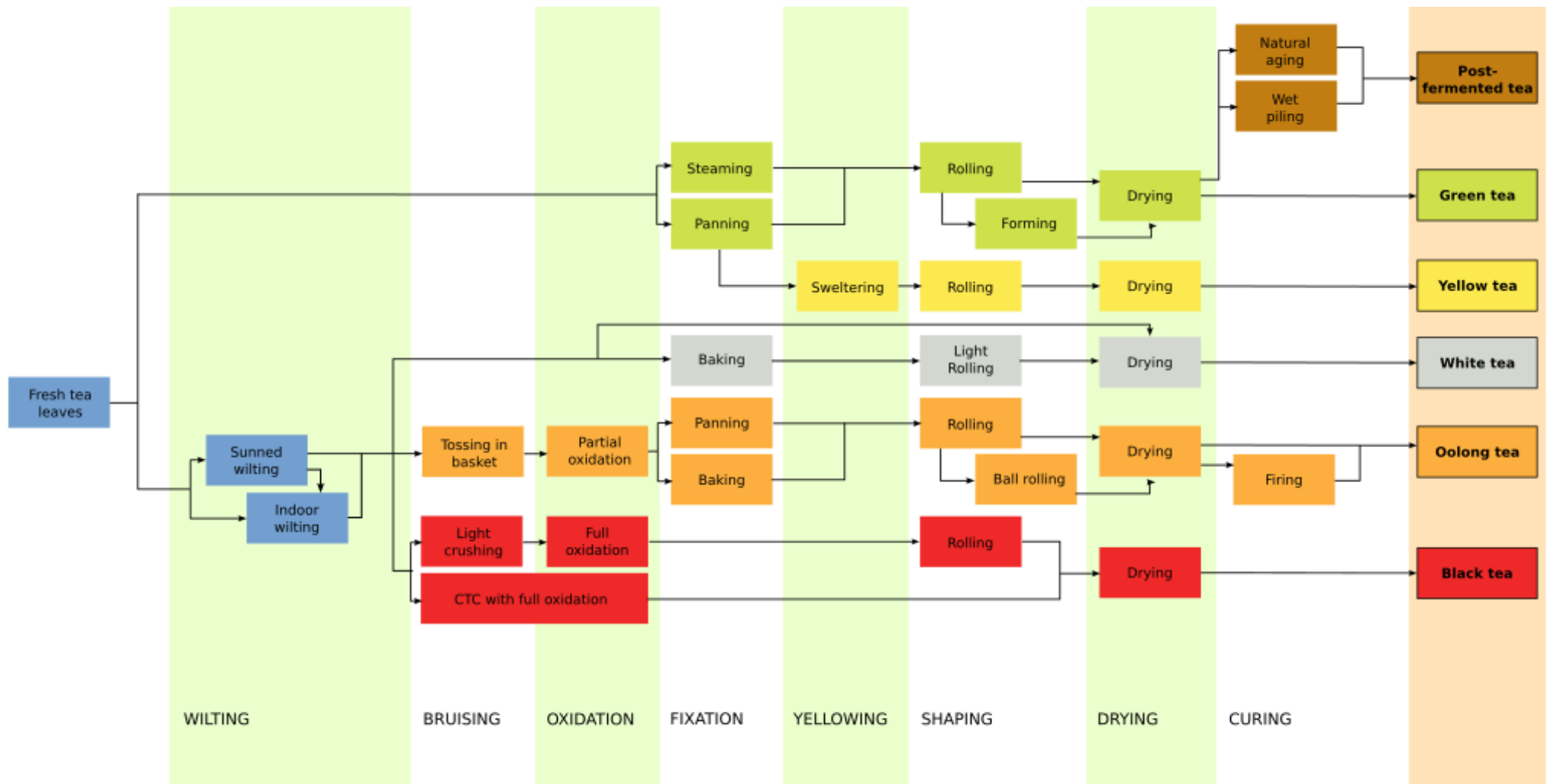
Q2. Which of the following statements about *Camellia sinensis* is TRUE?

- A. Green tea is fully fermented, while black tea is non-fermented.
- B. Green tea is steamed, dried, and non-fermented.
- C. Both green tea and black tea are fully fermented.
- D. Black tea contains higher concentrations of catechins than green tea.
- E. Black tea is prepared only by steaming and drying.

B



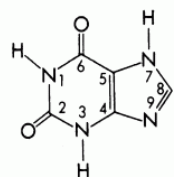
Tea preparation



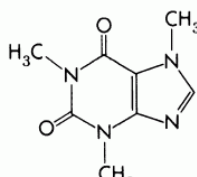
A) Leaves

3- الشاي (Black/Green)

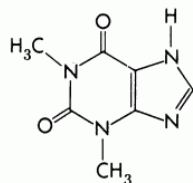
Camellia sinensis F. Theaceae.



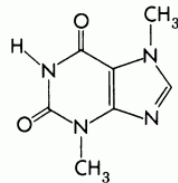
XANTHINE



CAFFEINE



THEOPHYLLINE



THEOBROMINE

• Active constituents:

1. Polyphenols (Tannins: Catechins) epicatechin, epigallocatechin

2. Alkaloids purine group (Xanthine derivatives):

1) Caffeine 2-4% – CNS stimulant.

2) Theophylline – bronchodilator.

3) Theobromine – diuretic.

3. Inorganic Ions: fluoride F^- (130-160 mg/kg), potassium, K^+ aluminum Al^{3+}

4. Other Ingredients: flavonoids, caffeic acid derivatives

PHARMACOLOGICAL ACTIONS

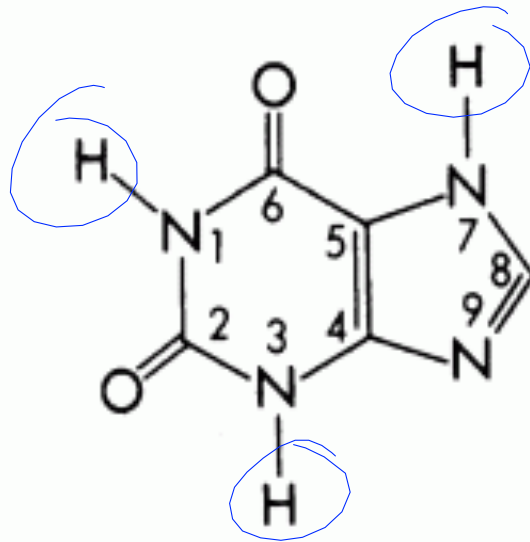
التأثيرات الدوائية

• **BLACK TEA:** Claimed to Protect against ischemic heart disease.

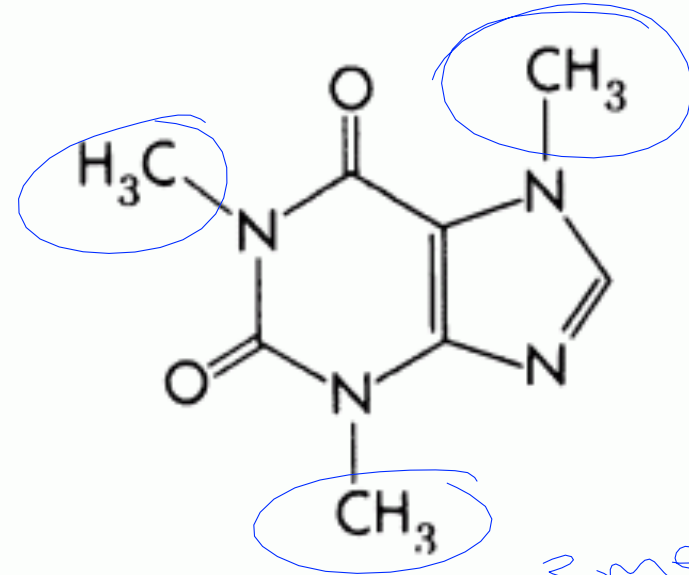
• **GREEN TEA:** Antioxidant capacity; decreases serum concentrations of total cholesterol, triglyceride

• Standardized Preparations: Activate thermogenesis and fat oxidation. *تعزيز عملية حرق الدهون*

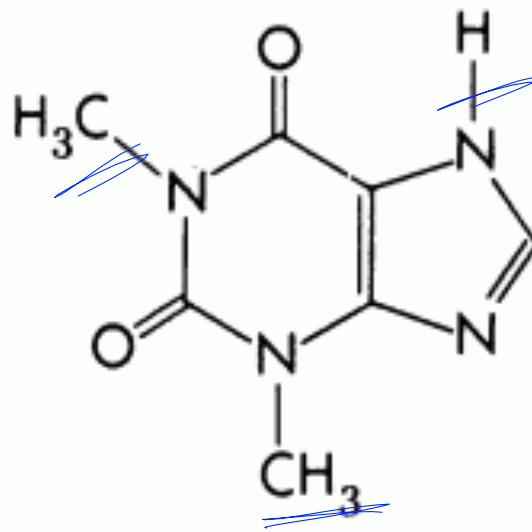
• Black and green tea: Increase plasma antioxidant capacity; *تعزيز القدرة المضادة للأكسدة في البلازما*



