



MSA UNIVERSITY
معة أكتوبر للعلوم الحديثة والآداب

Pharmacognosy

PHG 112

Spring 2026

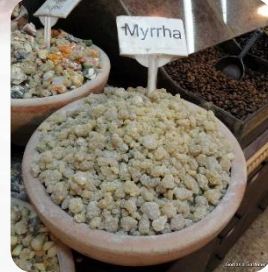
Pharmacognosy

PHG 112



potato tubers

βοτάνοι κημικά

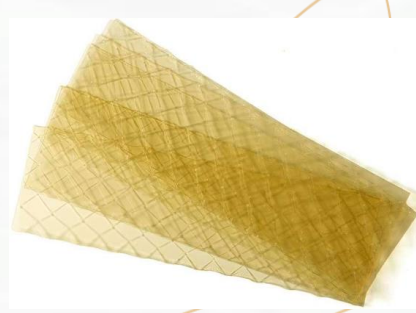


ginger rhizome

βιολογία κημικών

Spring 2026

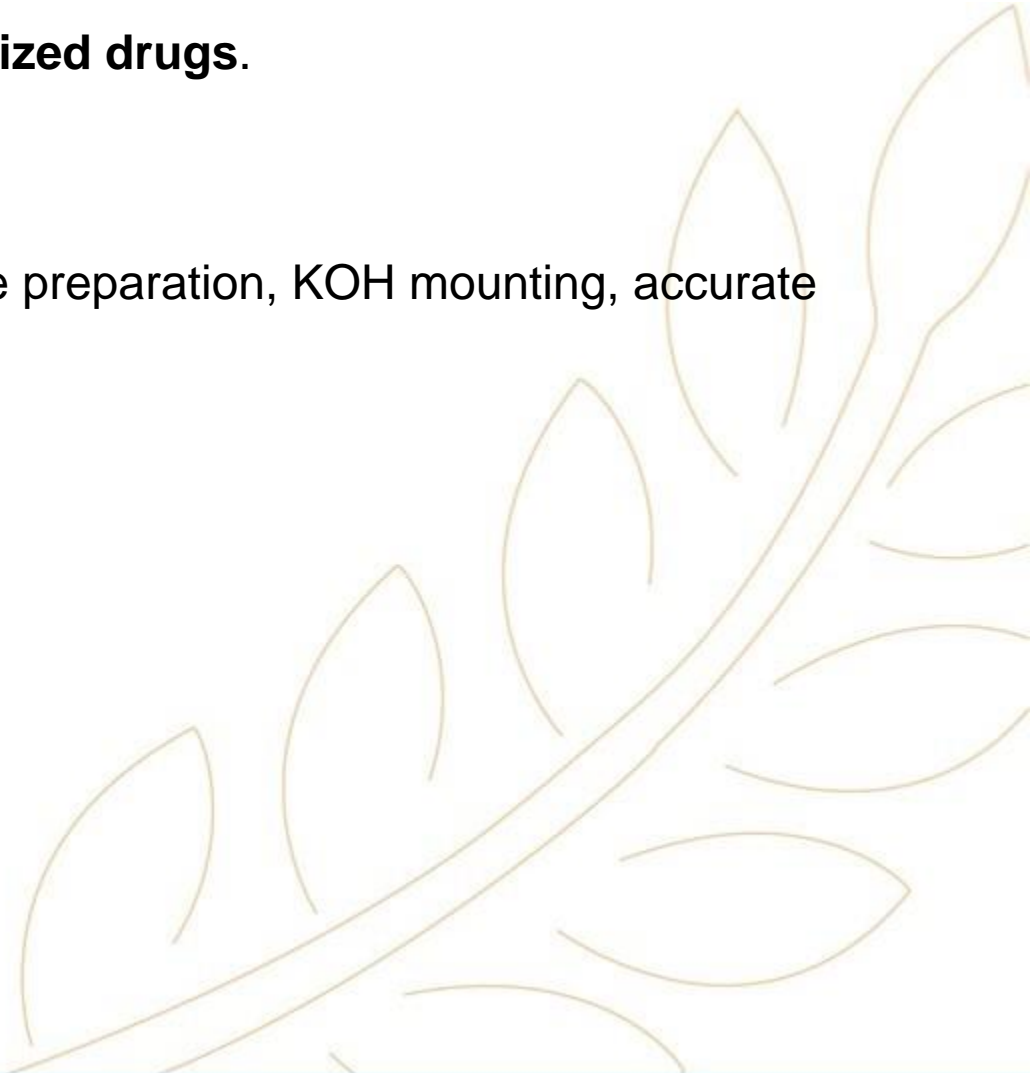
Lab 11



Intended Learning Outcomes (ILOs)

