

# *Complementary and Alternative medicine*

**PHG 323 (*Phytotherapy*)**

*Part 3*

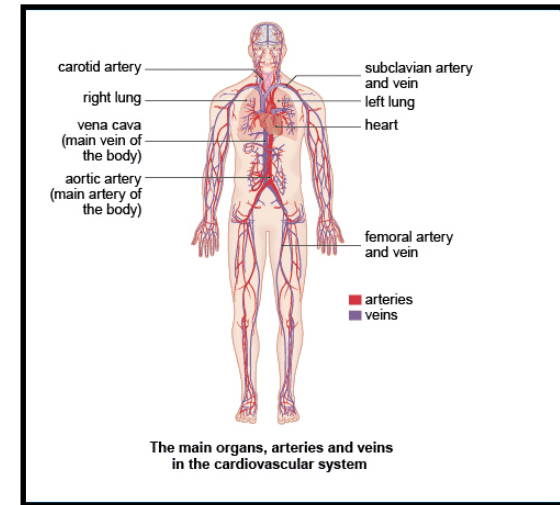


**Department of Pharmacognosy – College of Pharmacy - KSU**

# Cardiovascular System Problems

Cardiovascular system problems include:

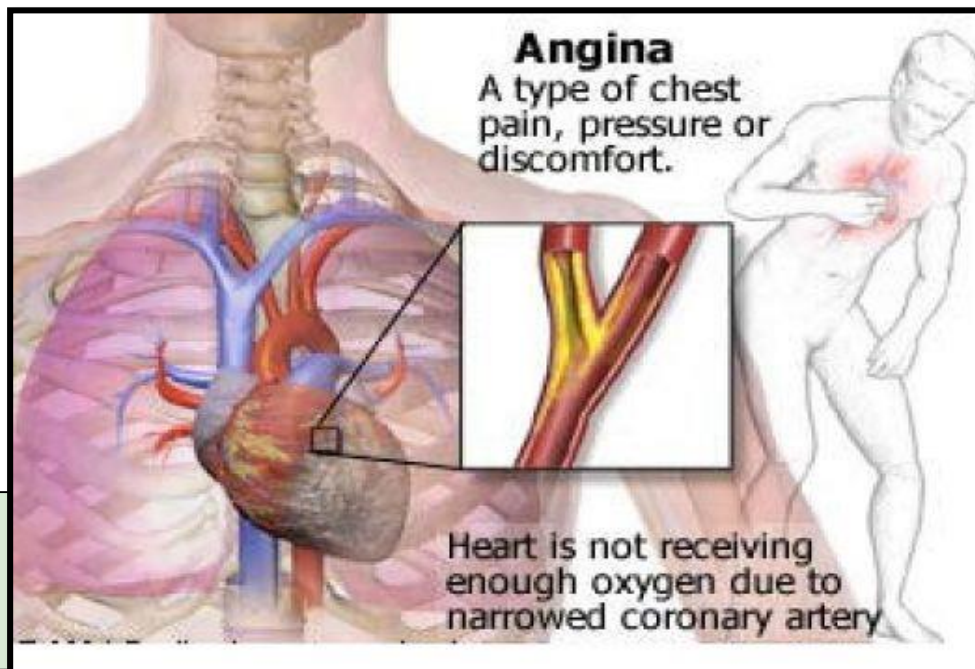
- I. Congestive heart failure
- II. Arteriosclerosis and Arterial Occlusion
- III. Hypertension
- IV. Angina Pectoris
- V. Cardiac Arrhythmias
- VI. Chronic Venous Insufficiency



## IV. Angina Pectoris

الذبحة الصدرية

Definition



### Phytotherapy of Angina Pectoris: Examples

Common (Latin) names	Part used	Key comp.	Dose/d
Hawthorn ( <i>Crataegus spp.</i> )	Aerial part	Flavonoids – triterpenes – proanthocyanidins	5 g
Khella ( <i>Ammi visnaga</i> )	Fruits	Chromones (visnagin & khellin) – Coumarins (Visnadin)	120 mg Khellin
Ginseng ( <i>Panax ginseng</i> )	Roots	Ginsenosides – saponins	1-2 g

a) Hawthorn (*Crataegus spp.*) الزعرور :

- Preparations from **leaves**, flowers and/or **berries** are used.



