

Pharmacognosy Lab1.

2nd Stage,2nd course

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Pharmacognosy is the study of Medicines derived from natural sources(plants ,animal products ,include marine organisms , microbes) for their physical , chemical, biochemical& biological properties,as well as the search for new drugs from natural sources .The word" pharmacognosy "is derived from the Greek words pharmakon(drug), and gnosis(knowledge).

The World Health Organization (WHO)states that the practice of herbal medicine should be safe and efficacious .

It is estimated that 70-80% of people worldwide rely on traditional herbal medicine to meet their primary health care needs.

Plant preparations are said to be medicinal or herbal when they are used to promote health beyond basic nutrition.

The study of drugs from plants includes the subjects of botany, chemistry and pharmacology…

- Botany includes the identification (taxonomy), genetics and cultivation of plants.
- Chemistry includes the isolation, identification and quantification of constituents in plant materials.
- Pharmacology is the study of the biological effects that the chemicals in medicinal plants have on cell cultures, animals and humans.

Classification of vegetable drugs for study:

- Alphabetical: using either Latin or English names.
- Taxonomic: Families, Genera, and Species.
- Morphological: either organized drugs (leaves, flowers and seeds) or unorganized (extracts, gums, oils....etc.).
- Pharmacological or therapeutic use.
- Chemical e.g. alkaloids, glycosides, V.O....etc



The most important points you have to Recognize for plant drugs:

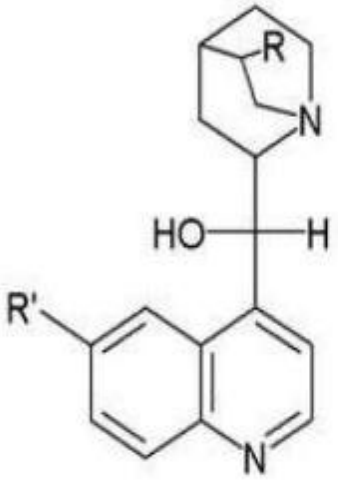
- The Botanical name.
- Family name.
- Local name.
- Part used.
- Active compounds.
- Basic structure.
- Dosage form.
- Therapeutic use .



Cinchona



- Botanical name: Cinchona succirubra
- Family name: Rubiaceae
- Local name: الكنينة
- Part used: bark
- Active compound: Alkaloid quinine
- Basic structure:
- Dosage form: Tablets
- Therapeutic use: Malaria



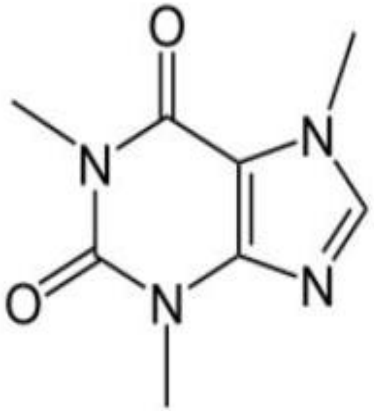




Coffee



- Botanical name: Coffea arabica
- Family name: Rubiacae
- Local name: القهوة
- Part used: Coffee seeds
- Active compound: caffeine
- Basic structure:



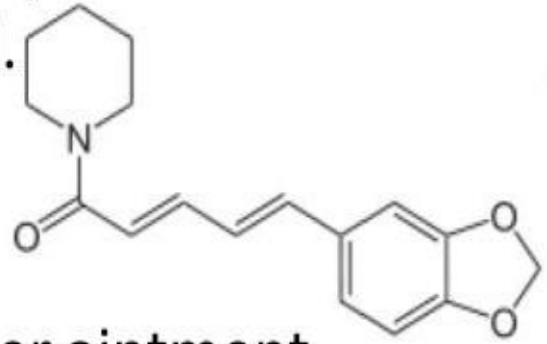
- Therapeutic use: Central stimulant

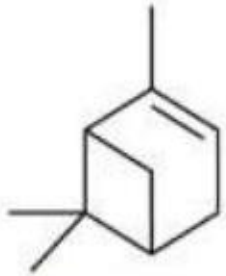


Black pepper



- Botanical name: Piper nigrum Linne
- Family name:Piperaceae
- Local name: الفلفل الاسود
- Active compound: Piperine alkaloid and terpenes volatile oil.
- Basic structure:





Pinene



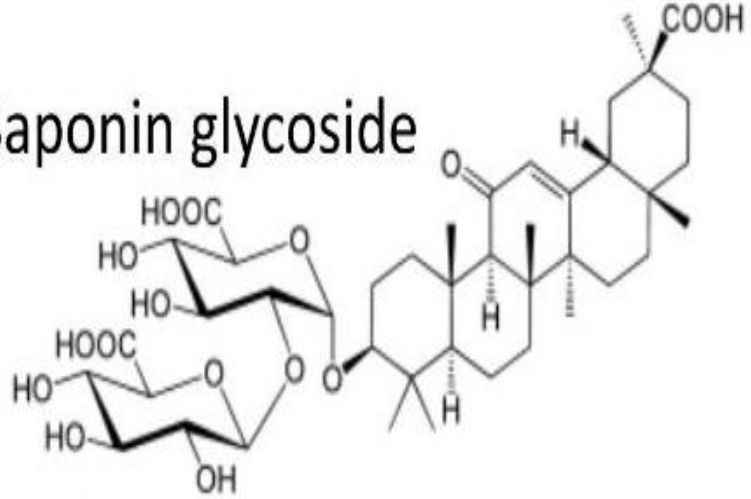
- Dosage form: powder,ointment.
- Therapeutic use:Stimulant,febrifuge.