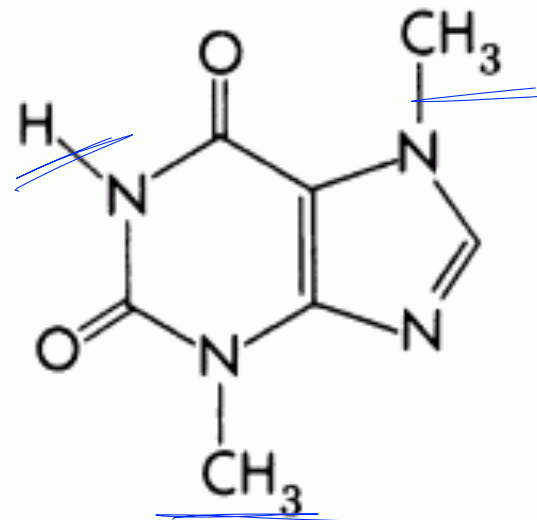
XANTHINE 3 hydrogen



CAFFEINE 3 methyl



THEOPHYLLINE



THEOBROMINE

↳ mainly in chocolate

Tannins

المختص -
 ان ال Tannin له طعم مر وقايق رصاص زمار المظلي يدل على
 صفة جود الحيوانات اما ال OH فانها يدل على مركبات كبيرة
 من ال polyphenolic تحتوي على كمية كبيرة من ال OH
 و COOH لذلك فهي تسمى القارة في كيميا وخصائص مع البروتين
 وال molecular weight = 500 to 3000 and macromolecules

- Are astrigent and bitter-tasting plant polyphenols that bind and precipitate proteins
- The term tannin refers to the source of tannins used in tanning animal hides into leather.
- However, the term is widely applied to any large polyphenolic compound containing sufficient hydroxyls and other suitable groups (such as carboxyls) to form strong complexes with proteins and other macromolecules. Tannins have molecular weights ranging from 500 to over 3000.

OH
 COOH
 المجموعات ال OH و COOH
 لها دور كبير في تكوين معقدات قوية مع البروتينات والسكريات
 وال macromolecules

A) Leaves

Sage.

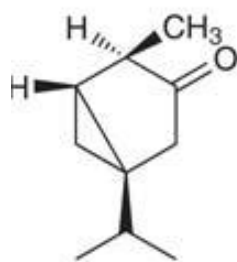


- Salvia officinalis L. Family: (Labiatae/Lamiaceae)

Constituents

- Acids: Phenolic – caffeic, chlorogenic, and rosmarinic.
- Flavonoids.
- Tannins
- Volatile oil: 1–2.8%. Major components are α - and β - thujones. Others include 1,8-cineole, borneol, camphor.

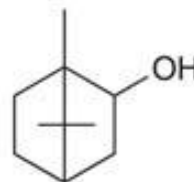
Monoterpenes



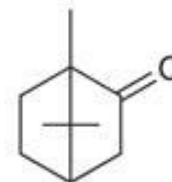
α -thujone
((-)-thujone)



1,8-cineole



borneol



camphor

Q22. Which of the following medicinal plants is claimed to enhance memory?

- A. *Salvia officinalis*
- B. *Rosmarinus officinalis*
- C. *Mentha piperita*
- D. *Eucalyptus globulus*
- E. A and C

A

• Pharmacological Actions

1) Antispasmodic activity.

نقسي طيار للنبات

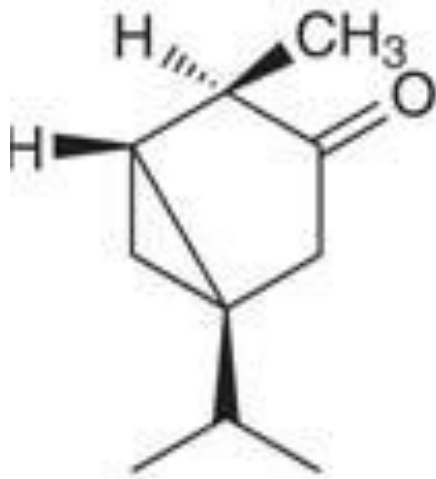
2) Anticholinesterase activity Early herbals claim that sage enhances the memory. The anticholinesterase activity of several Salvia species have been investigated in the search for new drugs for the treatment of **Alzheimer's disease**

3) Antimicrobial and antiviral activity. Antimicrobial activity of the volatile oil has been attributed to the thujone content.

ثيون

Volatile oils

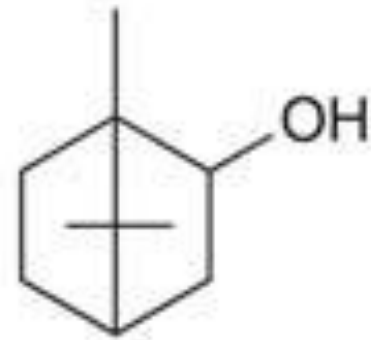
Monoterpenes



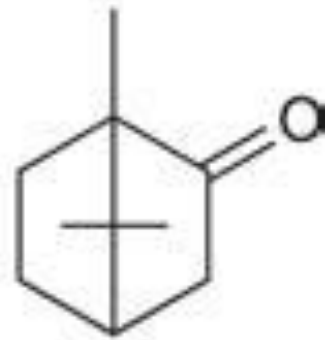
α -thujone
((-)-thujone)



1,8-cineole



borneol



camphor



Sage



Thyme



Bay



Melissa



Rosemary



Marjoram



Basil



Ivy leaves



Peppermint leaf

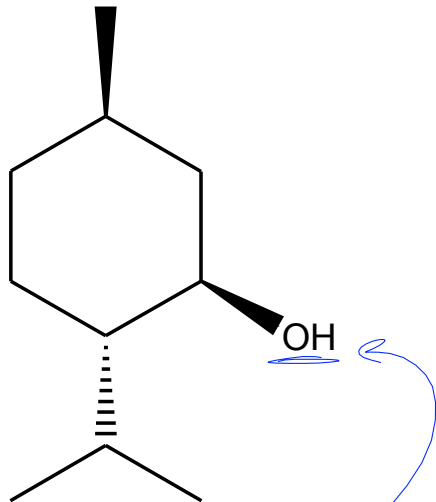


- Origin: is the dried leaves of *Mentha x piperita*: Labiatae
- It has an initially burning taste and cool aftertaste, especially when air is drawn in through the mouth.

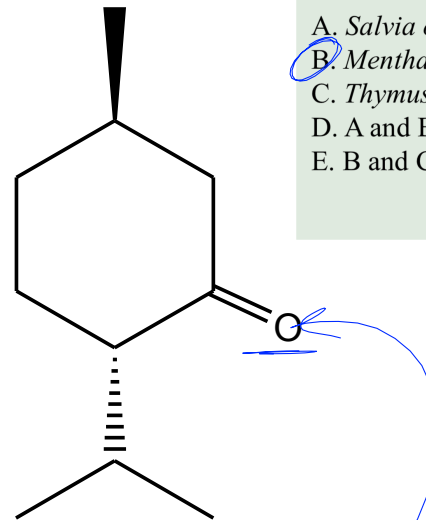
طعم لاذع وحار

Contents

- The essential oils of the Labiatae family are synthesized in the cells of the glandular trichomes. *الشُعيرات الغُدِيَّة*
- Contains not less than 1.2 % V.O.
 - 44% menthol (*l*-form in nature and crystalline)
 - 15-32 % menthone
 - 4.5-10 % menthyl acetate esters
- 6-12 % tannins, flavonoids, triterpenes and other bitter principles



(-) Menthol



Menthone

Q3. Menthone is a major constituent of:

- A. *Salvia officinalis*
- B. *Mentha piperita*
- C. *Thymus vulgaris*
- D. A and B
- E. B and C

B

Preparation of peppermint oil:

النقطة بالبخار

- Steam distillation of the fresh or dried herb to obtain a colorless to pale green liquid with a pungent odor of peppermint.

رائحة نقادة

Rosemary

(*Rosmarinus officinalis*)

- Small perennial evergreen shrub
- Narrow leaves have a spicy, pine-like flavor
- Not winter hardy in Illinois
 - Grow in pots
- Propagate from stem tip cuttings

شجيرة دائمة الخضرة و رائحة الخشب

تؤخذ بالأوعية الزجاجية

يؤخذ من طرف الساق درجته
بالطريقة المذكورة
يعني انتم مشا حاجة البذر غاشيا



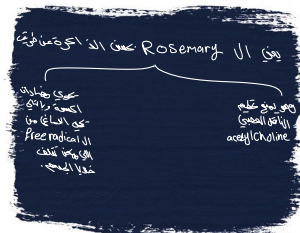
Rosemary (اكليل الجبل ، حصالبان)

- A silvery evergreen shrub ^{شجيرات} that originated in the Mediterranean region and is now grown worldwide.
- Rosemary (*Rosmarinus officinalis*) is known both as a culinary and healing herb.

(عق) حشيشة = الكافور والخلع

Rosemary

- Uses:
- **Memory aid:** The herb's enduring reputation as a memory aid may in part be due to:
 - Its high concentrations of health-promoting antioxidants. These compounds help to protect the brain and other parts of the body against unstable oxygen molecules, called free radicals, which can damage cells in the body.
 - Rosemary may also sharpen memory by helping to prevent the breakdown of neurotransmitter acetylcholine.



Rosemary

- **Topical uses:**

- Rosemary oil, which is steam-distilled from the plant's pale blue flowers, may help soothe muscle sprains, strains, and arthritic joints.
- The oil contains camphor, a skin irritant that can increase blood circulation to the skin when applied topically.
- The aromatic oil is frequently added to hair preparations: one recent trial found that rosemary oil, when combined with thyme, and lavender oils in a neutral carrier oil (jojoba) may help to lessen a type of hair loss called *alopecia areata*.