By the end of this laboratory session, students will be able to:

1. Describe the macroscopic morphology of different unorganized drugs.
2. Identify the microscopic diagnostic features of *Ginger*.
3. Apply proper laboratory skills and safety rules, including slide preparation, KOH mounting, accurate drawings, waste disposal, and lab conduct.
4. Apply proper laboratory skills and safety rules, including slide preparation, KOH mounting, accurate drawings, waste disposal, and lab conduct.



Unorganised drugs



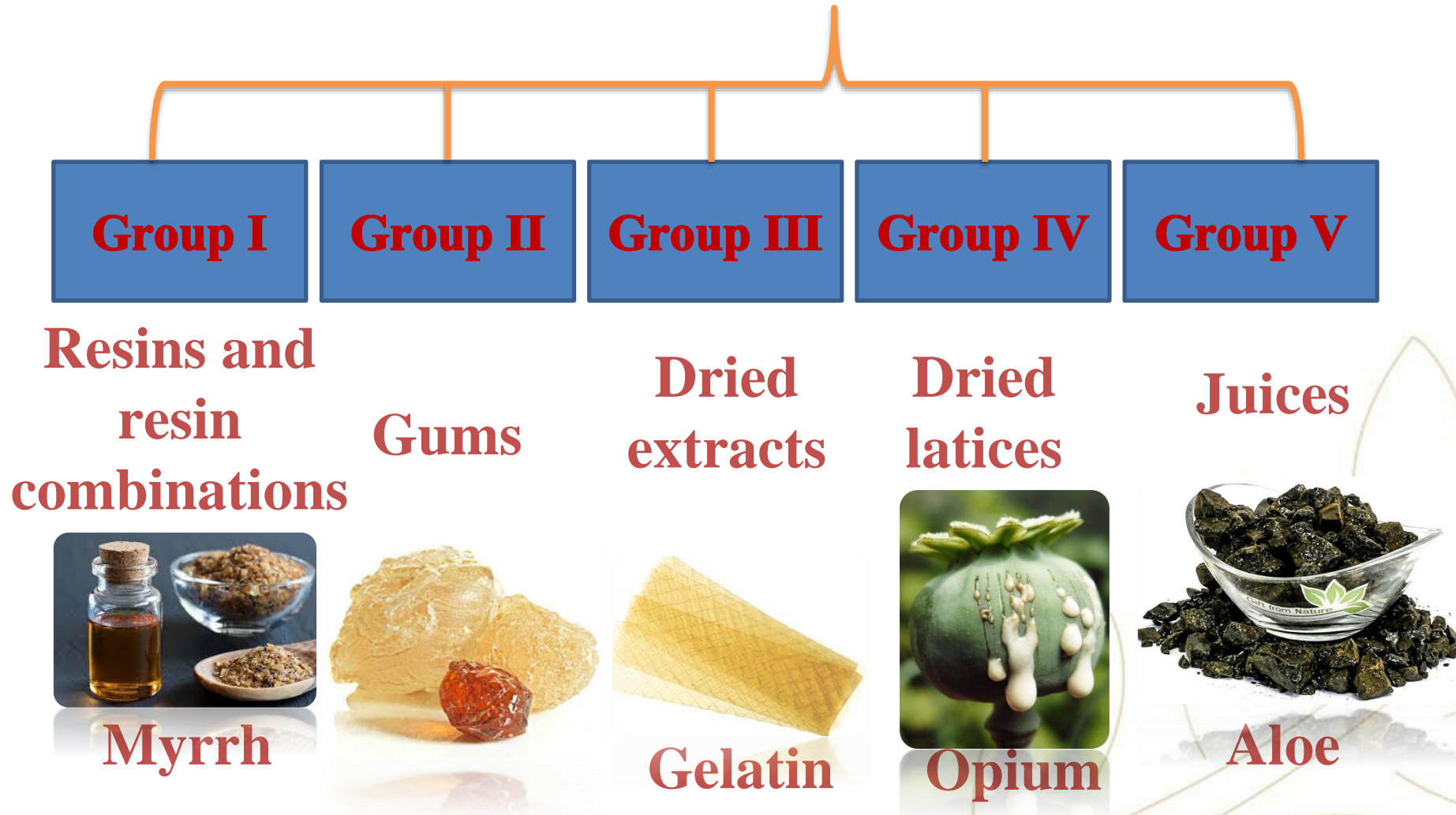
Definition

