pharmacognosy

3rd stage/1stterm

Resins &Tannins

Dr. Zahraa Shubber

Lec .8

Resins and Resin Combinations

- Resins are amorphous products with a complex chemical nature.
- physically, resins are usually **hard, transparent and when heated they become soft and finally melt**,
- they are **insoluble in water** but **dissolve in alcohol** or other organic solvents its believed that resins are oxidation products of terpenes.

Resins occur as:

1. Oleoresins: they are more or less homogeneous mixtures of resins with volatile oils.

2. Oleo-gum-resin: are mixtures of oleoresins with gums.

3. Balsams: are resinous mixtures that contain cinnamic acid.

Chemically Resins constituents can be classified as follows:

1. **Resin acids:** contain large proportion of **diterpenoid oxyacids**.

2. **Resin alcohol:** e.g. Resinols and resinotannols (**alcohols** of high molecular weight).

3. **Resenes:** are **complex neutral substances** have a characteristic chemical properties.

Drugs

Podophyllum: Consists of dried rhizome and roots of **Podophyllum peltatum**, family: Berberidaceae.

- Podophyllum contains 3.5-6% of a resin.
- It has **antimitotic, purgative and caustic** properties.

Mastic: is the resinous exudates from **Pistacia lentiscus**. Family: Anacardiaceae.

- The resinous juice collects in cavities in the inner bark.
- Long incisions are made in the trunk and in larger branches, through which the resin exudes.
- Mastic has long been chewed as a breeth sweetener. Mastic contains about 90% of resin.

1. Oleoresins

- Are homogenous mixture of resins and volatile oils.
- Depending on the relative amount of the volatile oil in the mixture, oleoresin may be **liquid, semisolid or solid.**
- Usually there is a small amount of **natural exudates** from oleoresin containing trees owing to insect damage, broken branches, and other injuries, but the commercial supplies are generally obtained by artificial incision through the bark and even into the wood.

Example: turpentine and ginger

A. Turpentine, gum turpentine:

- Gum thus is the oleoresin obtained from **Pinus palustris, f**amily : Pinaceae.
- Turpentine occurs as yellowish, opaque mass that are sticky when warm, and brittle in the cold.
- The drug constituents are volatile oils and resin.
- It is employed externally as a **counterirritant.**


ORIGINAL
American Made
TURPENTINE
100% PURE
100% PURE GUM SPIRITS
HANDCRAFTED
Reclaimed
Naturals
HAND BOTTLED
NET 2 OZ 60 ML