الزيت العطري بالفل

التواء المفاصل

إعداد أو قو الضلالت

الجلد الحكة، بالفل، بالفل

زيت الريح

نوع من أنواع الصلع

Rosemary

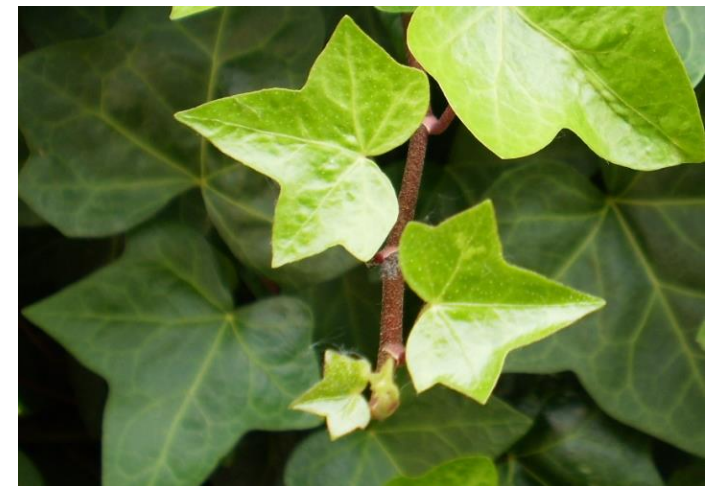
- **Internal uses:**
- - Herbalists often suggest capsules containing rosemary oil along with the essential oils of oregano and thyme for the treatment of yeast (*Candida*) overgrowth in the intestines.
- rosemary has apparent use as antibacterial and antifungal properties.

A) Leaves: Examples

Common name	Arabic name	Binomial name	Family	Main herbal use	Major constituents
Ivy	اللباب	<u>Hederae folium</u>	<u>Araliaceae</u>	<u>Expectorant</u> <u>antitussive</u> <u>Trarment of</u> <u>chronic</u> <u>infalmmatory</u> <u>bronchial</u> <u>diseases</u>	1. triterpene 2.glycosides of hederagenin: hederacoside C , hederacoside D hederacoside B phenolics flavonoids, coumarins

Hederae folium is used for the treatment of respiratory tract diseases with intense mucous formation, respiratory tract infections and in irritating cough which stems from common cold.

The major compounds responsible for the biological activity are **triterpene saponins**. Ivy leaf extracts exhibit pasmolytic/antispasmodic, anti-inflammatory, antimicrobial, analgesic, anthelmintic, antitrypanosomal, antileishmanial, antitumor, antimutagenic, moluscocidal, antioxidant and antithrombin activities.



اللبلاّب مهم جدا في علاج كل ما يتعلق بالجهاز التنفسي وامراض الصدر وامراض الجهاز الهضمي ، وهناك نوع من اللبلاّب سام جدا عند ملامسته وهو اللبلاّب ذات الاوراق الحمراء اما ذات الاوراق الخضراء فهو آمن .

B) Flowers:

Saffron



Calendula



Lavender



Chamomile



- Explain the term, 'Hay Fever'.
- Inhalant plant allergens come in contact of the nasal and buccal mucosa during respiration. The symptom is restricted to the nasal mucosa and manifested by sneezing, lacrimation, itching and swelling of nose and eyes. This condition is known as hay fever or sinusitis.

الحساسية الجيوب الأنفية



Roman

البابونج Chamomile

German



- According to pharmacopoeia we have 2 types of chamomile:

- Roman chamomile: is used mainly in **Europe**, **Chamaemelum nobile** جاذبة ذوق

Family: (Asteraceae/Compositae).

- It has thin petals and intense at the center.

- German chamomile: *Matricaria chamomilla*. Family: Asteraceae/Compositae البابونج الألماني

it has wide petals and outspread from the center.

- Chamomoile** contain a compound called matricin that **converts** during distillation it to another compound called Chamazulene (**chama**: from **chamomile**, **azue**: from **blue** color).

matricin distillation → Chamazulene
from chamomile blue color

Q20. Which of the following statements about Roman chamomile is TRUE?

- Roman chamomile is *Matricaria chamomilla* and has wide petals spreading from the center.
- Roman chamomile is mainly used in America and belongs to the Lamiaceae family.
- Roman chamomile is *Chamaemelum nobile* and has thin petals with a dense center.
- Roman chamomile contains chamazulene naturally before distillation.
- Roman and German chamomile are the same species.

البابونج (Chamomile(German))

- Matricaria chamomilla. Family: Asteraceae/Compositae
- **Part(s) Used :** Flower head

Active constituents:

- **Coumarins:** Umbelliferone and its methyl ether, heniarin.
- **Flavonoids:** Apigenin, luteolin, quercetin, and rutin.
- **Volatile oils:** Pharmacopoeial standard not less than 4 mg/kg blue oil. Main components are)-(α -bisabolol (up to 50%) and chamazulene (blue) (1–15%).
- **Other constituents:** sesquiterpenes (e.g. matricarin and matricin).
- **Chamazulene** is formed from matricin during steam distillation of the oil. It varies in yield depending on the origin and age of the flowers.

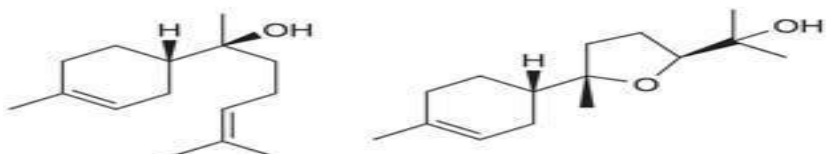
Q34. One of the following DOESN'T match:

- A. Witch hazel → Laxative
- B. Thyme → Expectorant
- C. Clove → Toothache remedy
- D. *Artemisia cina* → Anthelmintic
- E. Chamomile → Antispasmodic

تختلف كمية الإنتاج

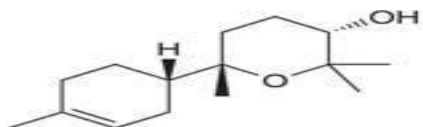
Xi Luo

Sesquiterpenes



(-)-α-bisabolol

(-)-α-bisabolol oxide B

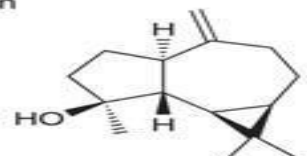


(-)-α-bisabolol oxide A



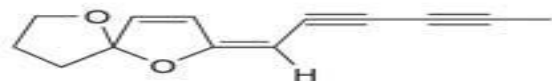
matricin

chamazulene

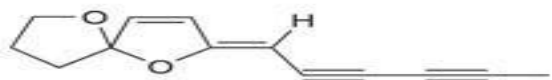


spathulenol

Acetylenes



cis-enynedicycloether



trans-enynedicycloether

Coumarins

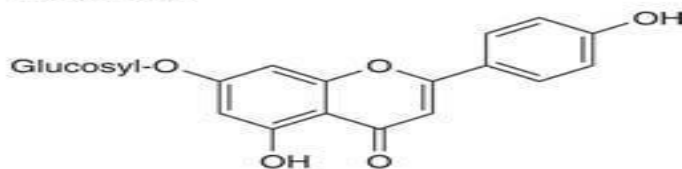


umbelliferone

umbelliferone methyl ether

R
H
CH₃

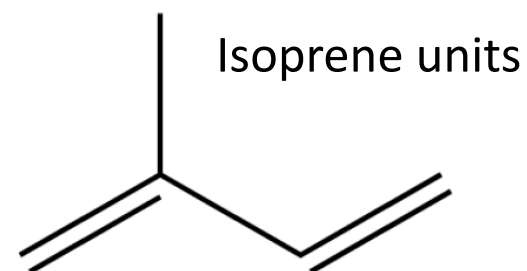
Flavonoids



apigenin-7-glucoside

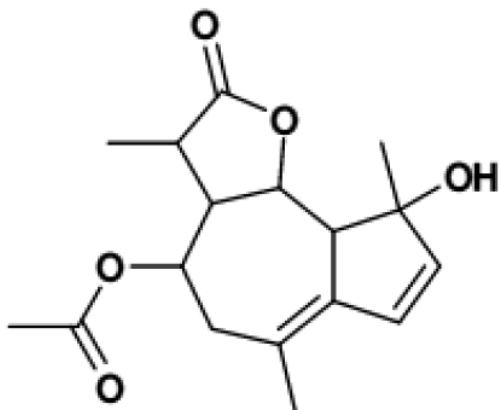


Sesquiterpenes are class of terpenes that consist of three isoprene units (15 Carbons), so we can get these compounds from many types of plant tissues, specially Asteraceae family plant tissue

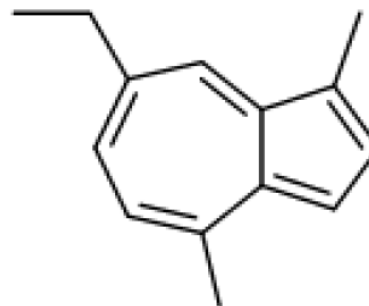


البابونج (Chamomile(German):

- Matricine is a **tricyclic sesquiterpenoidal** compound that contain furan ring, during **distillation** process the furan lactone will be **open** due to high temperature and convert it to carboxylate called chammazulene carboxylic acid, also we **remove** a **carbon atom** in carboxylate gp in matricin, by this we have **bicyclic** structure contain **14** carbon , so chamazulene is **not naturally** compound and **not a sesquiterpens**.