It acts through:

- ✓ **dilating** coronary arteries
- ✓ **antioxidant** activity (due to proanthocyanidin and flavonoid content)
- ✓ **inhibiting cAMP phosphodiesterase** → **positive inotropic effect** → **cardiac improvement.**
- ✓ **reducing lipidemia**
- ✓ **inhibiting arrhythmia**

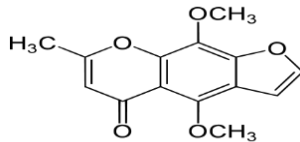
- Hawthorn is **safe** and can be combined with **conventional drugs.**



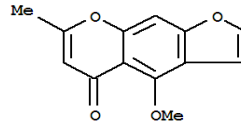
b) *Khella (Ammi visnaga)* بذور الخلة :



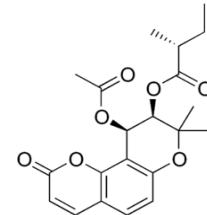
- The decoction of the **dried fruits** has been used in Middle East as **antispasmodic** and in the treatment of **angina pectoris**.
- The drug and its active principles **khellin**, **visnagin** and **visnadin** exhibit peripheral and coronary **vasodilator** activities and



**Khellin**



**Visnagin**



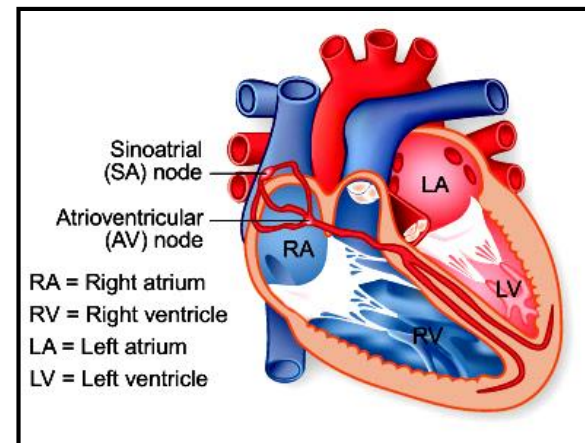
**Visnadin**

- **Visnadin** showed a higher **vasodilatory** potency than the **furanochromones: visnagin** or **khellin**.



## V. Cardiac Arrhythmias عدم انتظام ضربات القلب

- Cardiac arrhythmia is a disturbance in the regular rhythm of heartbeat due to abnormal **pacemaker activity** and/or abnormal impulse **propagation** / conduction.



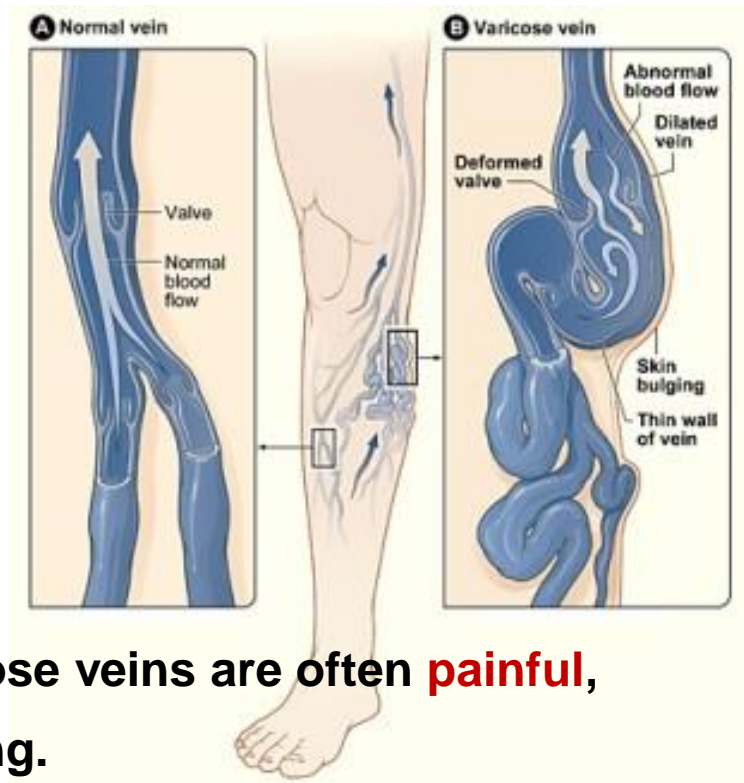
### Phytotherapy of cardiac arrhythmias : Examples

