

Complementary and Alternative medicine

PHG 323 (*Phytotherapy*)

Part 4



Department of Pharmacognosy – College of Pharmacy - KSU

Phytotherapy (cont.)

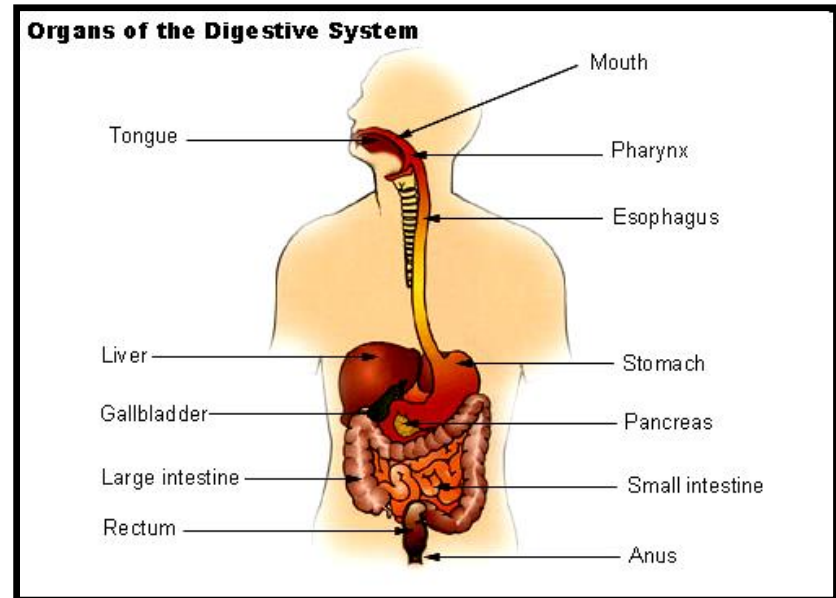
2) Gastro-Intestinal Disorders

Among the GIT disorders that could be treated by phytotherapy:

- I) **Stomatitis** التهاب الفم
- Gingivitis** التهاب اللثة
- Glossitis** التهاب اللسان

- II) **Stomach** and Intestinal Disorders

- III) **Liver** and **Biliary Tract** Disorders اضطرابات القناة الصفراوية



II. Stomach and Intestinal Disorders

- 1) Functional dyspepsia سوء الهضم
- 2) **Flatulence** الانتفاخ
- 3) Gastritis and Peptic ulcers التهاب المعدة / قرحة المعدة والإثني عشر
- 4) **Constipation** الإمساك
- 5) Diarrhea الإسهال
- 6) **Irritable Bowel Syndrome (IBS)** القولون العصبي
- 7) Hemorrhoids البواسير
- 8) **Intestinal worms** الديدان المعوية

1) Functional (Non-ulcer) dyspepsia

- It is a common syndrome of **recurrent** or **persistent** pain or **discomfort** in the upper abdomen and characterized by:
 - Nausea
 - **Epigastric pressure**
 - Bloating
 - **Cramp**

- Its cause is **unknown**, but certain factors **play a role** in occurrence:
 - **Deficiency** in **gastric secretions** and **bile production**
 - Disorders in **gastric motility**
 - *Helicobacter pylori* infection
 - Meal indigestion



Phytotherapy of dyspepsia include:

- 1) **Bitters**
- 2) **Choleretic** and **cholagogues**
- 3) Carminatives (see under Flatulence)

1) Bitter drugs (Eupeptics) (Eu = well, pepsis: digestion):

- act on **oral taste receptors** → **facilitate** saliva secretion (~ 30 min)
- **promote** gastric juice and HCl secretion → **facilitate** digestion.
- **Eupeptics** are **classified** into:
 - a) Pure bitters (e.g. gentian, quassia,..)
 - b) **Aromatic** bitters (e.g. bitter-orange peel)
 - c) **Pungent** bitters (e.g. ginger)
 - d) **Alkaloidal** bitters (e.g. quinine)



Common (Latin) names	Part used	Key comp.	Dose /d
Gentian (<i>Gentiana lutea</i>)	Roots	Bitter iridoid glycosides	3 g
Bitter orange (<i>Citrus aurantium</i>)	Peels	Volatile oil - Flavonoids	~5 g
Ginger (<i>Zingiber officinale</i>)	Rhizomes	Pungent phenols: gingerol & shogaol - Volatile oil	~3 g
Quinine (<i>Cinchona spp.</i>)	Bark	Alkaloids e.g. quinine - Tannins	~2 g



Gentian



Bitter orange peels



Ginger



Quinine

a) **Gentian** (a pure bitter, see table)

- **Uses:** Eupeptic and appetite **stimulant**

N.B. It is **contra-indicated** in gastro-duodenal **ulcers** (as it **stimulates** gastric juice secretion)

- **Dose:**

1 g / 150 ml **water** as **decoction** (to be taken 30 minutes **before** meal) x 3 times.



b) **Bitter orange peel** (an aromatic bitter, see table)

- It is aromatic due to the presence of **volatile oil** (contain up to 90% **limonene**) and bitter because of **flavonoids**.