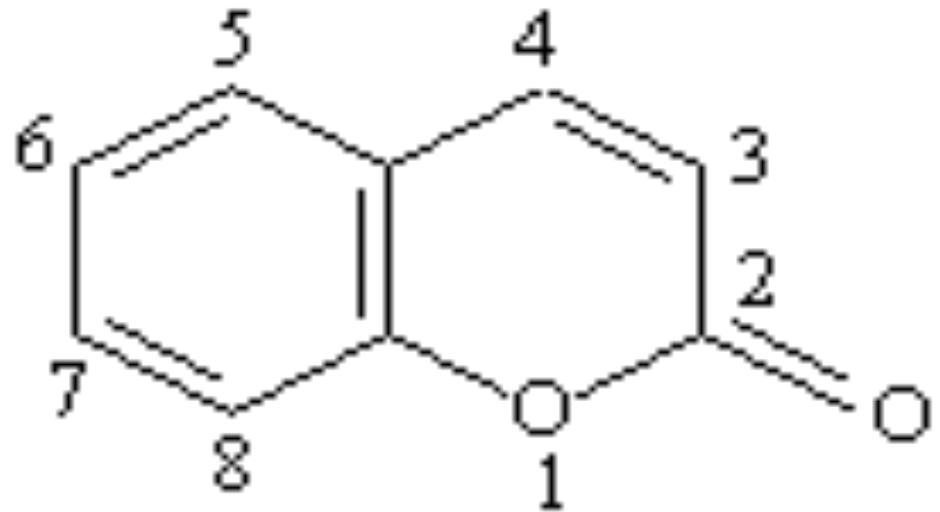
Matricine



Chamazulene

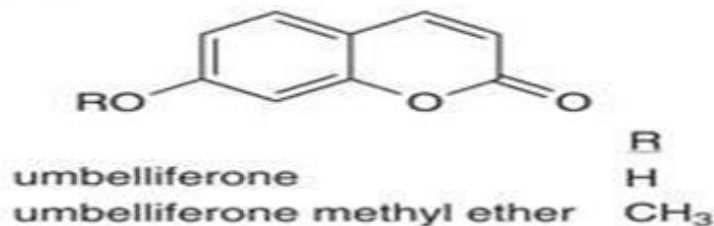
active ingredient

- **Coumarin** and the other members of the coumarin family are benzo- α -pyrones, while the other main members of the benzopyrone group, the **flavonoids** contain the γ -pyrone group.
- Coumarins may also be found in nature as glycosides.

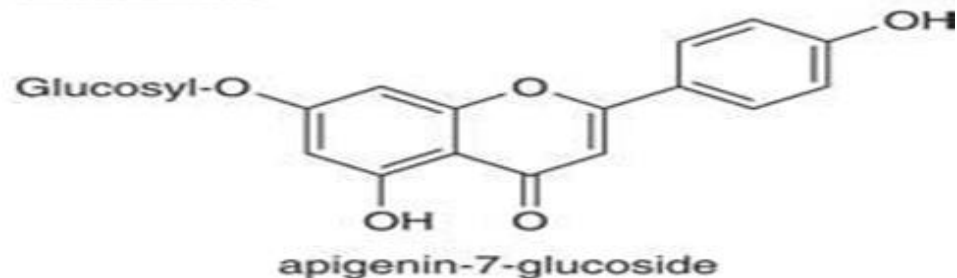


benzo - 2 - pyrone

Coumarins



Flavonoids



Pharmacological activity of Chamomile

- **All** these compounds are responsible for the **pharmacological activity**, so we use chamomile as **antispasmodic** and **carminative** (**orally use**) due to the **activity of flavonoids**, while **topical** use as **anti-inflammatory**,
- also it's used in **teething pain in pediatric**, **antiseptic**, it has **hypnotic effect so help u to sleep**, also we use it as **antacid**.



الزنجبيل العطري

Clove (القرنفل)

Syzygium aromaticum

Family: Myrtaceae



bud - هو الزهر الذي لم يفتح

- **Part(s) Used:** dried flower bud.
- **Active Constituents:**
- Clove bud: oil containing Eugenol (90%), Eugenyl acetate, β -caryophyllene.
- • Other components like methylsalicylate, methyleugenol and benzaldehyde.
- • **Herbal Use**
- Clove has been traditionally used as a carminative, anti-emetic,
- toothache remedy and counter-irritant.

active ingredient

يستخدم شعبياً لتخفيف الغازات وتخفيف الصداع

مضاد لتشنج وتخفيف ألم الأسنان



Clove (القرنفل)

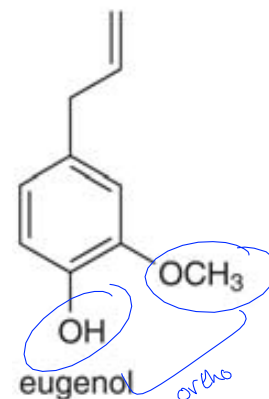
Syzygium aromaticum

Family: Myrtaceae



- The distinctive odour of the clove is due to the presence of Eugenol بسبب رائحة القرنفل المميّزة هي الـ
- It's phenylpropene structure and there are hydroxyl and methoxy groups ortho- to each other. يعني ان المجموعتين هيدروكسيلات وهيدروكسي ميثيلات متجاورتين
- The problem of this plant: it mustn't be used with any anti-coagulant drug, so the dentist must be sure to use clove-free compounds if the patient use anti-coagulant drug to prevent the bleeding.

Phenylpropanes



Categories of Volatile oils

- Monoterpene-rich volatile oils Some examples:

- Peppermint oil • Lavender oil • Lemon oil • Camphor • Thyme oil • Turpentine oil

- **Phenylpropane-rich Volatile Oils** Some

- examples: • ^{زيت القرفة} Cinnamon oil • ^{زيت اليانسون} Anise oil • Fennel oil • Clove oil • ^{زيت جوزة الطيب} Nutmeg oil • Peru balsam • Tolu balsam

زيت الشبث

الشَّيْح الخرساني Artemisia cina

- Artemisia cina BERG. Family: Asteraceae/Compositae.
- ✓ • **Part Used:** dried, unexpanded flower heads رأس الزهرة غير المتفتح الذي يعني
- **Active Constituents---** The chief constituent of Wormseed is a crystalline bitter principle, **Santonin**: المكون الرئيسي
anthelmintic property of the drug. المؤلفة على خاصية التمسك بالأمعاء المعوية.
- • Artemisia cina should be collected in July and August since Santonin attains its maximum at this time of the year
- • Artemisia cina also named as wormseed contains another bitter principle, Artemisin, and a yellow volatile oil cineol. اللافندي + الزيت تبعه

الشّيح الخرساني *Artemisia cina*



الشَّيْح الخرساني *Artemisia cina*

- **Herbal action and Uses**

يعمل كمادة سامة للأفيليات ويستخدم لعلاج الديدان الأسطوانية

- Santonin acts as a direct poison to parasites, and is used as a remedy for round-worms, which it rapidly expels; it has also an effect on thread-worms to a lesser degree, but has no action on tapeworms.

يؤثر على الديدان الدبوسية بدرجة أقل وعلى الديدان الشريطية

- **Dosage :** Santonin lozenges, B.P.
- As a rule, when a single dose is to be given, it should be administered upon an empty stomach, and the patient should refrain from eating for a short time afterward. A purgative should precede and follow its use.

عند

Q18. One of the following is TRUE about *Artemisia cina*:

- A. It has anthelmintic activity.
- B. It is mainly used against tapeworms.
- C. The part used is the leaves.
- D. Its chief constituent is crocin.
- E. It belongs to the Lamiaceae family.

Toxicity

- **•Several cases are on record of fatal poisoning by Santonin.**
- **•Santonin produces vision disturbances, objects first appears blue then yellow, the absorbed santonin renders urine intense yellow if acidic, while purplish yellow if alkaline.**

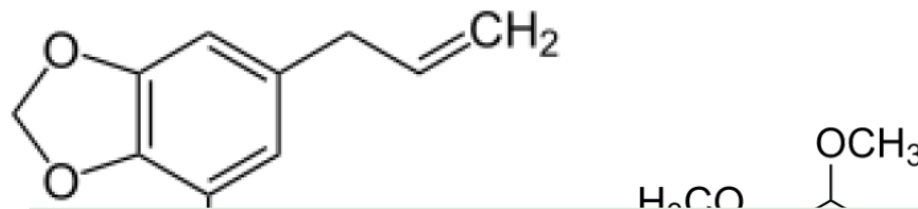
C) Seeds:Nutmeg جوزة الطيب

Myristica fragrans Myristicaceae

- القشرة الرفيعة الداخلية التي تغطي الجدار الداخلي لثمرة جوزة الطيب: **Mace**
- Nutmeg: usually used as **complete fruit** but the **V.O. is obtained from the seeds or kernel**. ال V.O. يُستخلص من البذرة (kernel) أو اللب
- The **oil** of the nutmeg is **very expensive** because the fruits need long time to be
- mature and they **are very light**, so when the farmer cultures large number of the plant trees he will have small weight of the fruits (nutmeg)..

Q40. One of the following is TRUE about *Myristica fragrans*:

- A. The volatile oil is obtained mainly from the leaves.
- B. It belongs to the Asteraceae family.
- C. The volatile oil is obtained from the seeds.
- D. It is mainly used as an anthelmintic due to santonin.
- E. It belongs to the Lamiaceae family.

