

Ethnobotany. Lecture 28

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Outline

- 1 Plant remedies for gastrointestinal and biliary systems

Diarrhoea

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

Plants for rehydration

- Na^+
- Starch from potatoes, corn or rice, or glucose

Constipation and laxatives

- By medical definition, no rare than once in 2–3 days
- Not a serious problem but increase risks of other diseases

Bulking laxative from plantains, *Plantago* and *Psyllium* spp.

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

Isphagula, *Plantago ovata*



Psyllium, *Psyllium sempervirens*



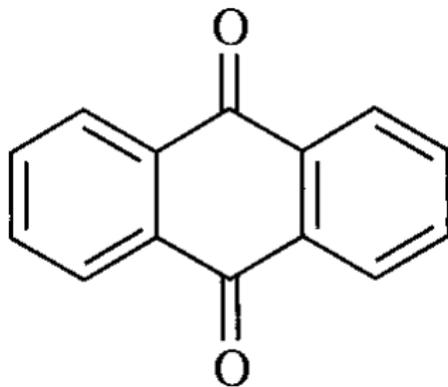
Linseed, *Linum usitatissimum*

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

Stimulant laxatives

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

Antraquinone



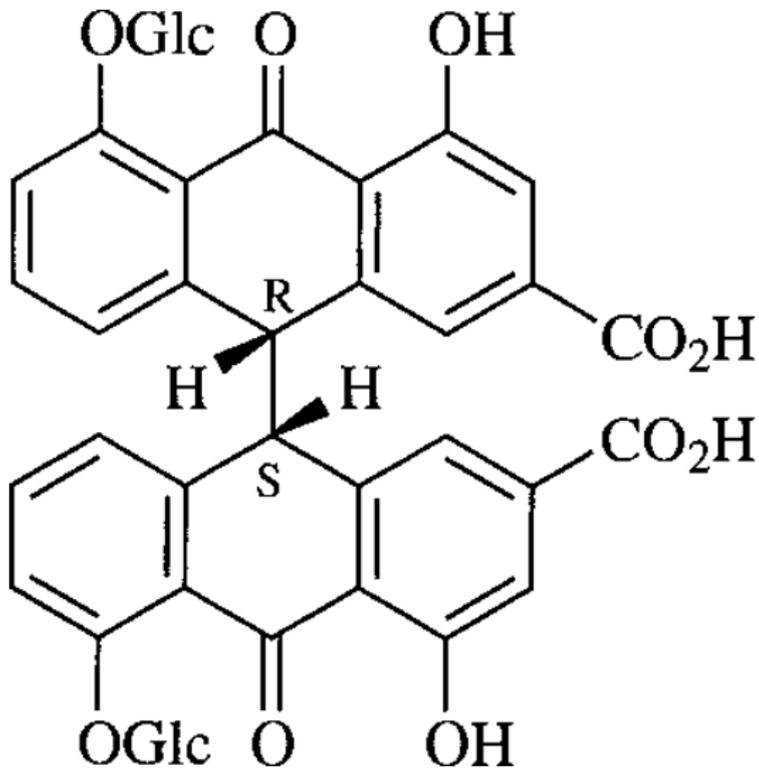
Senna, *Cassia* spp.