Uses and action:

- Increases **gastric juice** secretion (effect of bitterness)
- Treatment of **loss of appetite** and dyspeptic **complaints**
- It behave as **carminatives** as they expel excessive intestinal gases (effect of volatile oil).
- It has **mild spasmolytic effect** (effect of volatile oil).
- It has **antibacterial** action (effect of flavonoids and limonene).



c) **Ginger** (a pungent bitter, see table)

N.B. The **pungent principles** are the alkylated phenols **gingerols** and **shogaols** (not the volatile oil).

■ **Uses and action:**

- **Promotes** saliva and gastric **secretions**
- Stimulates intestinal **peristalsis**
- **Antispasmodic** effect on smooth muscles
- **Positive effect** against motion sickness
- **Anti-nausea and antiemetic**

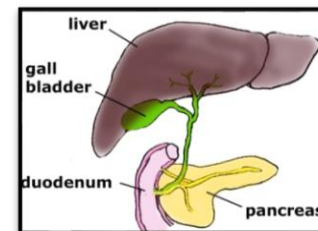


d) Quinine (an alkaloidal bitter)

- They are **not used** commonly as eupeptics for their **unpleasant** side effects (cinchonism):
 - Tinnitus
 - Blurred vision
 - **Confusion**
 - **Dizziness**
 - Nausea and **Vomiting**
- In the United States, the US FDA limits the quinine content in tonic water to (83 mg/L), about 1/7 therapeutic dose against malaria



2) Cholaretics and Cholagogues:



- **Cholaretics** are agents that promotes bile **secretion**.
- **Cholagogues** are agents which stimulate the **flow** of bile.
- Most **cholaretic** have **cholagogue** properties.
- **Examples**

Common (Latin) names	Part used	Key comp.	Dose/ d
Artichoke (<i>Cynara scolymus</i>)	Leaves	Caffeic acid deriv. (e.g. Cynarin) – flavonoids – sesquiterpene lactones	4-9 g
Turmeric (<i>Curcuma domestica</i>)	Rhizome	5% Curcuminoids (e.g. Curcumin) – volatile oil	2-3 g
Boldo (<i>Peumus boldus</i>)	Leaves	Boldine alkaloid – flavonoids – volatile oil	2-3 g

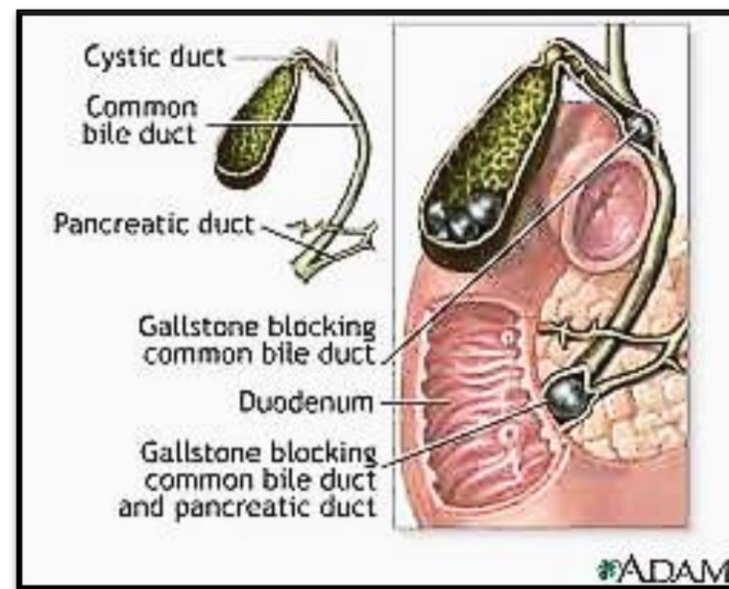
a) Artichoke: (cont.)

