

# Ethnobotany. Lecture 29

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# Outline

## Pharmacognosy

Plant remedies for gastrointestinal and biliary systems



# Pharmacognosy

## Plant remedies for gastrointestinal and biliary systems



# Diarrhoea

- ▶ Very common, especially in children
- ▶ Oral rehydration works well in most cases



# Plants for rehydration

- ▶  $\text{Na}^+$
- ▶ Starch from potatoes, corn or rice, or glucose



# Constipation and laxatives

- ▶ By medical definition, defecation less frequent than once in 2–3 days
- ▶ Not a serious problem but increase risks of other diseases



# Bulking laxative from plantains, *Plantago* spp.

- ▶ *Plantaginis ovatae semen*, *Psyllii semen*
- ▶ Have high swelling factor ( $> 40$ ) due to the presence of specific polysaccharides



# Isphagula, *Plantago ovata*





# Psyllium, *Plantago squalida*



# Linseed, *Linum usitatissimum*

- ▶ *Lini semen*
- ▶ Should be used as whole seed

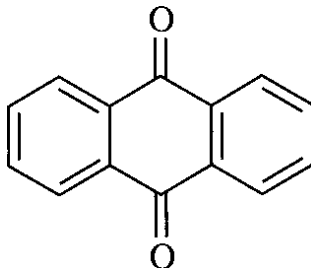


# Stimulant laxatives

- ▶ Normally, stimulant laxatives are anthraquinones
- ▶ Increase a peristaltic activity of a colon



# Antraquinone



# Senna, *Cassia* spp.

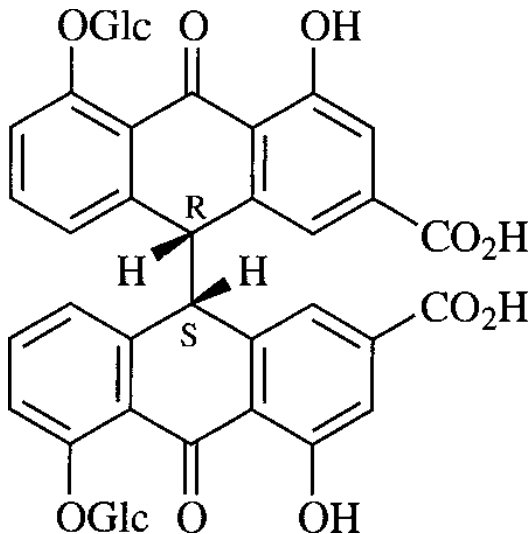
- ▶ *Sennae fructus/folium*
- ▶ Contain sennosides



# Senna, *Cassia senna*



# Sennoside B



# Cascara, *Rhamnus* spp.

- ▶ *Rhamni/Frangulae cortex*
- ▶ *Rhamnus purshiana* is native to Pacific coast
- ▶ Contain emodin, cascarosides and other anthraquinone glycosides

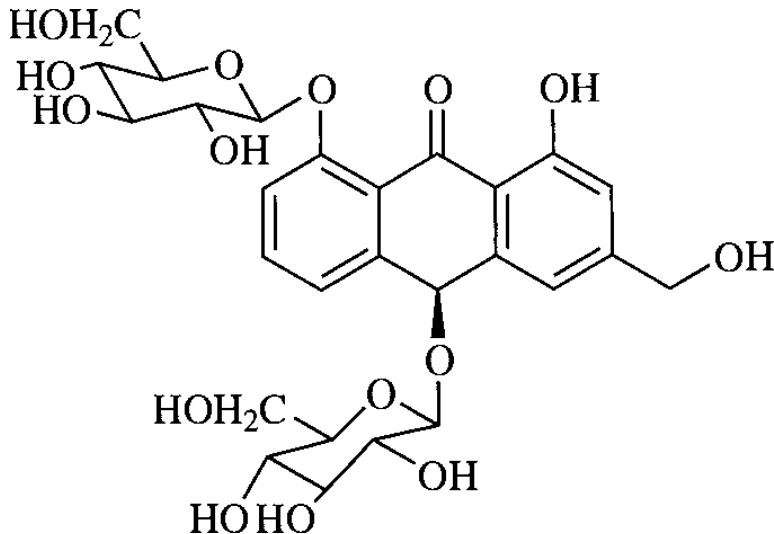




# Cascara, *Rhamnus purshiana*



# Cascaroside



# Inflammatory problems

- ▶ May be a signal about infectious gastritis
- ▶ Mixtures of emollient and antacid are mostly used



# Chamomile, *Matricaria recutita*

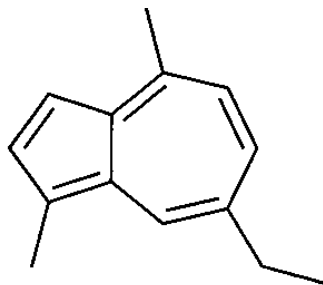
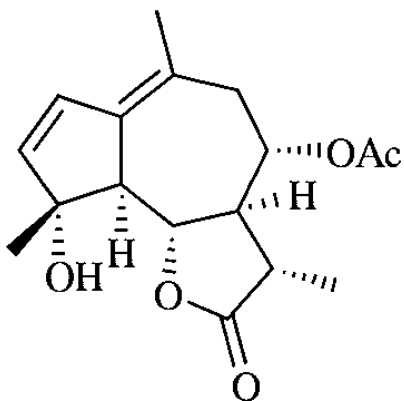
- ▶ *Matricariae flos*
- ▶ European herb (“German chamomile”)
- ▶ Multiple-effect drug, essential oils and other constituents are anti-inflammatory and anti-bacterial



