

# *Complementary and Alternative medicine*

**PHG 323 (*Phytotherapy*)**

**Part 1**

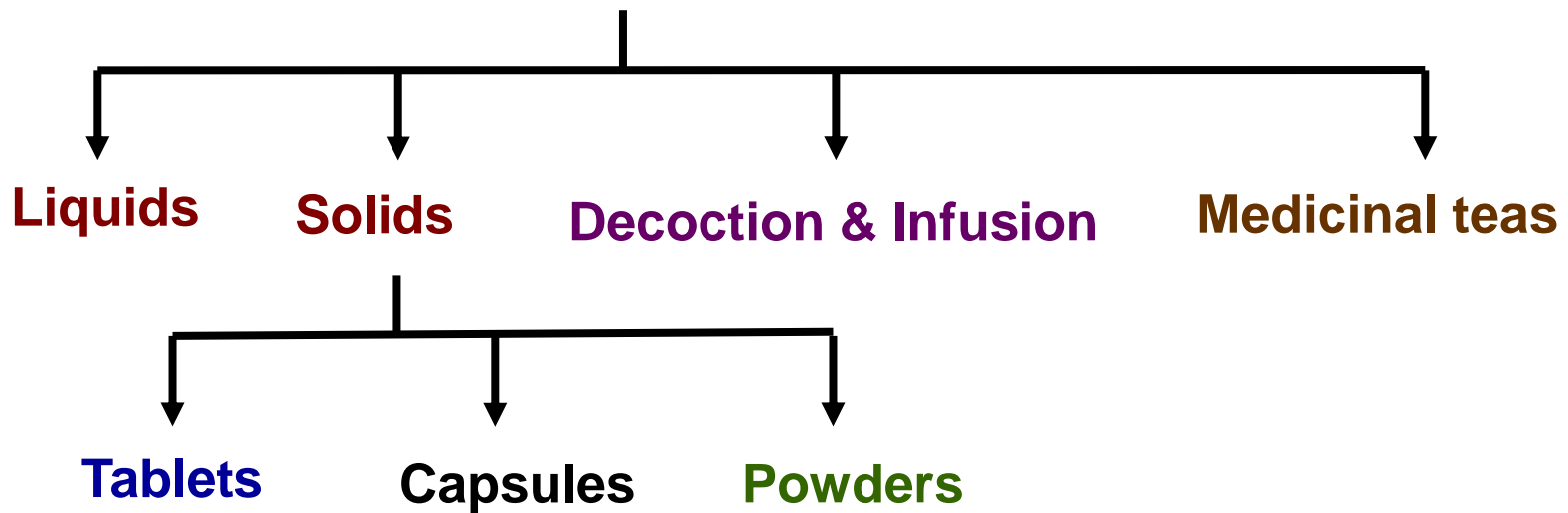


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# Herbal Dosage Forms:



## I. Oral dosage forms



# 1) Liquids:

They are **widely used** because of the following **advantages**:

- a) **Minimal processing**
- c) **Readily absorbed**
- d) **Convenient to use**

□ The main **disadvantage** of liquids are:

a) **Unpleasant (or bitter) taste**  
→ overcome by adding flavors

b) The **alcohol** used in some preparations to dissolve compounds  
→ overcome by using other dosage form (e.g. **tablets** or capsules)



**2) Solids** → next slide

## 2.1) Tablets:

They are widely used because **no problem** with taste or **alcohol**.

### ❑ Disadvantages:

- a) **Require more complicated processing**
- b) **Unsuitable for** volatile compounds



## 2.2) Capsules:

- They conceal the **unpleasant taste** of the powder.
- It can be loaded with **concentrated extracts instead of powders**.

### ❑ Disadvantage:

**If the content is powder**, many capsules need to be taken to achieve adequate doses (a large capsule holds only 300-600 mg powder).