- *Sennae fructus/folium*
- Contain sennosides

Senna, *Cassia senna*



Sennoside B



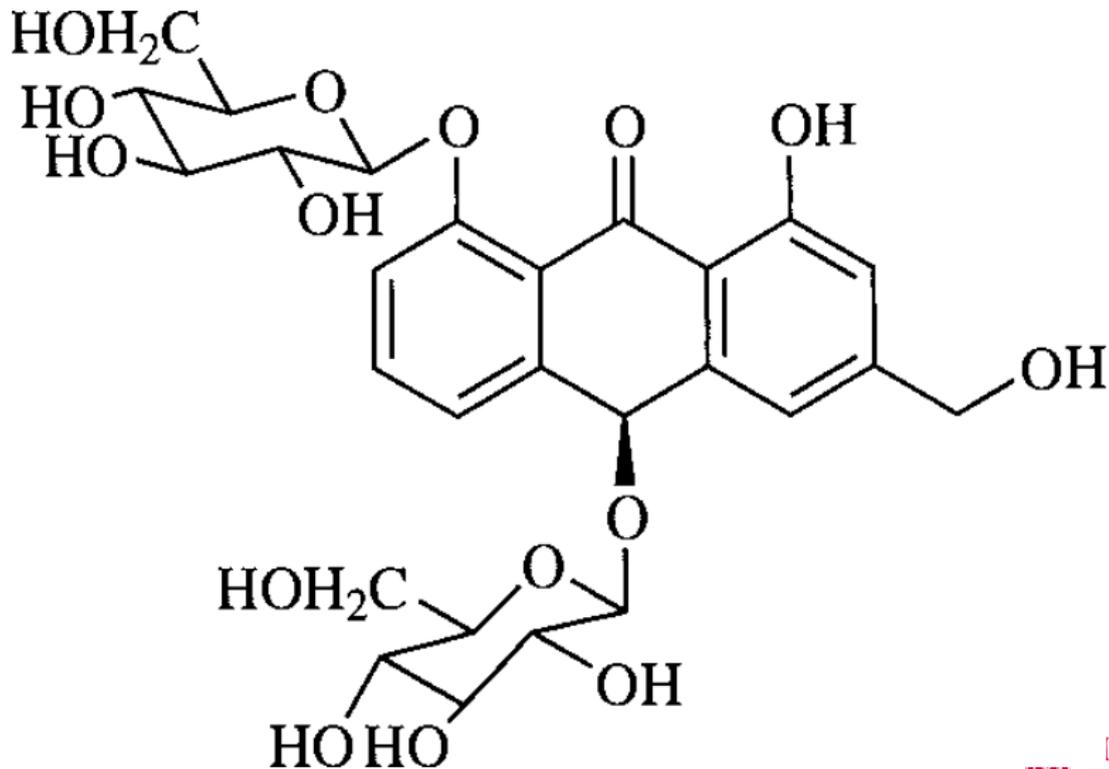
Cascara, *Rhamnus* spp.

- *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

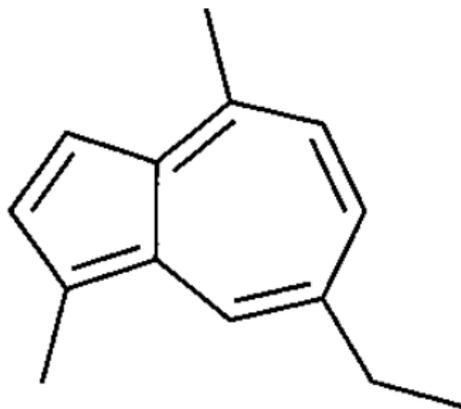
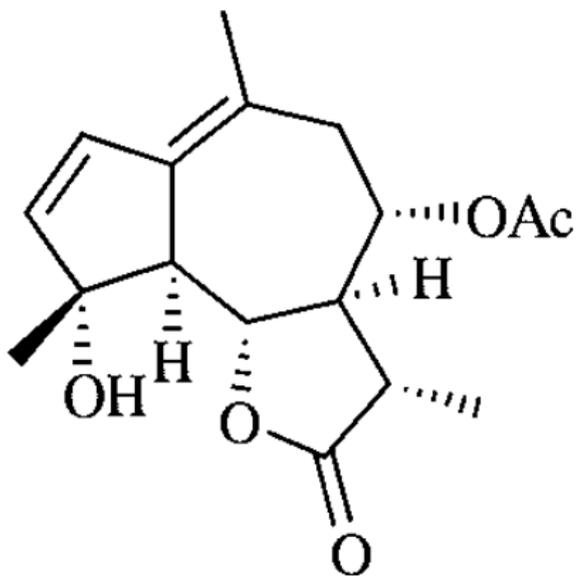
Chamomile, *Matricaria recutita*