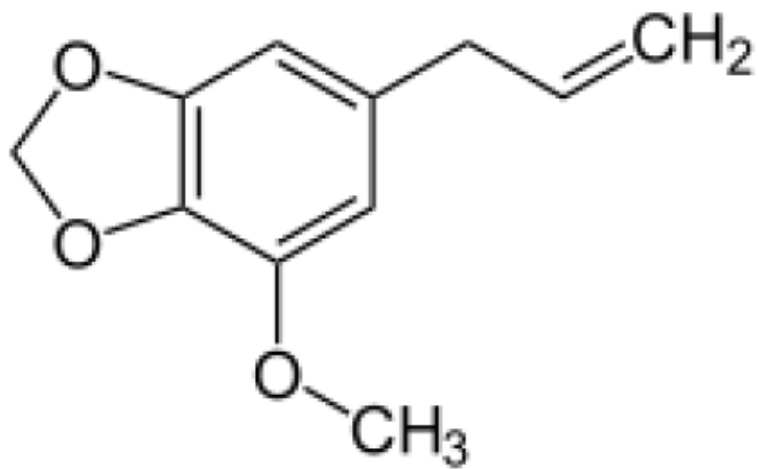


Q38. One of the following DOESN'T match:

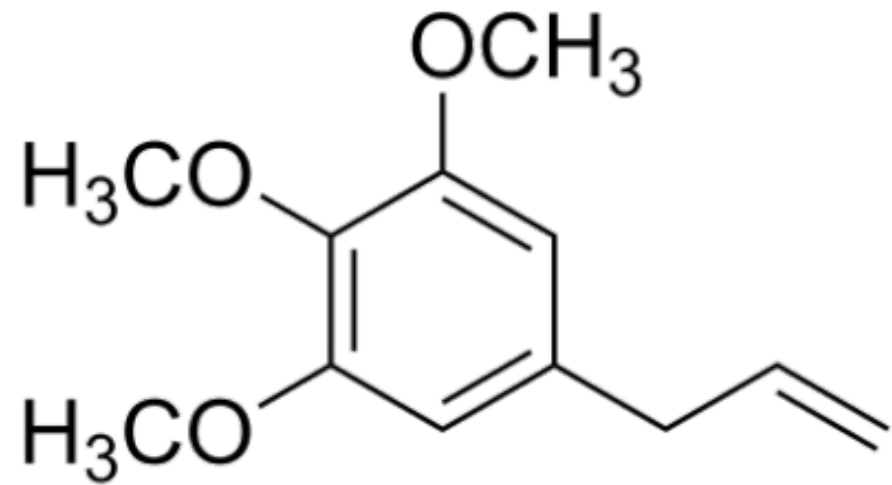
- A. *Cinnamomum zeylanicum* → Antidiabetic potentiating
- B. Clove → Toothache remedy
- C. Anise → Carminative
- D. *Artemisia cina* → Anthelmintic
- E. Nutmeg → Source of crocin



عش مطاين: فلفل



myristicine



elemicin

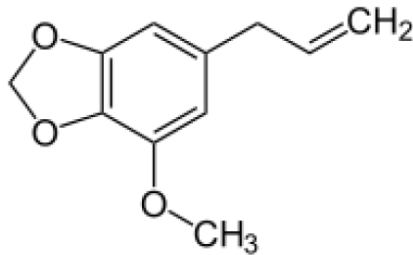
2- جوزة الطيب Nutmegs

نبتة آتروپين حواء ال atropin

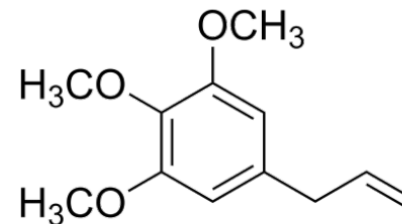
Myristica fragrans Myristicaceae

- To have oil has similar odor to the nutmeg oil, they take the mace.
- In the US it's used by prisoners as alternative to hallucinogenic compounds, so it's called prison opium because it gives the same effect of the opium.
بدون الميكبات الخفية
- The effect of nutmeg is similar to that of atropine, the only difference between them is that atropine causes mydriasis but nutmeg causes miosis
يقلل التوسع الحدقي
مولد دواء لزيادة حرارة خيرات القلب يعني ينقصه الذي هو bradycardia
- They study the ability of use nutmeg as flavouring agent due to the presence of myristicine and elemicin.

Atropine
Dilates the pupils, increases heart rate, and reduces salivation and other secretions.



myristicine



elemicin

Treatment of Brady-arrhythmia:

1. Atropine

a. Atropine blocks the effects of acetylcholine. It elevates sinus rate and AV nodal and sinoatrial (SA) conduction velocity, and it decreases refractory period.

b. Atropine is used to treat bradyarrhythmias that accompany MI.

Nigella sativa

* حبة البزنجية أو السمسم الأسود

- **Medicinal Uses (Black Cumin) —**

- This herb apparently may be even more important to the Muslims than to the Christians and Jews.

- يقول رسول الله - صلى الله عليه وسلم إن في الحبة السوداء شفاء من كل داء إلا السأم. أخرجه البخاري

- According to an Arab proverb, “in the black seed is the medicine for every disease except death.”

- Small wonder that the literature regards it as carminative, diaphoretic, digestive, diuretic, emmenagogue, excitant, lactagogue, laxative, resolvent, stimulant, stomachic, and tonic.

تقلل ادمان النور
او الاجتهاد

منبوه

مفترية المعدة

مؤثره ريشة بكتريا

وكيفية

(Black seed)

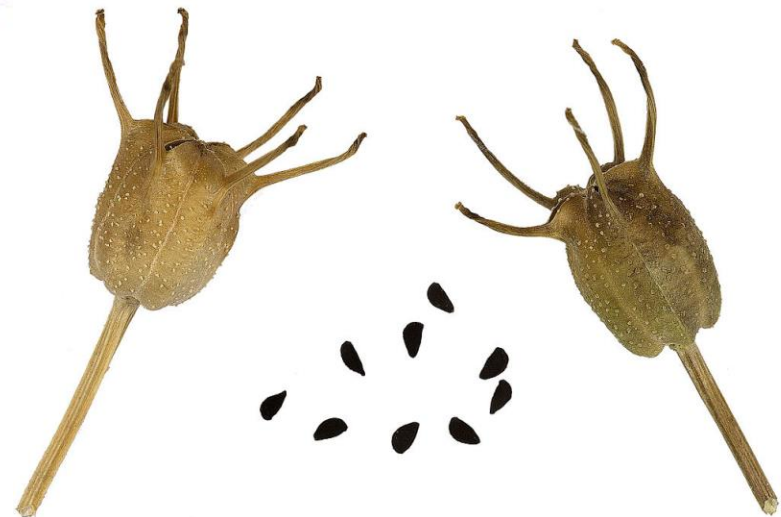


Nigella sativa (Black seed)



Antidiabetic Activity of *Nigella sativa* Seed Extract in Cultured
Pancreatic β -cells, Skeletal Muscle Cells, and Adipocytes

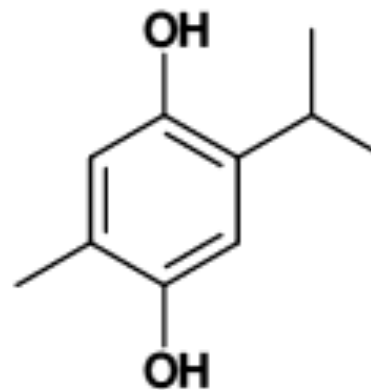
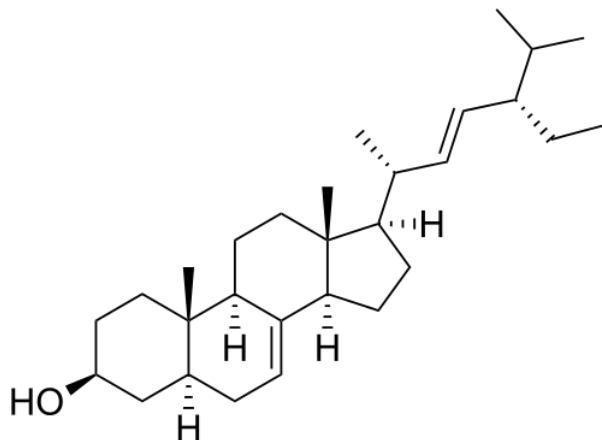
Pharmaceutical Biology; Jan2008, Vol. 46 Issue 1/2, p96-104



Chemicals and their Biological Activities in: Nigella sativa L. (Ranunculaceae) -- Black Caraway, Black Cumin, Fennel-Flower, Nutmeg-Flower, Roman Coriander

- **ALPHA-SPINASTEROL** *Seed*: Antiinflammatory
- **ASPARAGINE** *Seed*: Diuretic
- **CAMPESTEROL** *Seed*: Antioxidant ; Hypocholesterolemic
- **CARVONE** *Seed*; Antiacetylcholinesterase ; Antiproliferative; Antiseptic
- **HEDERAGENIN** *Seed*: Allergenic; Anticapillary-Fragility; Antiedemic; Antifibrinolytic;
- **PHYTOSTEROLS** *Seed*: Antiprostatotic; Hypocholesterolemic
- **THYMOHYDROQUINONE** *Seed*: Antibacterial *MIC=6.25-100 ug/ml*;
- **THYMOQUINONE** *Seed*: Antiarthritic; Antiasthmatic; Antibacterial; Antibronchitic;