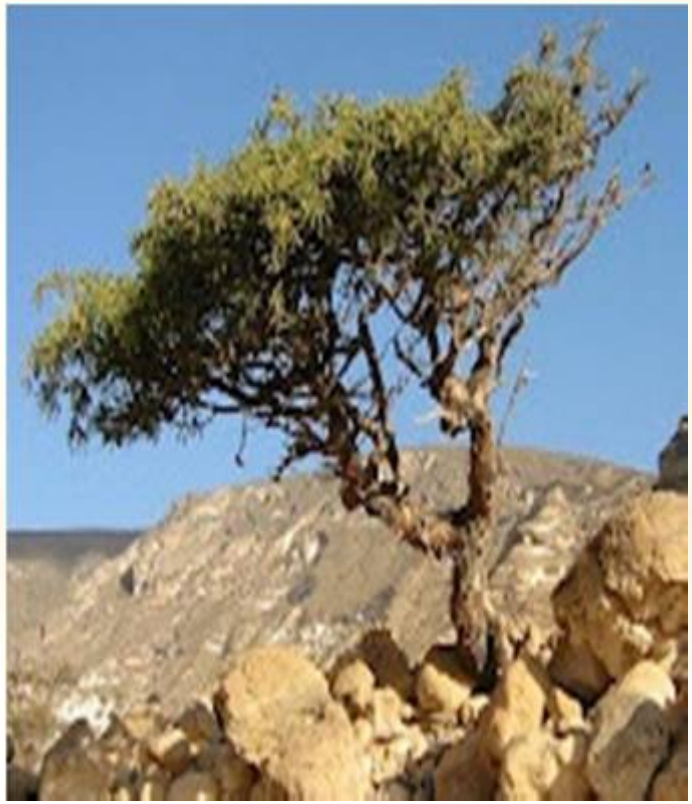
turpentine

B. Ginger

- Ginger or zingiber: is the dried rhizome of **Zingiber officinale**, family: Zingiberaceae.
- The characteristic pungency of the drug is attributed to ginger oleoresin.
- In addition ginger contains more than 50% of starch.
- Ginger is classed as a flavor, it's used as condiment, and a carminative.

2. Oleo-gum-resins

Are mixture of resin, gum and volatile oil and frequently small quantities of other substances.
Example is Myrrh



Myrrh or gum myrrh:

- is an oleo-gum-resin obtained from **Ommiphora molmol**, family: Burseraceae.
- The name myrrh is from the Arabic murr meaning bitter.
- The oleo gum resin exudes naturally or from incisions made in the bark.
- Myrrh has a **protective effect and it is used in mouthwash.**

3. Balsams

are resinous mixtures that contain large proportions of **benzoic acid, cinnamic acid** or both, or esters of these acids.

A. Peruvian Balsam:

- (peru balsam or balsam of peru) Is obtained from **Myroxylon pereirae**, family: Fabaceae.

- Peru balsam is a **local protectant** and **rubefacient**, it is also a **parasiticides** in certain skin diseases.
- It is an **antiseptic** and is applied externally either alone in alcoholic solution, or in the form of an ointment.
- The drug is employed for its **astringent** properties in various preparations used to treat **hemorrhoids.**


Bangota®
Pure & Natural
Peru Balsam
Essential Oil

B. Tolu Balsam:

- is obtained from **Myroxylon balsamum**, family: Fabaceae.
- Tolu balsam is a **pharmaceutic aids** for compound benzoin tincture.
- It is sometimes used as an **expectorant** and is extensively used as a **pleasant flavoring** on medicinal syrups, chewing gum and perfumery.

Tannins

- Are large group of complex substances that are widely distributed in plants.
- They found in specific plant parts such as leaves, fruits, barks or stems.
- Chemically, tannins occur as **mixtures of polyphenols** that are difficult to separate because they do not crystallize.

Tannins are classified into two groups depending on the phenolic nuclei involved and on the way they are joined:

1. Hydrolysable tannins: they consist of ester linkage that are readily hydrolyzed to yield **phenolic acids and sugar.**

2. Nonhydrolyzable or condensed tannins: they contain only phenolic nuclei linked to **carbohydrates or protein.**

❖these tannins tend to polymerize, yielding insoluble, usually red colored products known as **phlobaphenes.**

Plants containing tannins

A. Hamamelis leaf

Hamamelis leaf or witch hazel leaves are the dried leaf of **Hamamelis Virginia**. Family: Hamamelidaceae.

Constituents: this plant contains hydrolysable tannins gallitannin and ellagitannin. In addition to little volatile oil and gallic acid.

Uses: hamamelis leaves have **astringent** properties, so it's found in hemorrhoidal products, also it is found in **teeth preparations** and preparations for treating **insect bites**.

B. Nutgall

- Is the excrescence obtained from the young twigs of **Quercus infectoria**. Family: fagaceae.
- The excrescence (gall) is caused by the puncture of insect.

Constituents: nut gall contains **tannic acid** about 50-70%; **gallic acid; ellagic acid; starch and gum**.

Uses: nut gall is the chief source of tannic acid, is used in the tanning and **dying industry** and in the **manufacture of ink**.

Medicinally it has **astringent properties.**

Tannic acid

- Also called gallotannic acid or tannins, is obtained from **nut gall**.
- It's not a single homogenous compound but is a mixture of esters of gallic acid with glucose.
- It's used in the treatment of **burns** but now its use is restricted to the treatment of **bed sores,** and **minor ulceration**.

Thank you