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

Chamomile, *Matricaria recutita*



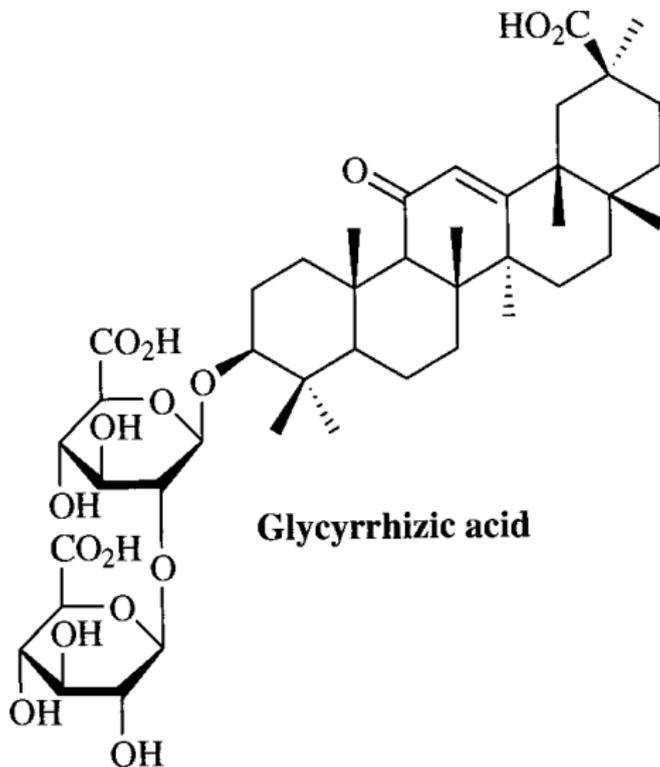
Matricin and chamazulene



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

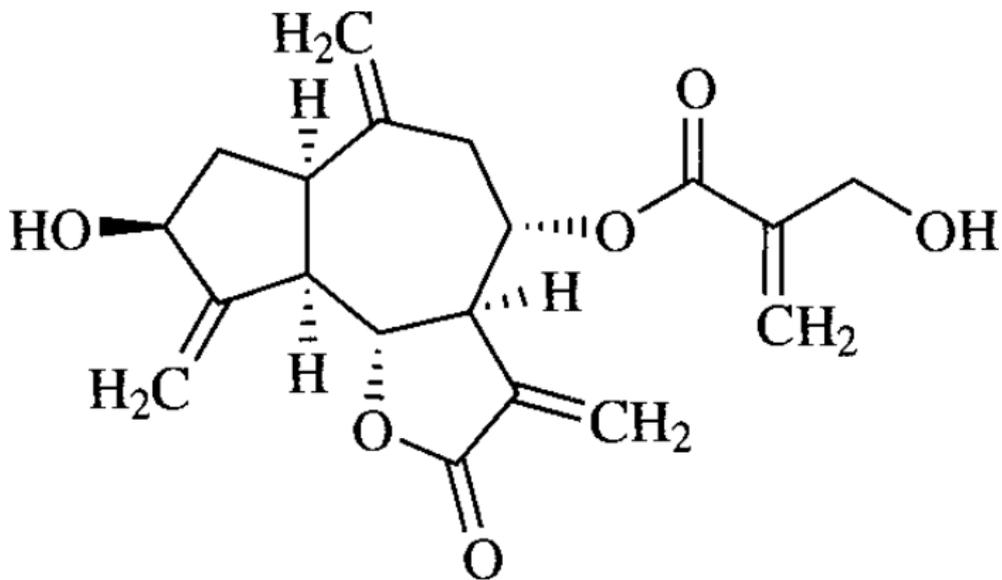
Artichoke, *Cynara scolymus*

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

Artichoke, *Cynara scolymus*



Cynaropicrin



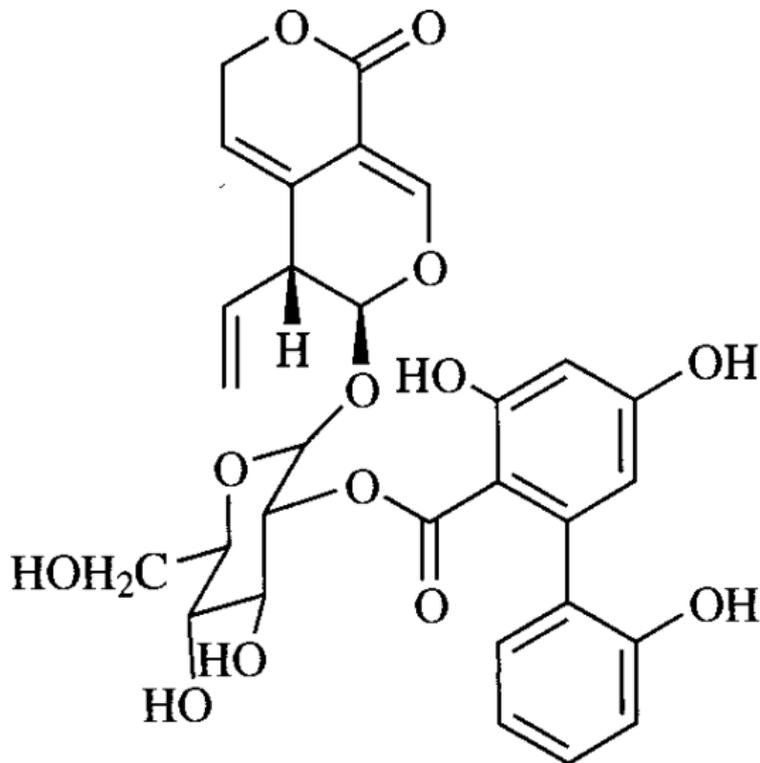
Gentian, *Gentiana lutea*

- *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*



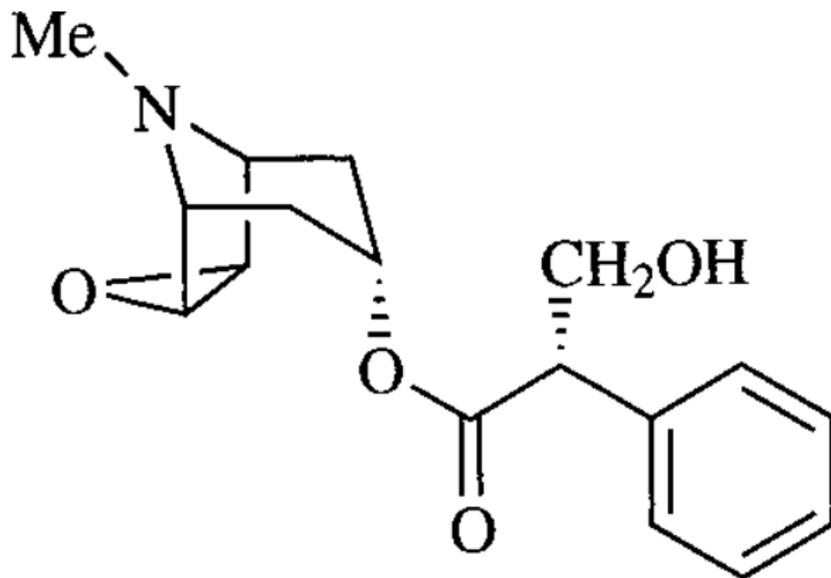
Nausea and vomiting

- Often components of “motion sickness”
- Spasmolytic constituents are often used

Hyoscine from Solanaceae plants

- Occur in *Scopolia*, *Hyoscyamus* and *Datura*
- Tropane alkaloid, poisonous

Hyoscine



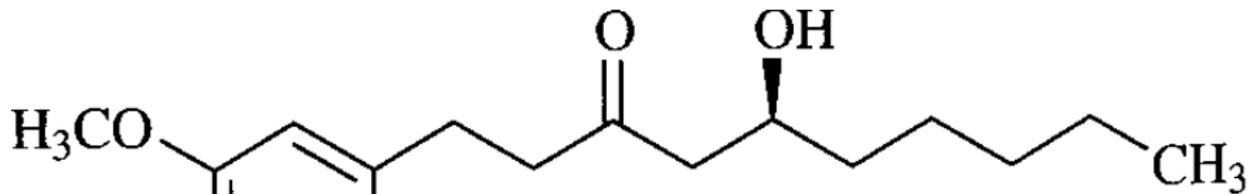
Ginger, *Zingiber officinale*

- *Zingiberis rhizoma*
- Multiple effect plant, essential oils gingerol and shogaol are responsible for pain relief, anti-sickness and other activities
- Extremely valuable in Eastern medicines