Common (Latin) names	Part used	Key comp.	Dose/d
Ginseng ( <i>Panax ginseng</i> )	Root	Ginsenosides – saponins	1-2 g
Snake root ( <i>Rauwolfia serpentina</i> )	Root	Alkaloids (e.g. ajmaline)	
Ginkgo ( <i>Ginkgo biloba</i> )	Leaf	Ginkgolides	

Drugs containing cardiac glycosides (used in CHF) can also be used to control cardiac arrhythmias.

## VI. Chronic Venous Insufficiency (CVI) القصور الوريدي المزمن

- **CVI** is among the most common conditions **affecting humans** (10-15 % of men and 20-25 % of women).
- One of the most common manifestations of **venous insufficiency** are **varicose veins** (دوالي الاوردة).
- Veins have **valves** to **prevent** blood from flowing backward.
- In varicose vein, the valves **no longer work properly** → blood flows backward → vein enlargement.
- Besides **cosmetic problems**, varicose veins are often **painful**, especially when standing or walking.



## Phytotherapy of CVI and varicose veins

- In contrary to sclerotherapy or surgery, herbal medicines used in the treatment of varicose veins may **provide only relief** of the unpleasant symptoms by **increasing capillary resistance** but do **not reverse** changes in organic structures.

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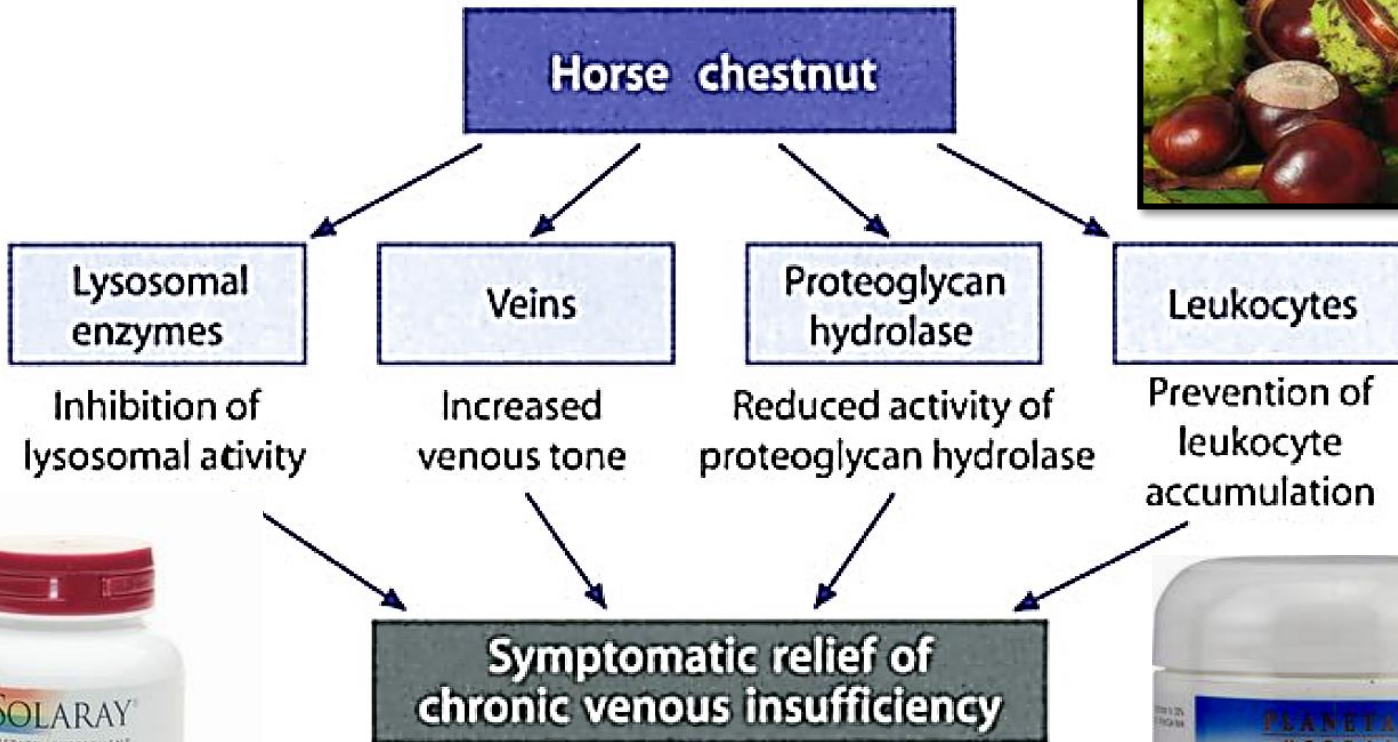
### ➤ Examples:

Common (Latin) names	Part used	Key comp.	Dose/d
Horse chestnut ( <i>Aesculus hippocastanum</i> )	Seed	Triterpenoid saponins (e.g. Aescin) – Tannins – Flavonoids	Ext. equiv. (50-150 mg aescin)
Grape ( <i>Vitis vinifera</i> )	Seed Leaf	Proanthocyanidins	around 400 mg ext.
French maritime pine ( <i>Pinus pinaster</i> )	Bark	Proanthocyanidins – Phenolic acids	90-360 mg ext.



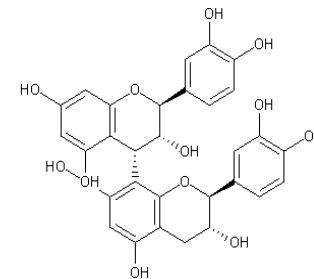
# a) Horse chestnut *كستناء الخيل*

Actions of horse chestnut (aescin & flavonoid content) which can contribute to relief the symptoms of CVI.



## b) Grape seeds بذور العنب

- **Extract of the seeds contains Oligomeric proanthocyanidin complexes (OPCs)**
- **It relieves symptoms of chronic venous insufficiency (e.g. heaviness, cramps, ...).**
- **It has a strong ability to block free radical damage → protect against oxidative damage (antioxidant activity), therefore it:**
  - ✓ inhibit destruction of elastin, collagen and hyaluronic acid
  - ✓ reduce capillary permeability
  - ✓ decrease inflammation



