OCTOBER UNIVERISTY
FOR MODERN SCIENCES AND ARTS
جامعة أكتوبر للعلوم الحديثة والآداب

Pharmacognosy

PHG 112
PG 102

Associate Professor Dr Soumaya Saad Zaghloul
Associate Professor Dr Mahitab Helmy
Ass. Prof.Dr. Eman Sherien Moustafa
Dr. Ibrahim Ezz

Spring 2024

Faculty of
Pharmacy

Lecture 11

Interactive teaching methods & activities

https://www.youtube.com/watch?v=mwkJ_gI8aos

https://www.youtube.com/watch?v=mfMVfvWgonE

https://www.youtube.com/watch?v=xDpsyQOkTTg

Quizizz

By the end of the lecture, students should be able to demonstrate knowledge of:

- **- Origin , Uses & tests of unorganized drugs**
- **Origin & uses of animal drugs**

UNORGANIZED DRUGS

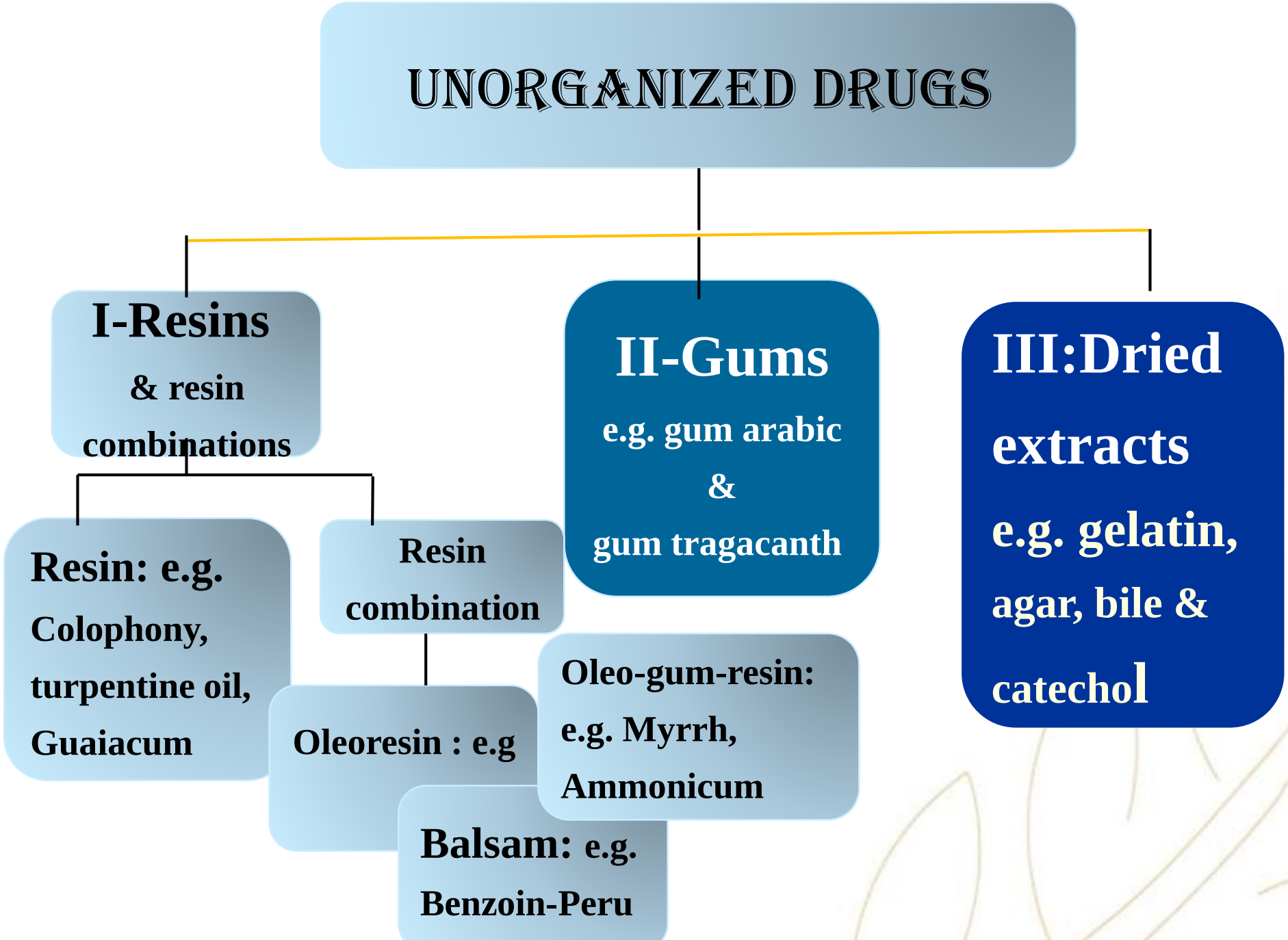
↘

UNORGANIZED DRUGS

1-crude drugs of animals or plant origin , have no cellular or definite structure