▪ Uses/Effects:

- **Promotion** of bile production and flow → promotes **fat digestion**.
- Large quantities of bile → **stimulate** intestinal **peristalsis** → better digestion.
- Also, it treats **vomiting**, nausea, **abdominal pain** and **flatulence**
- It also has **hepatoprotective effect**.

N.B.

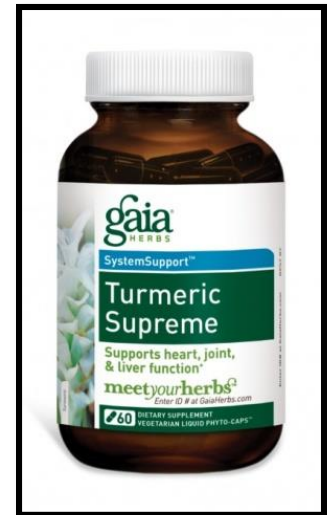
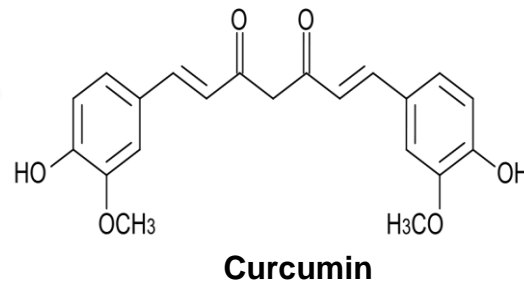
Artichoke is **contra-**
indicated in patients with
bile duct occlusion.



b) Turmeric:

▪ Uses/Effects:

- It has both **choleretic** and **cholagogue** effects.
- It is also used as a **carminative** and **stomachic** → treat digestive disorders such as **flatulence** and **appetite loss**
- It also has a long history as **antiinflammatory** and **antiarthritic**.



c) Boldo leaves:

▪ Uses/Effects/dosage:

- Boldine is the responsible choleric component of boldo leaves.
- Boldo extract also inhibits lipid peroxidation in hepatocyte and can thus protect liver against damage by different xenobiotics.
- Boldo is taken as a tea prepared with 2-3 g drug in 150 ml water.

N.B.

- The drug is contraindicated in patients with **bile duct obstruction** of and in cases of **gallstones**.
- The volatile oil boldo must not be used alone (contain high % of toxic ascaridole).



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2. Flatulence:

- Flatulence is the presence of **excessive** amount of **gases** in the **stomach** and/or in the **intestine**.
- This may be resulted from **bacterial imbalance** in the colon and food **sensitivity**
- The **symptoms** include:
 - Abdominal **bloating** and **pain**
 - **Belching**



Phytotherapy of flatulence

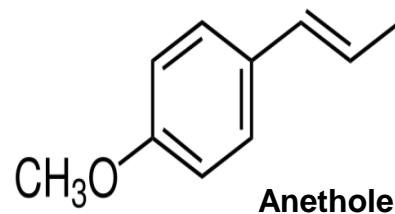
Carminative agents (herbs – volatile oils) can be used to **prevent** the formation or cause the **expulsion** of **gas** in the alimentary tract.

Examples of carminatives

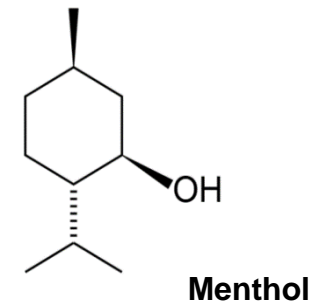
Common (Latin) names	Part used	Key comp.	Dose/ d
Anise (<i>Pimpinella anisum</i>)	Fruits	2-6% Volatile oil (contains Anethole) – Caffeic acid deriv. – Flavonoids	4-9 g
Peppermint (<i>Mentha piperita</i>)	Leaves	Volatile oil (contains menthol and menthone) – Caffeic acid deriv. – Flavonoids	3-6 g
	oil		5-10 drops



Anise



Peppermint



a) Anise:

- Uses:
 - As carminative, treatment of **dyspeptic complaints** and **loss of appetite**.



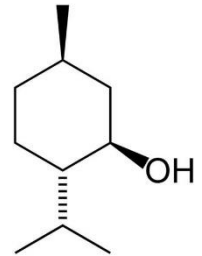
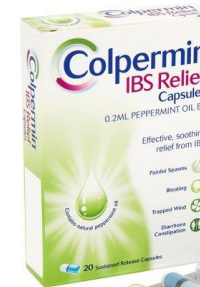
b) Peppermint:

- Uses:
 - **Choleretic** and **cholagogue**
 - Carminative and spasmolytic
 - Mild **anaesthetic** (on the mucous membrane lining the stomach)
 - In **irritable Bowel Syndrome**



Peppermint oil can be used

- It has **antispasmodic property**:
 → smooth muscles relaxant → **reduction** of abdominal **pains** and **symptoms**
- The **oil** contains mainly **menthol**, a **monocyclic terpene alcohol**.
Menthol has **Ca⁺⁺ channel blocking** properties → inhibits the excitability of enteric nerves.
- Dosage form**:
 - As **enteric coated capsules**,
two capsules per day.