## 2.3) Powders:

- Main **advantage**: the **total constituents** of the herb are **presented** to the patient's digestive tract
- Herbs containing **mucilage** are mostly used in this form:  
e.g. **psyllium husk** when mixed with water and immediately taken, it **swells** and form a **gel** to act as **bulk laxative**



## 3) Infusions and decoctions:

- Mainly used when the active constituents are **water-soluble** e.g. polysaccharides, some **glycosides** and tannins.
- Better used with **diaphoretics** since they must be given **hot** to **maximize their effects**.

### ❑ Disadvantages

- **unpleasant taste**
- **Not** all active constituents dissolve in the water used

## 4) Medicinal teas:

- Teas may be composed of a **single** herb or a **herbal combination**
- **Teas of herbal combination** are preferred over a **single** herb as they:
  - Provide **additive** or **synergistic** effects
  - Leads to **reduction** of undesirable effects of individual components
- **Ingredients of medicinal teas:**
  - 1) **Main (basic)** ingredient → exert the main effect.
  - 2) **Adjuvant** → **enhances** or **complements** the effect of the basic ingredient.
  - 3) **Excipient** → **good color** or **appearance** to the tea.
  - 4) **Corrigent** **مطف**



4) **Corrigent** → enhance the **flavor** (herbs containing **volatile oils**)

**N.B.:** Tea label should show the following:

- **Instructions** for preparing the teas e.g.:
  - to be prepared as **infusion** or as **decoction**
  - **how long** should be steeped in water
- Instructions on **dosage** and **duration** of treatment.
- Teas of aromatic herbs should be prepared using **hot** but **not boiling** water, because boiling water can **evaporate** most of the **volatile oil** content.

## II. Inhalation forms:

- It may be **prepared** by infusion of **aromatic herbs** or by adding **few drops** of the **their volatile oil** to hot water then **inhaling** the vapor.
- This form is used for treatment of **cold** and **cough**, where the volatile oil-containing herbs (e.g. Eucalyptus oil, Peppermint, etc.) act as **decongestant** and **bronchodilator**.



## III. Topical dosage forms:

- 1) Paste/cream of **herb** (for wound healing - pain)
- 2) An **extract** (tea by infusion or decoction)
- 3) **Rubs** of volatile oils applied to throat and chest for cold treatment (menthol and thymol).
- 4) **Plasters** loaded with (e.g. **capsaicin**) to treat pain.





## IV. Herbal baths:

- Aromatic baths and other volatile oil baths are used  
e.g. **Chamomile baths**, made either:
  - As a **tea** in **hot water** which is then mixed with the bath water
  - By **mixing** few **drops** of the **volatile oil** in the hot water used for bathing
  
- It is recommended for the care of **sensitive skin**, which needs special protection.



# Phytotherapy

## Introduction

### ➤ What is herbal medicine (HM)?

It is the type of medicine that uses **plants** or crude products for the treatment or prevention of diseases.

### ➤ **Phytotherapy** is modern herbal medicine at its best. It applies scientific research and the highest professional standards to the practice of herbal medicine.



### ➤ **The use of Herbs/phytomedines** is experiencing **explosive growth**, due to the change in **social attitudes** towards natural medicines.

➤ **Difference of HM/Phytotherapy from conventional medicine?**

Conventional medicine is the type of medicine that uses **pure chemicals** in the treatment of diseases which may be:

- **Synthetic** or semi-synthetic compounds
- **Natural products**

➤ **Related scientific fields include:**

- **Phytochemistry**
- **Phytopharmacy**
- **Phytopharmacology**

### ❑ **Phytochemistry:**

- Is the study which deals with the isolation, purification, analysis, structure elucidation and description of the biological activity of **secondary metabolites** produced by plants.

### ❑ **Phytopharmacy:**

- Deals mainly with the **preparation of natural drugs**
- In this case, drugs are used either in crude forms (e.g. teas) or in pharmaceutical preparations (e.g. tinctures)

### ❑ **Phytopharmacology:**

- It is the field of drug research, where **plant active substances** are applied/tested in humans or animals.