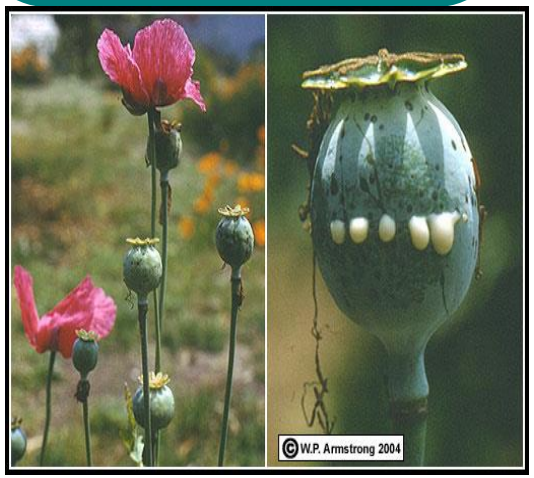
2-Mixture of chemical substances or decomposition products substances originally present in the biological source of the drug

3-Produced either normally or pathologically due to injuries or incision


UNORGANIZED DRUGS
I-Resins
& resin combinations
II-Gums
e.g. gum arabic
&
gum tragacanth
III:Dried extracts
e.g. gelatin, agar, bile & catechol
Resin: e.g.
Colophony, turpentine oil, Guaiacum
Resin combination
Oleoresin : e.g
Oleo-gum-resin:
e.g. Myrrh, Ammonicum
Balsam: e.g.
Benzoin-Peru

UNORGANIZED DRUGS (CONT.)

IV -Dried latices e.g. Opium



V -Juices e.g. Aloe

I: Resins and resin combinations

1-Resins are hard, solid or semisolid amorphous organic substances of complex nature.

2-Insoluble in water but dissolves in alcohol , chloroform and ether and then on evaporation deposit the resins.

Myrrh

It is an oleo-gum-resin obtained from the stems and branches of *Commiphora myrrha , C. molmol* and other species of Commiphora,

F. Burseraceae

Active Constituents

1- 1.5-17% volatile oil composed of limonene, pinene, cinnamaldhyde & cadinene.

2- Resin consists mainly of α- and β- commiphoric acid and commiphorinic acid

3- 60% gum

Test for identity

1- Emulsion test: Mix powder myrrh+ water

Yellow brown emulsion is formed

2-Triturate about 0.5g of Myrrh with 1g of sand and shake with 10ml of ether. Filter, and evaporate in a porcelain dish. Add few drops of nitric acid to the residue where a purplish violet colour is produced.

Uses

1- Mouth wash

2- Uterine stimulant and emmenagogue

Frankincense

Source

Frankincense, also known as **olibanum** is an aromatic resin obtained from trees of *Boswellia sacra* ; family Burseraceae

Chemical constituents:

- Acid resin (6%), soluble in alcohol
- Gum (similar to gum arabic)
- alpha-boswellic acid , olibanic acid
- Volatile oils: monoterpenes, sesquiterpenes, and ketones.

Uses:

1-Boost immunity

2-Improve the condition of your skin: promotes collagen growth by reducing free radicals, their antioxidant properties increase collagen cell growth and formation.
Reduce the appearance of wrinkles
It is ideal for treating acne.

3-Lift your mood

4-Supports better digestion, treats inflammatory bowel diseases, ulcerative colitis

5-Reduces arthritic symptom : rheumatoid arthritis , osteoarthritis

6-Ease respiratory issues like asthma

7- Maintain oral health

8-Anticancer properties: boswellic acids have an antiproliferative effect on tumours

9-Enhance cognitive performance

Dried Latex

Latex is an emulsion or suspension where the continuous phase is an aqueous solution of mineral salts, protein, tannins, gum, and starch.

Latex is often white in colour *e.g.* Opium, buff, yellow or red.

Opium

It is the latex obtained by incision from the unripe capsules of *Papaver somniferum* Fam. Papaveraceae and dried partly by spontaneous evaporation and partly by artificial heat.

Active Constituents

1- Alkaloids. It contains about 25 different alkaloids, which occur in combination with meconic acid.

The most important alkaloids are morphine, codeine, narcotine, thebaine and papaverine.

2- Mucilage, wax and sugar.

Test for identity (test for meconic acid)

Warm 20-30mg of powdered opium in 2-3ml of water for few minutes and then filtering. Add few drops of 5% ferric chloride where a purplish red colour is produced and not destroyed by addition of hydrochloric acid or 5% mercuric chloride

Uses

1- **Hypnotic, analgesic and sedative**
2- **Astringent**
3- **Cough sedative**

Dried juice

Aloe

It is the solid residue obtained by evaporating the liquid, which drains from the cut leaves of *Aloe vera* F. Liliaceae.