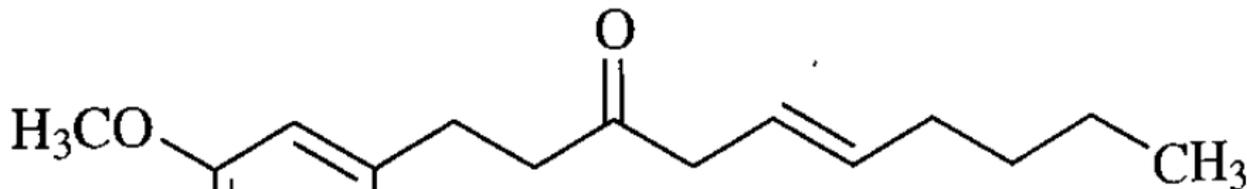
Ginger, *Zingiber officinale*



Gingerol and shoagol



6-Gingerol



6-Shogaol

Bloating and carminatives

- Bloating may be a result of bacterial activity (especially on arabinose)
- Carminatives provide both pleasant taste and anti-gas effect (precise mechanism is still unclear)

Mints, *Mentha* spp.

- *Menthae folium*
- Essential oil menthol and similar compounds

Umbelliferous fruits

- *Carvi fructus* from caraway (*Carum carvi*)
- *Foeniculi fructus* from fennel (*Foeniculum vulgare*)
- Contain essential oils like carvone, anethole and others

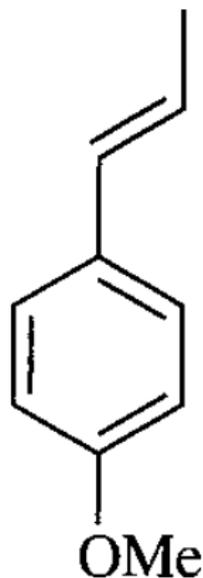
Caraway, *Carum carvi*



Section of mericarp



Anethone



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



M. Heinrich and others.

Fundamentals of pharmacognosy amd phytotherapy (selected chapters). [Electronic resource].

Churchhill Livingstone, 2004.

Mode of access: http://ashipunov.info/shipunov/school/biol_310/heinrich2004_fund_pharm_part.djvu

Pages 199–214.