# Chamomile, *Matricaria recutita*



# Matricin and chamazulene

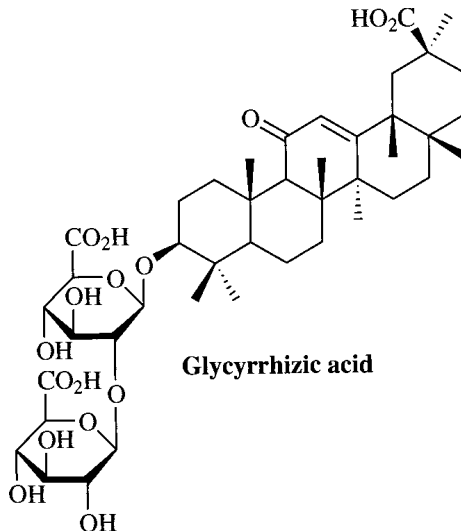


# Liquorice, *Glycyrrhiza glabra*

- ▶ *Liquiritiae radix*
- ▶ Main component is glycyrrhizic acid, traditional but controversial remedy



# Glycyrrhizic acid





# Dyspepsia and liver disorders

- ▶ Often are a sideways symptoms of more serious diseases
- ▶ Closely associated with eating habits
- ▶ Cholagogues and bitter stimulants are popular remedies



# Artichoke, *Cynara scolymus*

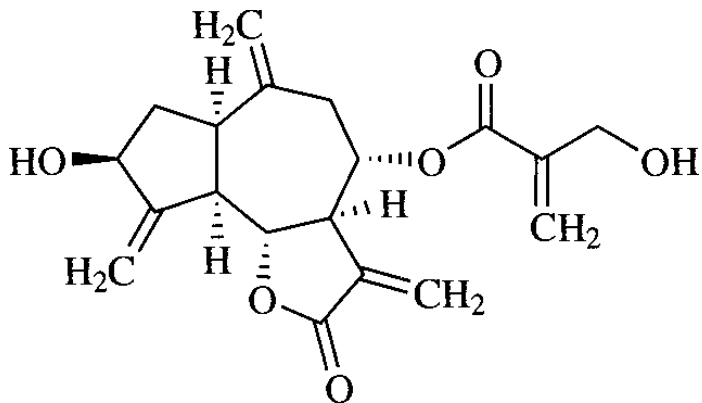
- ▶ *Cynarae folium*
- ▶ Main component is a bitter sesquiterpene cynaropicrin



# Artichoke, *Cynara scolymus*



# Cynaropicrin



# Gentian, *Gentiana lutea*

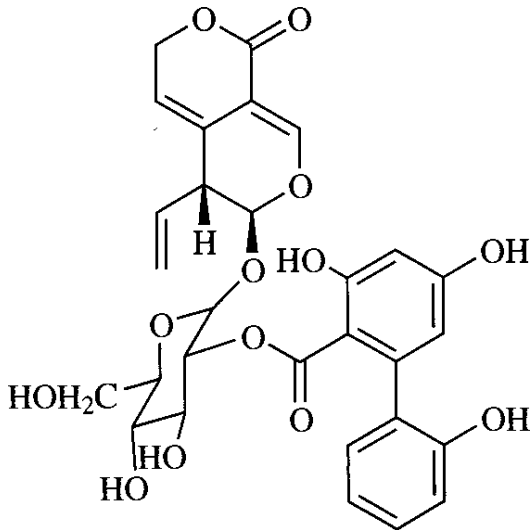
- ▶ *Gentianae radix*
- ▶ Gentiopicroside and amarogentin (bitter value of 58,000,000) are iridoids
- ▶ Bitters stimulate secretion of gastric juices



# Yellow gentian, *Gentiana lutea*



# Amarogentin



# Wormwood, *Artemisia absinthium*

- ▶ *Herba absinthii*
- ▶ Traditionally used as liqueur
- ▶ Bitter value of sesquiterpene absinthin is  $\approx 15,000$





# Wormwood, *Artemisia absinthium*



# Summary

- ▶ Most of plant remedies for gastrointestinal system are symptomatic
- ▶ Most of them are terpenes or glycosides



# For Further Reading



A. Shipunov.

*Ethnobotany* [Electronic resource].

2011—onwards.

Mode of access:

[http://ashipunov.info/shipunov/school/biol\\_310](http://ashipunov.info/shipunov/school/biol_310)



Heinrich et al. 2012.

*Fundamentals of Pharmacognosy and Phytotherapy.*

Churchill Livingstone, Edinburgh.