Active Constituents

1- Anthraquinones e.g. Aloin, barbaloin, isobarbaloin, emodin and chrysophanoic acid.

2 Saccharides e.g. cellulose, glucose, mannose and L-rhamnose.

3- Enzymes e.g. oxidase, amylase and lipase

4- Vitamins e.g. B_1, B_2, B_6, C, E, folic acid and β-carotene

5- Minerals e.g. calcium, sodium, manganese, magnesium, zinc and cupper.

Uses

1- **Topical: Wound healing, sunburn, hair tonic and minor skin irritation**

2- **Oral: Constipation and peptic ulcers**

Test for identity

1- Modified Borntrager's test

Mix 0.1g of powder with 5ml of 5%$FeCl_3$ and 5ml dil. HCl. Heat for 5minutes in boiling water bath and cool. Skake with benzene and separate the benzene layer and add NH_4OH , pink to red colour is formed in the ammonical layer..

Dried Extracts

This group includes drugs prepared by evaporating aqueous decoction of whole or parts of certain plants or animals.

Gelatin

It is the protein obtained by boiling the collagenous tissues of animals such as skin, tendons, ligaments and bones with water, evaporating the aqueous extract and drying the residue in air.

Active Constituents:

It is formed mainly of protein and gluten

Uses:

1- **Nutrient and bases for glycerin suppositories**

2- **Preparation of nutrient medium for bacterial growth**

Tests for identity ↘

1- **On heating with soda lime , ammonia odour is evolved**

2- **2% hot aqueous solution gelatinize on cooling**

3- **The aqueous solution gives a precipitate with solution of tannic acid and lead subacetate.**

ANIMAL DRUGS

A- Animal drugs from glands and glandular secretion

Thyroid gland

Part used:

The thyroid gland of the ox , the sheep or the pig

Constituents:

The active constituent is thyroxine (tetraiodothyronine) which contains about 65.1% of iodine The glands also contain tri-iodothyronine which has about 5 times the activity of thyroxine, and di-iodo thyronine which is physjologically inactive

Uses:

Thyroid gland is used in hypothyrodism , myxoedema , goitre , and obesity

Small doses of thyroid are prescribed as a general tonic

Pepsin

Source

Pepsin is prepared from the mucous membrane of the stomach of domesticated animals such as pig, sheep or calf.

Description:

Pepsin occurs as pale yellowish powder or in translucent scales or grains ; odour, faint free from putrescence ; taste slightly saline and bitterish.

It is soluble in water , in physiological solution of sodium chloride and in dil. Acids. It contains the enzyme pepsin, but does not consist of it. It is most active at pH 2 and a temperature of 40C

The acidified aqueous solution converts insoluble proteins into soluble proteoses and peptones. Its action is inhibited by NaCl and alcohol. it is completely destroyed at 70 C.

Uses:

It is used in dyspepsia caused by deficient gastric secretion

Pancreas

Source:

Pancreas used in medicine is obtained from the pig

Commercial pancreatin is a mixture of pancreatic enzymes v.z trypsin (which converts proteins) ;amylase (which digests carbohydrates) and lipase (which digests fats) It is obtained by extracting the minced pancreas with water or dil. HCI and precipitating with alcohol, collecting and pressing the precipitate and drying at 40 C.

Pancreatin is a pale cream-coloured powder with a slight meaty odour, It is soluble in water

Crude insulin may be prepared by extracting the fresh pancreas with alcohol and sodium bicarbonate, pressing and filtering and fractionally precipitating with alcohol. **Insulin has the property of reducing the amount of sugar in the blood and is employed as a remedy for diabetes.** Fresh pancreas yields about 0.2% of crude insulin.

B- Drugs from entire animals

Cochineal

Coccus ; Coccus Cacti

Part used

The dried full-grown fecundated female insects belonging to the species

Dactylopius coccus, family Coccidae

The insects are indigenous to central America and Mexico; now the drug is chiefly obtained from Canary islands

Constituents:

Cochineal contains about 10% of a red colouring matter, carminic acid in addition to 10% of fat, 2% of wax together with albuminoids and inorganic matter

Uses:

Cochineal is used as a colouring matter for tooth-pastes , tinctures...

MSA UNIVERSITY
IN EGYPT SINCE 1996
Established by Dr.Nawal El Degwi
MSA UNIVERSITY
جامعة أكتوبر للعلوم الحديثة والآداب

Thank You!

THE FIRST BRITISH HIGHER EDUCATION IN EGYPT

26th July Mehwar Road Intersection with Wahat Road, 6th of October City, Egypt

Tel: +202383711146 **Fax:** +20238371543 **Postal code:** 12451

Email: info@msa.eun.eg **Hotline:** 16672 **Website:** www.msa.edu.eg