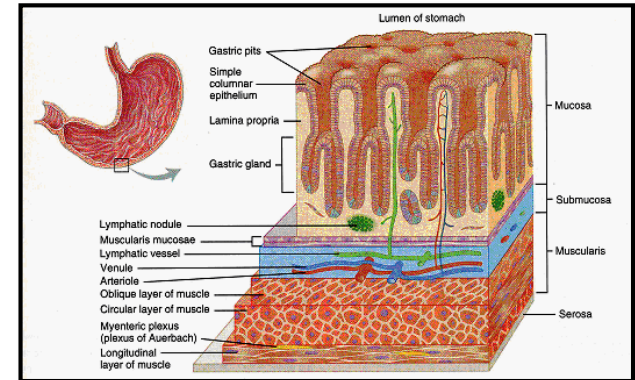
c) Other **volatile** oil-containing carminatives include: **Fennel**,
 Caraway and **Chamomile**

3. Gastritis and Peptic ulcers

■ Gastritis:

It is the **inflammation** of the stomach **mucosa** due to:

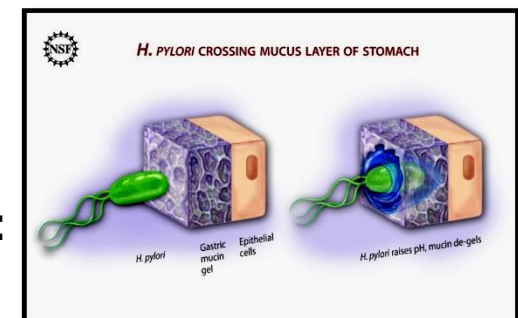
- Spices
- Alcohol
- Tobacco
- Bacteria (e.g. *Helicobacter pylori*)
- Drugs such as aspirin or toxins



■ Peptic ulcer:

It is a **discrete mucosal damage** of the **stomach** and/or **duodenum**. It may be due to:

1. **Imbalanced production** of acids or mucous.
2. *Helicobacter pylori*: It infects **most** patients with **chronic gastritis**



- **Conventional treatment:**

- In **mild cases** the use of **antacids** and **eradication** of *H. pylori* by antibiotics may help.

- **Most patients** require an **H₂-receptor blocker** (e.g. Ranitidine) or a **proton pump inhibitor** (e.g. Omeprazole).

Phytotherapy of gastritis and peptic ulcer (examples)

Common (Latin) names	Part used	Key comp.	Dose/d
Liquorice (<i>Glycyrrhiza glabra</i>)	Roots & Rhizomes	Triterpenoid saponins (Glycyrrhizin) – Flavonoid glycosides (e.g. Liquiritin)	2-4 g
Slippery Elm	Inner bark	Mucilage – steroids – tannins	5-10 ml decoction
Marshmallow (<i>Malva sylvestris</i>)	See under herbal stomatics		

a) Liquorice (one of ulcer healing plants)**▪ Uses/effects:**

- **Anti-inflammatory**
- As flavoring/seeting agent to **mask** taste of **bitter drugs** e.g. **aloe**, quinine.
- **Anti-ulcer/healing effect:**



It inhibits **15-hydroxyprostaglandin dehydrogenase enzyme** and **delta-13-prostaglandin reductase** → **increase** levels of **protective prostaglandins** in stomach and intestine → **increase protective mucous secretion** + **increase** cell proliferation of the gastric mucosa + **inhibit** gastric secretion → **healing of ulcers**

This effect may be related to glycyrrhizin. Its aglycone (glycyrrhetic acid) also proved similar activity.

N.B.

- **Liquorice** is contra-indicated in **hypertension** as due to **sodium** and **water** retention (cortisone-like effect)
- **Deglycyrrhized licorice (DGL)** is an alternative in treatment of ulcers. It can be used plus antacid to augment the effect.



b) Marshmallow c) Slippery Elm

- They are **mucilaginous** plants
- **The mucilage content** coats gastric mucosa → protect mucosa from the eroding effect of **gastric acid**.