# Characteristics of Herbal Drugs:

1) **Herbal drugs** differ from the **pure** medicinal agents in:

**Pharmacologically active** compound(s) in herbal drugs are present in **lower concentrations**. Thus, **health hazards** could be **minimal** with moderate use

2) Most herbs are considered as **dilute drugs**. Therefore, to **concentrate** the active ingredients, **extraction** is applied:

- **Tinctures** (herb is extracted with **hydro-alcohol** to dissolve water insoluble compounds)

- **Dry** (solvent-free) **extracts** are the **most concentrated**

- Sometimes, **aqueous extracts** are used

3) Herbal drugs contain a wide variety of **different compounds**:

- 2ry metabolites (some are pharmacologically active)
- 1ry metabolites e.g. starch and sugars (inactive)

4) The **pharmacologically active secondary metabolites**:

- usually present in **small quantities**. However, their **concentration** and **composition** vary in the same herb with many **factors** such as seasons, geographical source, soil, etc.
- may be biosynthesized by the plant **as a chemical defense** against **insects/herbivore** or **to attract pollinating insects**

5) Certain herbs contains **active** and **toxic** compounds as well:

e.g. **Comfrey**, which contain:

- **rosmarinic acid** (anti-inflammatory and antioxidant)
- **Pyrrolizidine alkaloids** (hepatotoxic).



Comfrey

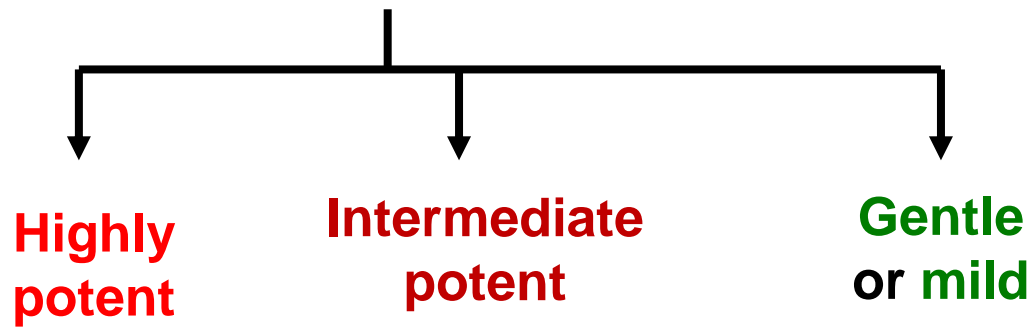
6) Herbal drugs may **support the general health** and can **prevent certain diseases**:

- **Hepatoprotective** e.g. Silymarin
- **Antioxidants** (free radicals scavengers) → protects against oxidative stress-related cardiovascular diseases, cancer, etc.

7) Certain herbs are used as **remedies** and **foods** at the same time e.g. garlic, **citrus** fruits, grapes, etc.

8) Herbal medicines are **less expensive than conventional medicines**.

# Potency-based Classification of Herbal Drugs



*Nux vomica*

## 1) Highly potent herbs:

a) **Toxic** e.g. *Nux vomica*, *aconite*

b) **Useful** but **toxic** (*having narrow therapeutic index*):

e.g. cardiac glycosides—containing herbs such as *Digitalis*

c) **Drastic purgatives** e.g. *Colocynth*

- it may cause death due to dehydration



*Digitalis*



**Colocynth fruits**



## 2) Intermediately potent herbs:

- Examples include:
  - **Solanaceous herbs** (**anticholinergic**)
    - Inhibit the transmission of **parasympathetic** nerve impulses
    - **Reduce spasms** of smooth muscle (e.g. in intestine and bladder)
- They should **only** be used as **standardized dosage forms** (powders, or extracts).



*Belladonna*

## 3) Gentle or mild herbs:

- **Highly safe** and constitute the majority of herbal medicine.
- They are also **non toxic** and suitable for **self-treatment**.