Crude drugs of **animals or plant origin** have no cellular or definite structure.



They are produced either normally or pathologically due to injuries or incision.

Classification



Resins and resin combinations

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

They are insoluble in water but dissolve 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*, Fam. **Burseraceae**.



Chemical tests

1- Emulsion test:

Mix powder myrrh+ water → **Yellow brown** emulsion is formed.

2- Test for identity

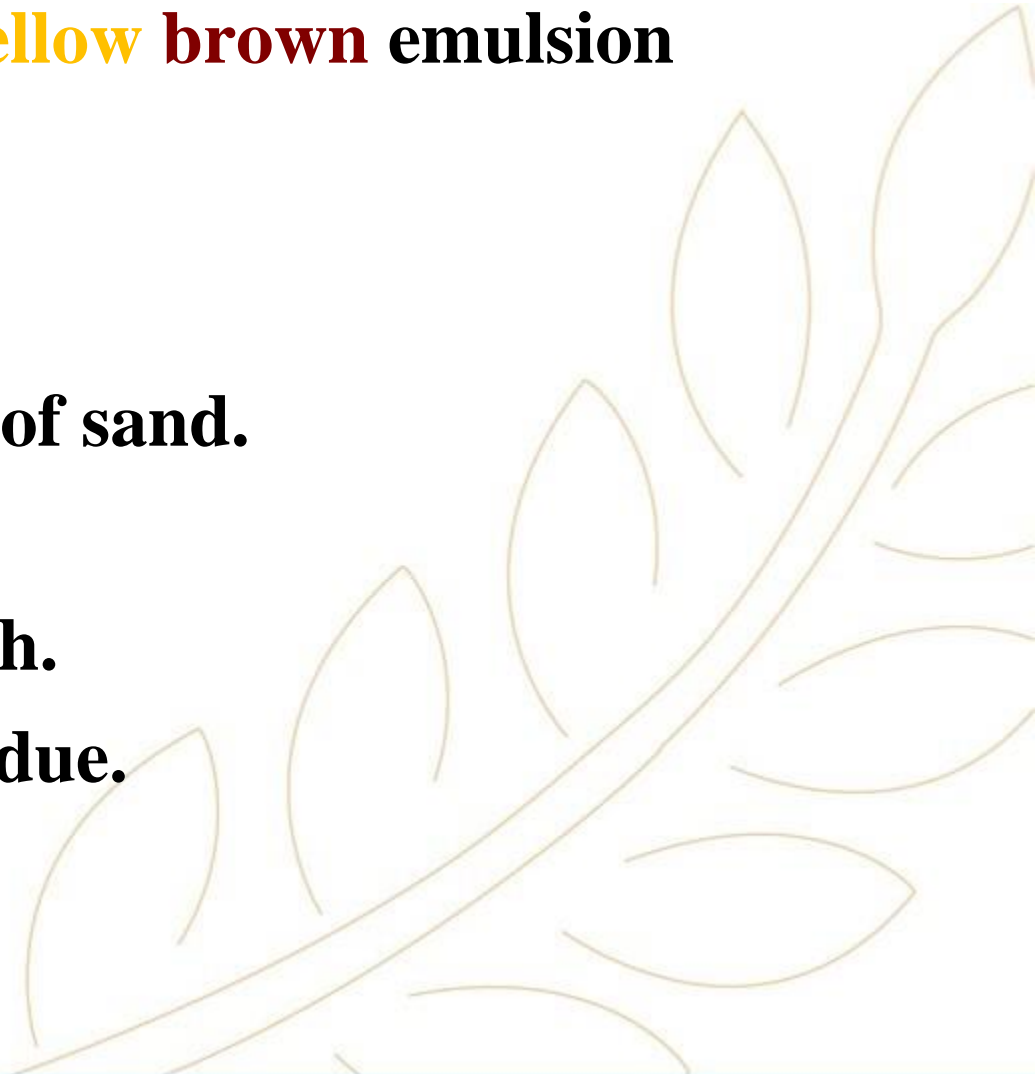
Triturate about 0.5g of Myrrh with 1g of sand.