Glycyrrhiza



Botanical name: Glycyrrhiza glabra

- Family name: Leguminosae
- Local name: السوس
- Part used: Root
- Active compound: Saponin glycoside (glycyrrhizin).
- Basic structure:



- Therapeutic use: Demulcent, expectorant, laxative.

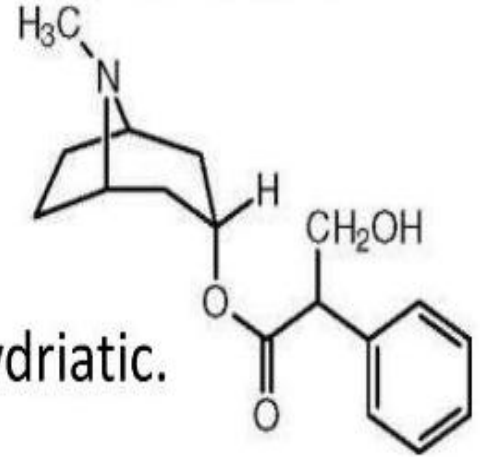




Belladonna



- Botanical name: Atropa belladonna
- Family name: Solanaceae
- Local name: ست الحسن
- Part used: Leaves
- Active compound: Hyoscymine, hyosine, atropine.
- Basic structure:



- Dosage form: tablet, drops, inj.
- Therapeutic use: antispasmodic, mydriatic.

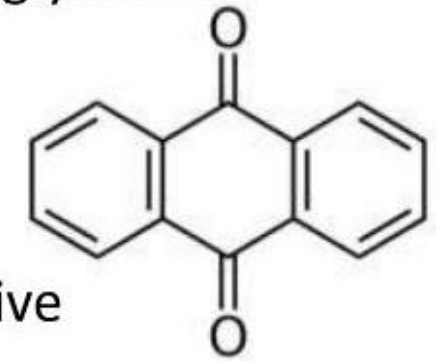




Senna



- Botanical name: Cassia acutifolia
- Family name: Leguminosae
- Local name: السنامكي
- Part used: leaves and pods.
- Active compound: Anthraquinone glycoside
- Basic structure:



- Therapeutic use: cathartic or laxative



Digitalis



- Botanical name: Digitalis lanata
- Family name: Scrophulariaceae
- Local name: زهرة الكشتبان
- Part used: Dried leaves
- Active compound: Cardiotonic glycoside
- Basic structure: Digoxine
- Therapeutic use:
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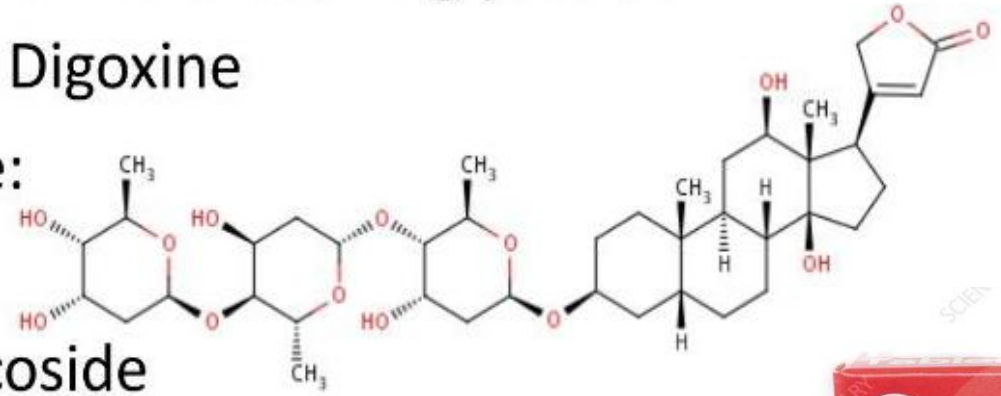
- Cardiotonic glycoside
- (increase the tone of heart muscle).





Microscopy is useful for the study of the internal structure, constitution, and inclusions of plant and animal cells or other objects in detail. It is necessary for the detection of adulterants and contaminants of the herbal preparations and thus provides means for assessing the authenticity and quality of herbal drugs. Size, shape, relative position of different cells and tissues as well as the chemical nature of the cell walls, and the form and nature of cell contents are considered during microscopic analysis of crude drugs.

Microscopic evaluation of botanical drugs may be of both qualitative and quantitative.



- Qualitative microscopy includes studies of the transverse sections of leaf, root bark, as well as longitudinal section of root bark under photomicrograph with or without staining. In case of powder microscopy, different staining reagents such as iodine for detection of starch grains and calcium oxalate crystals while phloroglucinol for detection of lignified components are used.

- Quantitative microscopy of some pharmacognostic parameters like vein-islet number, vein termination number, stomatal number, stomatal index, and palisade ratio are used for identification, purity determination, and evaluation of crude leafy drugs.



With the worldwide increase in popularity and acceptance of herbal medicines, the classical tool like microscopy is urgently needed for the assessment and quality control of plant products such as crude herbal drugs, registered herbal medicinal products, over-the-counter herbal products, or health foods. Modern pharmacopoeias offer new monographs on herbal drugs, including their microscopic characterization.



Choose one herbal plant usually your family use it & mention its Botanical,Family,Local name,part used,active compound & therapeutic uses (structure and dosage form are optional).