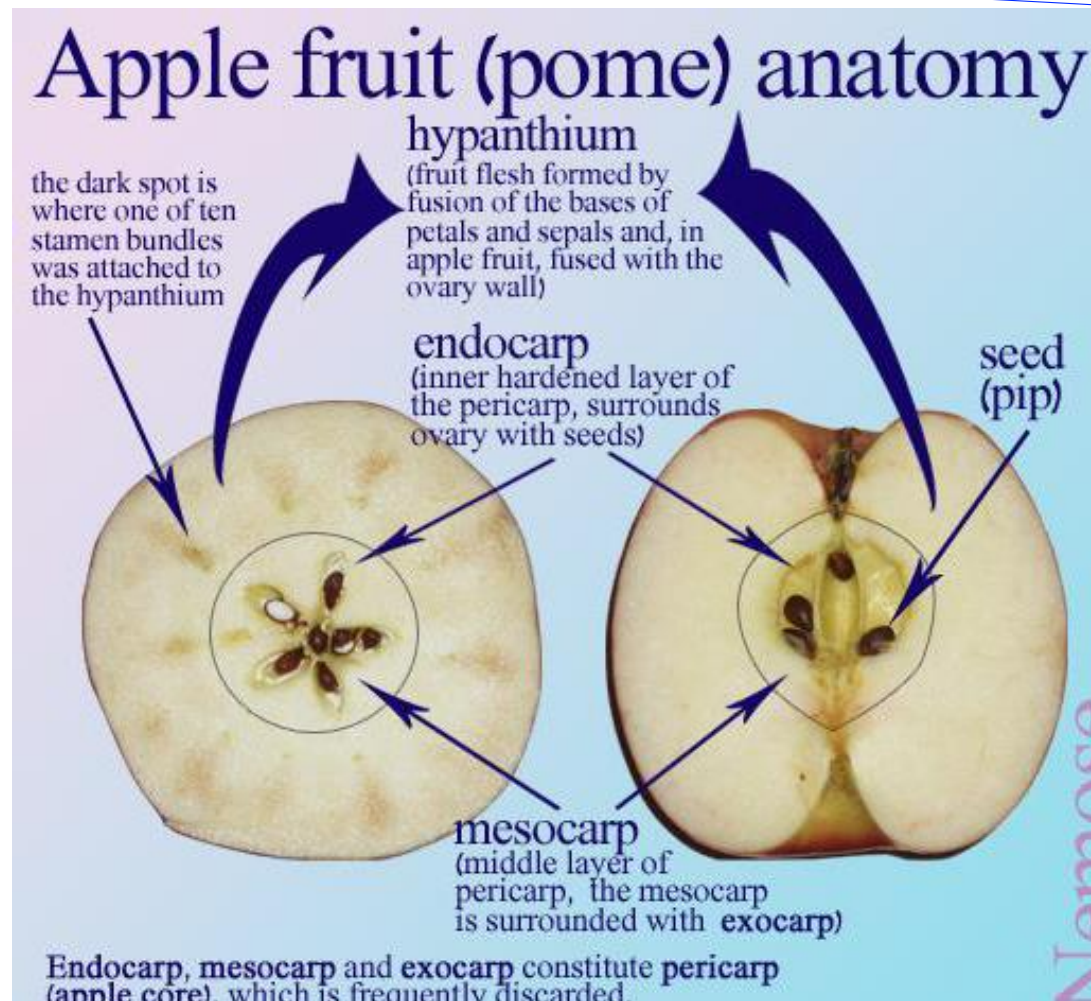
ALPHA-SPINASTEROL



ThymoHydroQuinone

D) Fruits:

- Matured and ripened ovaries. Holds and protects the seeds until they mature.



اليانسون Anise



- Pimpinella anisum L. Family: Umbelliferae or Apiaceae.
- The medicinal parts are the essential oil from the ripe fruit and the dried fruit.
الفاكهة الناضجة الفواكه المجففة
- **Active constituents:**
 - Volatile oil (2 to 6%): chief constituent trans-anethole (94%),
 - Coumarins

اليانسون Anise

- **Herbal Uses:**

- The drug is said to have an expectorant, mildly spasmolytic and antibacterial effect based on the essential oil. لحارذ للبلغم

- Common cold لنزلات البرد

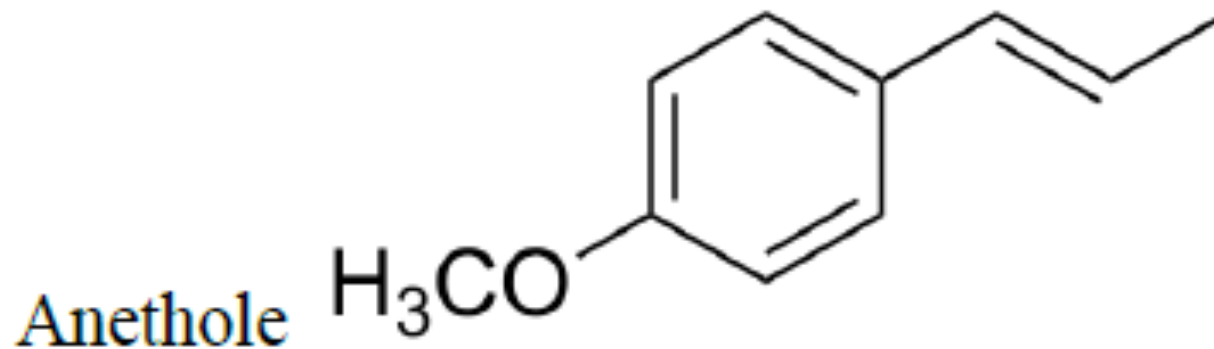
- Cough/bronchitis لروسع الشعبه الجوانية

Q37. One of the following is TRUE about Anise:

- A. It contains eugenol.
- B. Its major active constituent is anethole.
- C. It belongs to the Lamiaceae family.
- D. The part used is the leaves.
- E. All of the above.

اليانسون Anise

- The main constituent is **Anethole**, it's a phenylpropene, para to it is a methoxy group, this compound is responsible for **the anise odor and many biological effects**, a problem is during storage a molecule of the anethole is combined to another molecule of Anethole by the propene side chain to form a dimeric compound, **this dimer binds to the estrogen receptors** (has estrogen-like receptors), so anyone who takes estrogen like combination pills contraceptive that contains estrogen in microgram with anise that's improperly stored in high temperatures or for long periods, a competition between the dimeric estrogen-like compound with estrogen is responsible for the failure of contraception when large amounts of the anise is used, and the treatment will be unsuccessful.



anise is available as oil or the anethole is added to the cough suppressants , it reduces the trachea contractions and reduces irritation that causes the cough.

يقلل النسيج الذي يسبب السعال ويُقلل التقلصات القصية الحوائية

- Mainly used as a **flavoring agent** in the pharmaceutical industry , especially for indigestion products like Gaviscon® to provide a better taste for the formula.

Examples of Umbellifera (Apiaceous)



Caraway

(*Carum carvi*)

- Characteristics
 - Biennial in carrot family
 - Usually grown for its seed
- Only require a few plants to have enough seed for a family
- Seeds will shatter when fully mature
 - Cut off seed stalk when seeds turn brown and place inside a bag



E) Barks ^{الى}



- Definition:
- Barks consists of all the tissues outside the cambium of the stem or the root of the medicinal plant.
- Collection and Preparation:
- Barks are collected either from stems or roots by making transverse and longitudinal incisions and peeling the outer layers (layers outside the cambium).
- Barks are best collected in the spring (why?)
- They are sun-dried, and some barks are decorticated (e.g. Cinnamon).

الغرفة

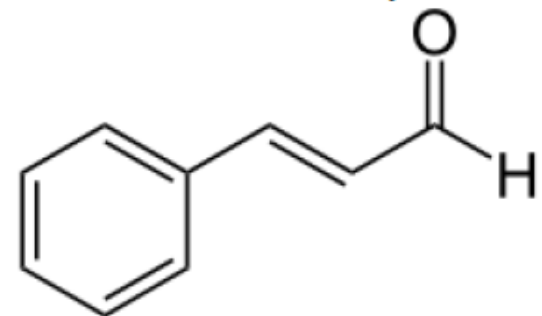
لأن الكامبيوم يكون نشطاً جداً في الربيع،
ويبدأ النبات بالنمو بعد الشتاء، فتكون
العصارة النباتية كثيرة، مما يجعل القشرة
تتفصل بسهولة عن الخشب دون أن تتمزق



Cinnamomum aromaticum Nees (Lauraceae)

CASSIA, CASSIA BARK, CASSIA LIGNEA, CHINA JUNK CASSIA, CHINESE CASSIA,
CHINESE CINNAMON, SAIGON CINNAMON

- **Synonym** — *Cinnamomum cassia* auct.
- In South China, it is grown in a moderately cool climate, annual rainfall ca. 1200–1300 mm, elevation mostly 90–300 m, usually propagated by cutting but sometimes
- **Chemistry (Cassia)** — Here are a few of the more notable chemicals found in cassia.
- Cincassiol — Antiallergic.
- *Cinnamaldehyde* — Orally, cinnamaldehyde stimulates the CNS at low doses and inhibits it at high doses
- *Cinnamic-ACID* also found in *Cinnamomum verum*.
- *Trans-Cinnamaldehyde*



- **Herbal Use**

- •Cinnamon is stated to possess antispasmodic, carminative antimicrobial and anthelmintic properties..
- •Cinnamon bark may possess a potentiating effect on insulin (Khan et al., 1990), and can be useful in the treatment of type 2 diabetes; as well as lowering triglyceride levels and serum cholesterol (Jayaprakasha et al., 2002).