Then shake with 10ml of ether.

Filter and evaporate in a porcelain dish.

Add few drops of nitric acid to the residue.

A **purplish violet** color is produced.



Dried Latex

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

Latex is often white in colour e.g. Opium.



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.



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.**

The color will not be destroyed by addition of hydrochloric acid or 5% mercuric chloride.

Dried juice

Aloe

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



Test for identity:

1- Borax test:

Boil 0.5g of powdered aloe with 50ml of water for 2-3 mins. Filter then add 0.2 g of borax to 5ml of filtrate and heat.

Pour 2-3 drops of the heated filtrate into water where a **green fluorescence is produced.**

2- Modified Borntrager's test

Mix 0.1g of powder with 5ml of 5%FeCl₃ and 5ml dil. HCl. Heat for 5 mins in boiling water bath and cool. Shake with benzene and separate the benzene layer and add NH₄OH → **pink to **red** colour is formed in the ammonical layer.**

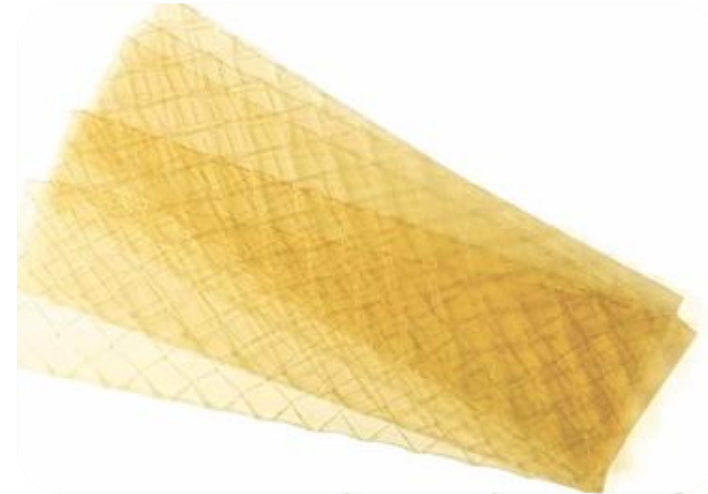
Dried Extracts

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



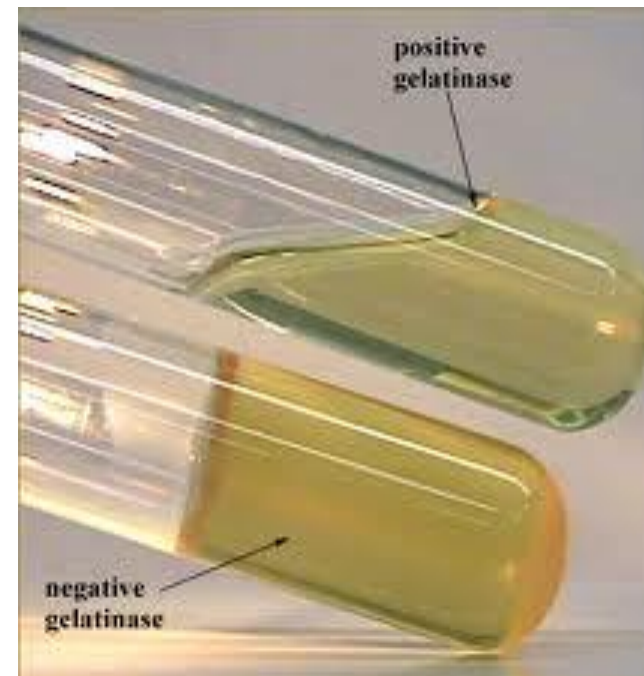
Gelatin

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.