Procyanidin B2



## c) French maritime pine Bark

- **The bark extract (Pycnogenol®) also contains OPCs**

# Phytotherapy (cont.)

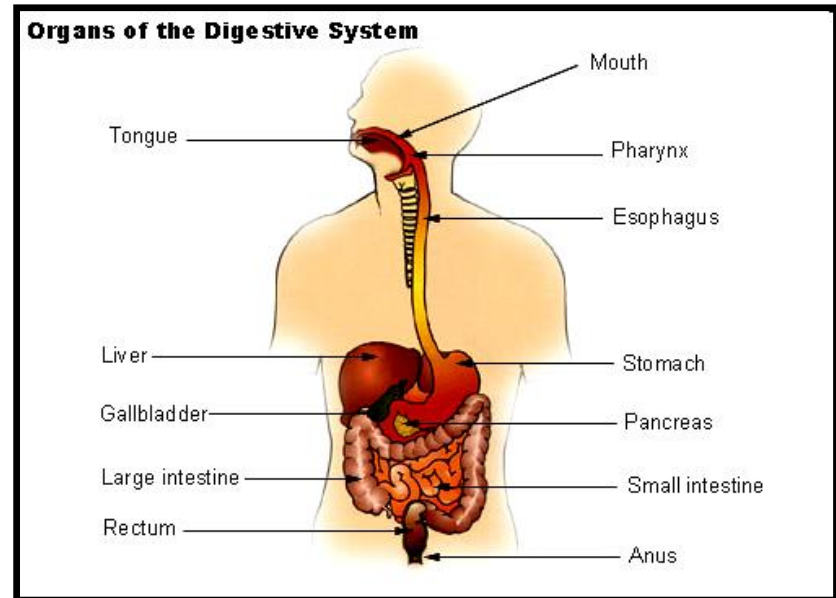
## 2) Gastro-Intestinal Disorders

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



# I. Stomatitis, Gingivitis and Glossitis



- Human **saliva** is composed of:
  - 98% **water**
  - 2% consists of electrolytes, **mucus**, enzymes, etc.
- Since mucus has a **protective function**, a decreased saliva secretion may lead to **stomatitis**, **gingivitis** and **glossitis**.
- Decreased saliva secretion may **result from fever**, **excessive perspiration**, belladonna intoxication, etc.
- **Stomatic plants** are those which can act in oral cavity to treat :
  - **infection** (plants contain **volatile oil** and/or **phenolics**)
  - **irritation** and **inflammation** (plants contain **tannin** and/or **mucilage**)

## Examples of herbal stomatics:

### 1) Marshmallow الختمى:

- It is the **roots** of *Althea officinalis*
- Key constituents: **Mucilage** (~30%) and **Pectin** (~ 10%)
- Used as **Demulcent** (soothing effect)
- Dosage forms: mouth wash or **drops**



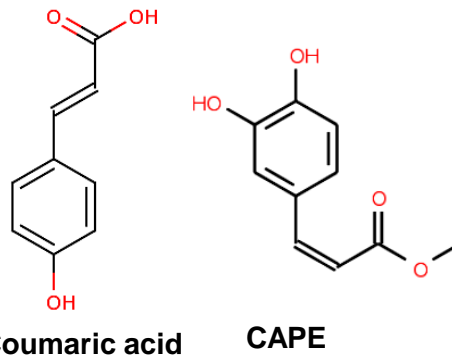
### 2) Propolis صمغ النحل:

- It is **sticky resinous dark material of a complex nature** collected by the **worker honey bees** from **buds** of certain plants to be used as a glue, filler, and protective material.



■ **Constituents:** a mixture of mostly plant products;

- **Flavonoids.**
- **Phenolic acids** (e.g. coumaric and caffeic acids) and **caffeic acid methyl ester (CAPE)**
- **Volatile oil.**
- **Terpenoids.**
- **Resins and balsams.**
- **Beeswax.**



■ **Action:**

**Anti-inflammatory**

Antifungal, Antibacterial, and **Antiviral**

**Anti-ulcer** (Tissue regenerative)



■ **Dosage forms:** mouth spray, **mouthwash**, gargle, and toothpaste

3) *Echinacea* حشيشة القنفذ الارجوانية :



- Aerial parts of *Echinacea purpurea*

▪ Constituents:

- Caffeic acid derivatives
- Flavonoids
- Polysaccharides
- Alkylamides

▪ Action:

- Immune-enhancing drug
- Anti-inflammatory agent
- Stimulates saliva secretion

4) Chamomile شاي البابونج : Flower heads of *Matricaria chamomilla*

▪ Constituents:

- Volatile oil
- Flavonoids
- Coumarins

▪ Action:

- Antimicrobial
- Anti-inflammatory