- Cinnamon is mainly used at winter because it's carminative , antispasmodic , exerts a warming effect due to its vasodilatation effect.
- - **Contraindicated in the first trimester of pregnancy** because it can increase the risk of abortion due to its uterine stimulating effect.
- - Also used traditionally to **induce menstruation**.

لا تُمنع القُرْمَة خلال الثلث الأول من الحمل
لأنها قد تُحفّز انقباضات الرحم وبالتالي يمكن أن تؤدي
من خلى الإجهاض (Abortion)

Cinnamon

القرفة



Cinnamon foliage

Scientific classification

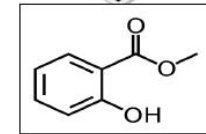
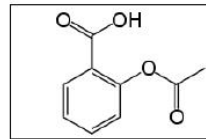
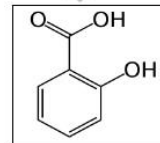
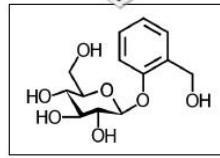
Kingdom:	<u>Plantae</u>
Division:	<u>Magnoliophyta</u>
Class:	<u>Magnoliopsida</u>
Order:	<u>Lurales</u>
Family:	<u>Lauraceae</u>
Genus:	<u>Cinnamomum</u>
Species:	<i>C. zeylanicum</i>

الصفصاف

للأسبرين قصة طويلة بدأت عندما استخدم الطبيب الإغريقي أبقراط مستخلص لحاء شجرة الصفصاف لتسكين الآلام حيث يحتوي لحاء الصفصاف على مادة الساليسيلين الفعالة في تسكين الآلام. وقد سميت هذه المادة بهذا الاسم نسبة إلى الجنس النباتي ساليكس وهو الجنس الذي ينتمي إليه نبات الصفصاف. ويوجد مركب آخر مابه لمادة الساليسيلين هو مركب ميثيل الساليسيلات الذي يتواجد في النباتات التي تنتمي إلى نوع الجولثيريا في زيت الوينترجرين. أمّا بالنسبة لعقار الأسبرين فقد قام بتصنيعه عالم ألماني يعمل لدى شركة باير، وهو من أطلق عليه اسم الأسبرين وهنال طريقتان لتصنيع الأسبرين أو الأسيتيل سالييلات، إما من مادة الساليسيلين أو من مادة الميثيل سالييلات

Salicylic acid

Acetyl Salicylic acid (Aspirin)



F) Roots & Rhizomes

Rhizome is horizontal stem growing under or sub soil surface.

Common name	Arabic name	Binomial name	Family
Ginger root	الزنجبيل	<i>Zingiber officinale</i>	<i>Zingiberaceae.</i>
Ginseng root	الجنسنگ	<i>Panax ginseng</i> (Asian)	Araliaceae
Rhubab rhizome	الراوند	<i>Rheum officinale</i>	Rubaceae

جذر ←
أورام ←
مخيط ←
أكسدة ←

Ginger (Zingiber officinale)

- from the rhizome *not root*
- Over 12 compounds with anti-oxidant activities greater than vitamin E
- anti-tumor
- anti-emetic (inhibits vomiting)



Ginseng

- The roots of the herbaceous plants *Panax ginseng* (Araliaceae)
- Indogenous to China, Korea and Russia,
- *Panax* species have been widely used for the treatment of a number of diseases, including anaemia, diabetes, gastritis, insomnia, and sexual impotence, and as a general restorative.





① الجذر المجفف الذي لم يُسَخَّر ← white ginseng
② اما الجذر في التبخير ← red ginseng

- The dried and usually peeled root provides white ginseng, whereas red ginseng is obtained by steaming the root, this process generating a reddish-brown caramel-like colour.
- Ginseng is classified as an 'adaptogen', **helping the body to adapt to stress, improving energy and concentration, and providing a normalizing and restorative effect**. It is also widely promoted as an aphrodisiac.

- Long-term use of ginseng can lead to symptoms similar to those of corticosteroid poisoning, including hypertension, nervousness and sleeplessness in some subjects, yet hypotension and tranquillizing effects in others.

- It contains a large number of triterpenoid saponins based on the dammarane subgroup, saponins that have been termed ginsenosides, or panaxo-sides.
- These are derivatives of two main aglycones, protopanaxadiol and protopanaxatriol, though the aglycones liberated on acid hydrolysis are panaxadiol and panaxatriol respectively.

Actions and Uses

- Ginseng has been found to:
 - protect the body & nervous system from stress
 - stimulate & increase metabolic function
 - increase physical & mental efficiency
 - lower blood pressure & glucose levels when they are high, and raise them (blood pressure & glucose levels) when they are low.
- The German Commission E approved ginseng as a tonic for fortification in times of fatigue and debility or declining capacity for work and concentration. Also approved ginseng for use during convalescence.

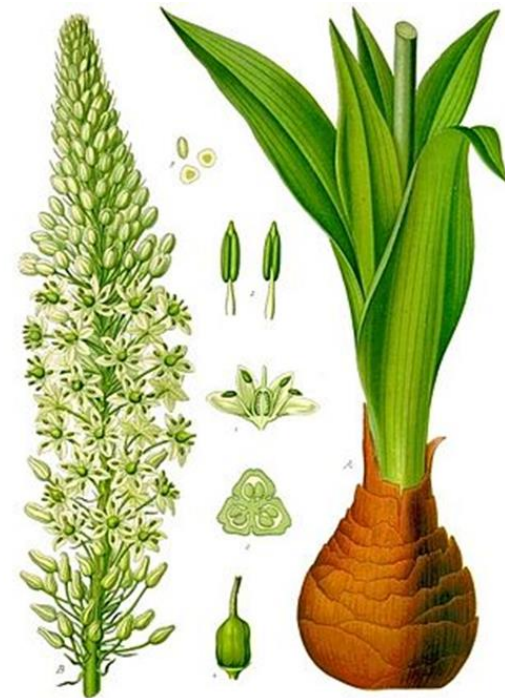
فائدة الجينسينج من الجسم

G) Bulb



Bulb is a specialized underground organ consisting outer scales of that are fleshy & contains reserve food materials.

شکوی حواد عذائیه عنی نیک



Squill (بصل العنصل)

- **Origin:** it is the dried, sliced bulbs of *Urginea maritima* Linn. Family Liliaceae. • Active

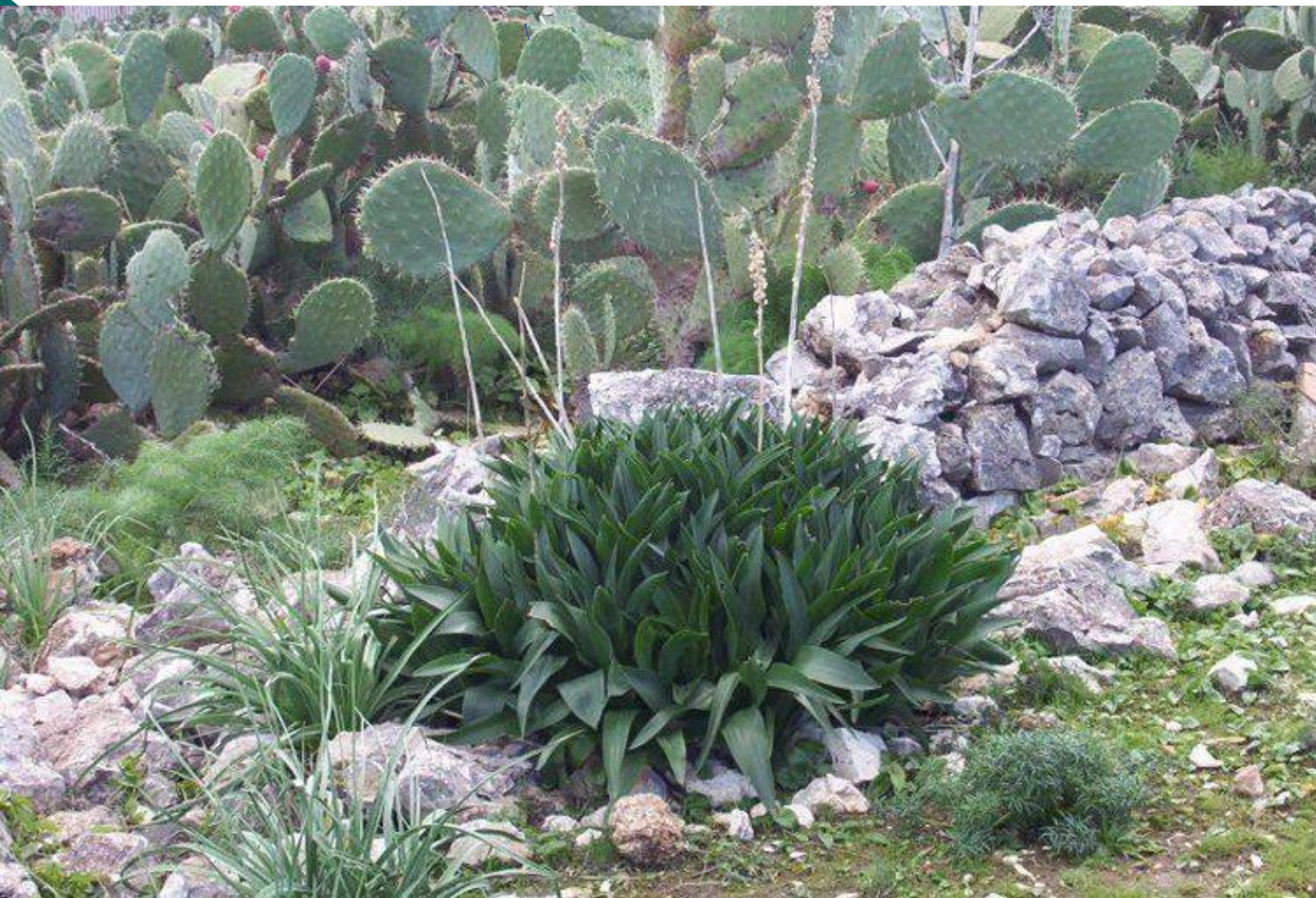
- **Constituents:**

- Cardiac glycosides: Scillaren A and proscillaridin A (major constituents); others include glucoscillaren A, scillaridin A.