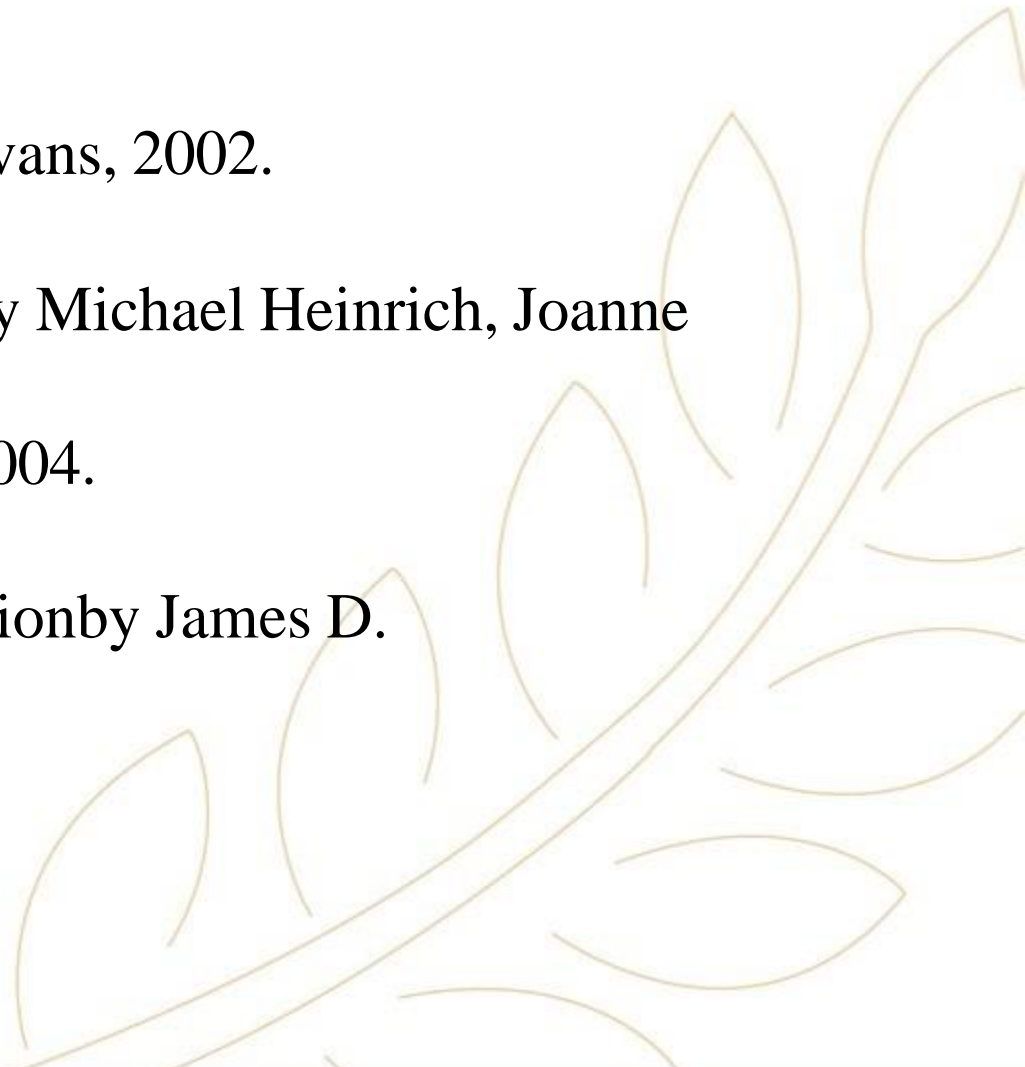


Tests for identity:

- 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.



References:

1. Trease & Evans' Pharmacognosy by William Charles Evans, 2002.
 2. Fundamentals of Pharmacognosy and Phytotherapy by Michael Heinrich, Joanne Barnes, Simon Gibbons, and Elizabeth M. Williamson, 2004.
 3. Botany :An introduction to Plant Biology, Third edition by James D. Mauseth, 2008.
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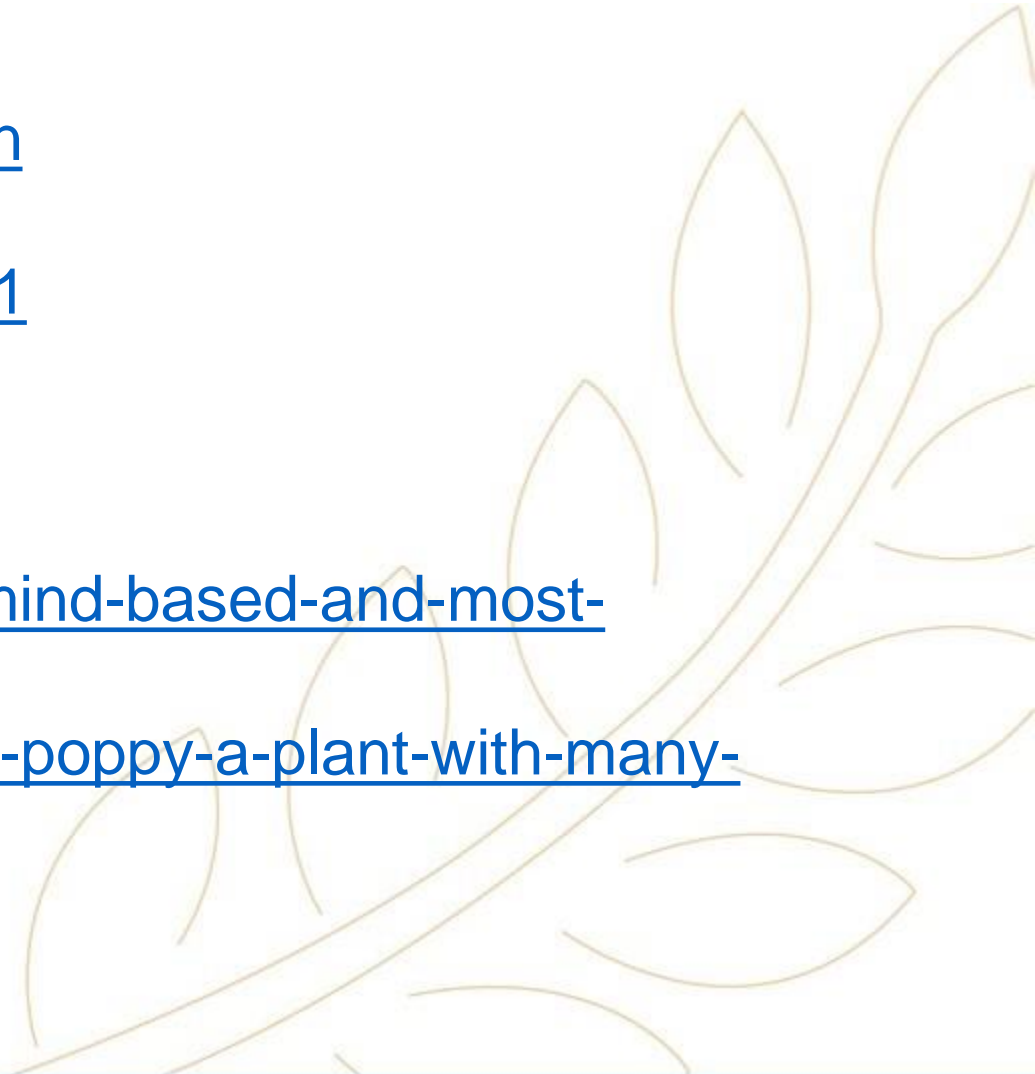
Useful links:

<https://www.webmd.com/diet/health-benefits-gelatin>

<https://www.medicalnewstoday.com/articles/318591>

<https://www.healthline.com/nutrition/myrrh-oil>

<https://www.jneuropsychiatry.org/peer-review/the-mind-based-and-most-controversial-plant-papaver-somniferum-the-opium-poppy-a-plant-with-many-faces-and-roles-in-human-history-18080.html>



THANK YOU!