- Scillaren B represents a mixture of the squill glycosides.

- Flavonoids : Apigenin, isovitexin, luteolin & quercetin. Other constituents: Stigmasterol.





Part used:





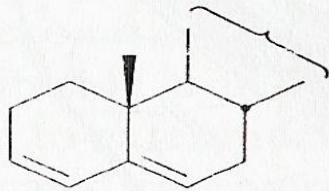
- Squill is stated to possess expectorant, cathartic, emetic, cardioactive and diuretic properties.
 - Traditionally, it has been used for chronic bronchitis, asthma with bronchitis, whooping cough, and specifically for chronic bronchitis with scanty sputum.
 - The aglycone components of the cardiac glycoside constituents possess digitalis-like cardiotonic properties.
 - The squill has shown to have cardiac effects similar to digoxin, including positive inotropic (increase the strength of muscular contraction) and negative chronotropic effects (decrease heart rate).

* Squill have cardiac effect like digoxin drug.
 * اسقيا لها تأثير قلبية مثل دواء الديجوكسين

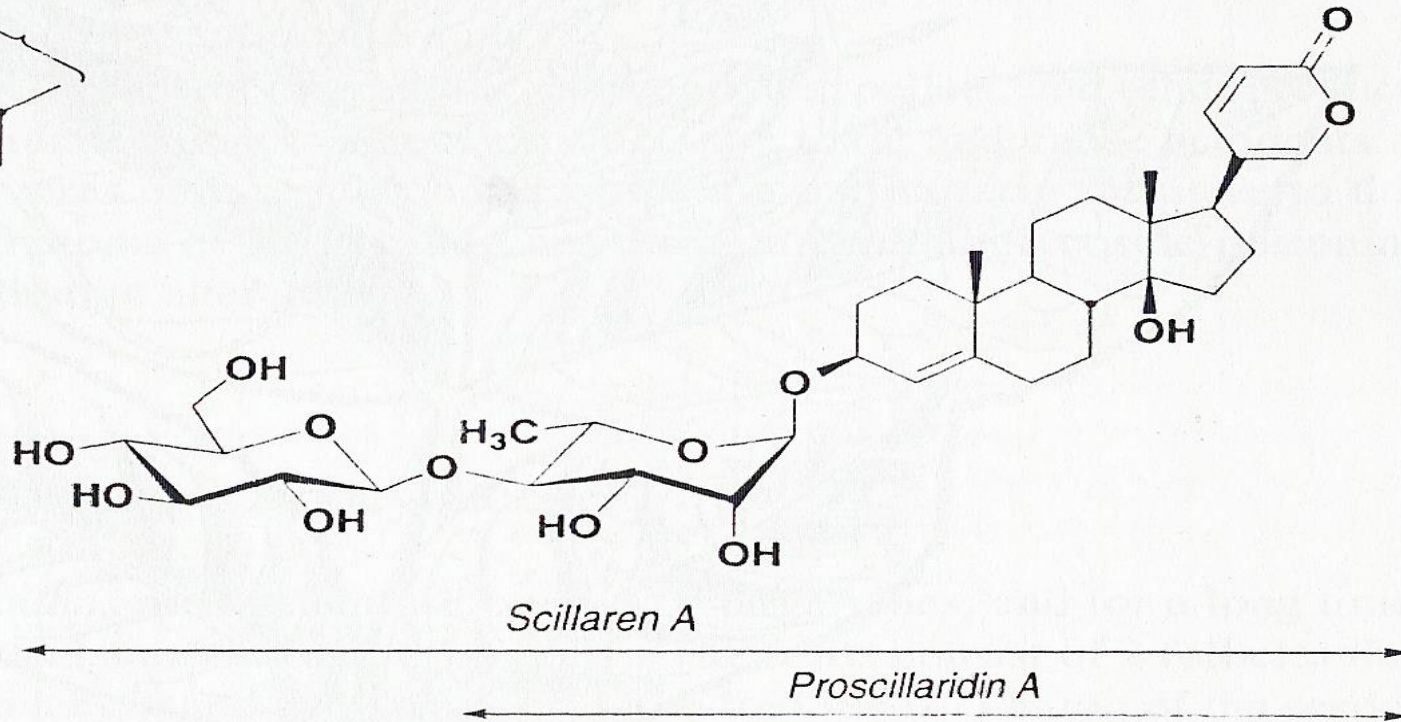
Constituents

- Crystalline glycoside, scillaren A.
- Mixture of glycosides Scillaren B, Scillaren A.
- On enzyme hydrolysis with scillarenase give Proscillaridin A and glucose.
- Under acid hydrolysis give scillaridin A (Scillarenin) and Scillabiose (Scillabiose consist of glucose and rhamnose).

Scillarins

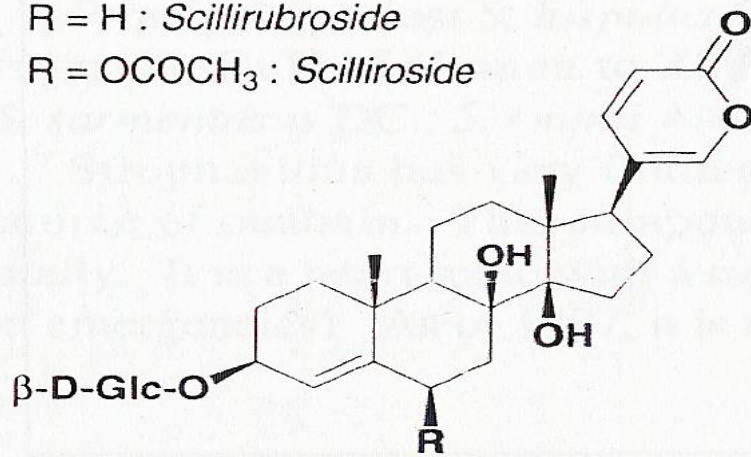


Scillaridin



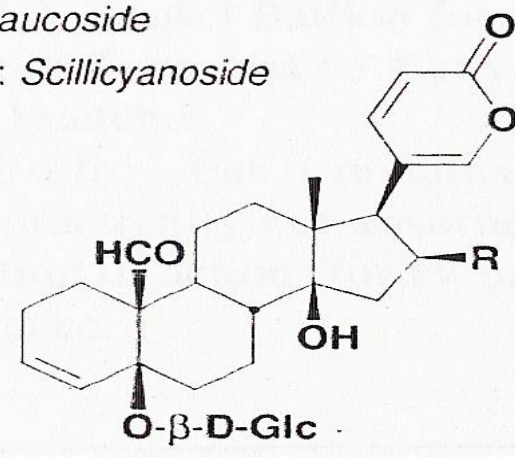
R = H : *Scillirubroside*

R = OCOCH₃ : *Scilliroside*



R = H : *Scilliglaucoside*

R = OCOCH₃ : *Scillicyanoside*



Constituents

- Glucoscillaren A (a triglycoside).
- Flavonoides (glycosides of quercetin and kaempferol).
- Sinistrin, a fructan resembling inulin (fructan units).
- Calcium oxalate
- Mucilage (glucogalactans).
- Anthocyanins.

جموعة الاعشاب العضوية الغير معدلة جينياً
كل علبة تحتوي اعشاب مدروسة لتناسب وتدعم صحتك
النوع الاول

relax mind اعشاب الاسترخاء

مستخلص من مجموعة اعشاب تعمل على رفع مستوى العقل واللاواعي والادراك، بالاضافة الى الميرمية و اللافندر واوراق
توت العليق و اوراق الستيفيا واعشاب اخرى.
النوع الثاني

skin detox تخليص البشرة من السموم

من الكركدية واوراق الورد المستخدمة لتهدة البشرة مع الشاي الاخضر لاشراقة صحية مع مكونات اخرى كحب الهيل
وقشر البرتقال و اوراق الستيفيا واعشاب اخرى.
النوع الثالث

stress relief تخفيف التوتر

مصنوع من اعشاب الاسترخاء اللافندر، البابونج مع الليمون لإراحة العقل والجسم خلال الايام المتعبة و للحصول على
الراحة قبل النوم.

و اوراق الستيفيا lemongrass و النعناع و ال rooibos يحتوي ايضا على ال
النوع الرابع

detox تنظيف الجسم

مجموعة اعشاب تنظيف الجسم نبات الأرقطيون و الهندباء مع شجر العرعر و خليط الزنجبيل و الفلل الاسود و الفلل طويل
الحبة مع نبات الفشاغ و السوس و القرفة و الهيل و كبش القرنفل.

