

PHYTOTHERAPY

Chapter 1

Prof. Dr. Müberra Koşar

EMU-Faculty of Pharmacy

Phytotherapy-*Definition*

- Phytotherapy is a word made up of the combination of Greek **phytos** = **plant** and **therapy** = **treatment** words and means treatment with medical plants.
- Phytotherapy define as **treatment with plants**. The term was originally used by the French physician Henri Lenclerc (1870-1953) in a medical Journal La Presse Medical.

Phytotherapy-*History*

- The first written document about the use of plants in medicine goes up to 3000 years. It is known that herbal medicines are used in civilization such as Sumer, Assyrian, Akat in Mesopotamia region. Plants also have an important role in Chinese medicine and Indian medicine.

Phytotherapy-*History*

- Herbal products are mentioned in the book of Hippocrates who is the father of Greek medicine. Dioscorides has written a book called "Materia Medica", which contains information about the medical plants of Anatolia and the Eastern Countries.

Phytotherapy-History

- During the Islamic Civilization period, Ibn-i Sina and Al Gafini in Islamic civilization have important works on herbal medicine. Ibn-i Sina has given a lot of information about definition and usage of the many healing plants in the book "El Kanun fi't tibb".

Phytotherapy-History

- World Health Organization (WHO) was accepted the medical plants as "*varieties of plants that could be treated with one or more organs or prevent diseases or be a precursor to any chemical-pharmaceutical synthesis*" in 1980.

Phytotherapy-*History*

- As a result of the developments in the field of chemistry and biochemistry in the 20th century, toxicological, pharmacological and clinical studies related to plants have become possible and the possibility of benefiting from these plants has increased in drug production. Today many of medicines contain the active natural components these investigations.

Phytotherapy

- **Traditional phytotherapy** has gradually left its place in **rational phytotherapy**.
- Scientifically proven and verified **standardized medical herbal products** are used in rational phytotherapy.
- The rational phytotherapy requires the use of standardized medicinal herbal products in an **optimum effect** and **reproducible effect** and at the **appropriate dose**.
- Plants used in phytotherapy **should be define appropriately, collecting at the right time, drying and storing in appropriate conditions, extracting and analyzed with appropriate methods**.

Phytotherapy

- Today, **phytotherapy** is covered by main science of **Pharmacognosy** of pharmacy.
- The biggest difference between phytotherapy applications in the past and today is that the useful parts of plants are now used for therapeutic purposes, not as whole plant.

Phytotherapy

- For example, in order to make use of the **essential oil** of a plant, once its tea is made and drunk, it is now used alone by **extracting essential oil** from that plant.
- This also keeps the patient away from the parts of the plant that may be other **useless compounds but side effects**. Today, phytotherapy is the most developed in Germany.

Phytotherapy

- According to the National Cancer Institute;
 - **37,500** of the 53,000 substances surveyed in the last 10 years from plants,
 - **40%** of the defined drugs are of vegetable origin,
 - the natural drugs prescribed in the USA constitute **50%** of the total drugs,
 - **7th best selling prescription medicine** licensed ***Hypericum perforatum*** (St'John Word) preparation in Germany.

Phytotherapy

- Today, natural products which are **standardized**, **uniform packaging**, all the information on the label for a drug, such as **expire date**, are registered.
- It is a good and healthy for the patients.

Phytotherapy

- Herbal products and medicinal plants may exhibit severe toxic reactions and even be fatal **if not used at appropriate doses and time.**
- **It is not true that herbal drugs are safe for all ages and individuals** because they are natural.
- Babies, children, elderly and pregnant women are generally more sensitive to the effects of herbal and synthetic medicines.

Phytotherapy

- Drug and herbal products **absorption, distribution, metabolism and excretion** (ADME) characteristics of sensitive people may differ.
- Dosage-independent and unpredictable side effects may also arise due to the use of herbal medicines, genetic predisposition, sensitivity of people, drug-drug and drug-food interaction.

Phytotherapy

- Important points for the acceptance of a substance as a drug: the structure of the **active substance must be known**, the mechanism of action must be accounted for, **and the dose should be adjustable.**

Phytotherapy-*Today*

- Modern phytotherapeutic preparations are usually prepared **from plant extracts**.
- In contrast with synthetics, it is typical that a **product contains a combination of several extracts**.
- The reason for preparing combination products has a long tradition, going back to ancient times, but in many cases there is a rationale behind the compositions.

Phytotherapy-*Today*

- When the active components are known, the extracts can be enriched in them (in another word, **refined**).
- Refining extracts may have the aim of removing constituents with **undesirable effects** (toxic ones or having side-effects) or of increasing the content of active constituents (**standardized extracts** and quantified extracts).
- Refined extracts prefer instead of pure isolated constituents because of the total pharmacological effect .

Phytotherapy-*Today*

- According to the Committee on Herbal Medicinal Products, refined extracts may be grouped as follows:
 - **Isolated constituent** (e.g. morphine), for which a characteristic impurity profile may be established and the purity has to be proven within the usual margins of acceptance for chemical substances.
 - **Mixtures of purified constituents** obtained by specific processing methods (e.g. precipitation of sennosides as calcium salts). Concomitant constituents have been removed or are present at insignificant levels.

Phytotherapy-*Today*

- **Mixtures of chemically defined substances** with related chemical structures extracted from herbal material. These may be difficult to separate (e.g. an alkaloid fraction not containing N-oxides or quaternary alkaloids, or a saponin fraction containing only monodesmoside saponins). Concomitant constituents have been removed or are present at insignificant levels.
- **Chemically defined compounds** extracted from herbal material and partially purified, e.g. 85%, but where the remaining part is represented by concomitant constituents.

Phytotherapy-*Today*

- **Isolated class of constituents** (e.g. total alkaloids, or the total saponin fraction) in which the natural variability is maintained and identification of the main constituents in the mixture is possible.
- **Standardized extracts** adjusted to a specified content of constituents with known therapeutic activities (e.g. sennosides). Natural concomitants are present.
- **Quantified extracts** with a specified content of constituents regarded as active markers (e.g. quantified *Hypericum* extracts). Natural concomitants are present.
- **Purified extracts** that are neither standardized nor quantified, for which the pattern of active constituents has to be determined.

Herbal Teas

- Drugs prepared from dried parts of plants can be used in various forms as medicines.
- They can be used as a source **to isolate the active compounds** (e.g., fusiforme leaf, horse chestnut seed), **extracts can be produced** (e.g., hawthorn fruit, thistle seed) or **tea preparation**.
- Plants suitable for tea are those containing active substance **having a wide therapeutic range**. Otherwise, they can not be used in "**self-treatment**" (eg, belladonna leaf, snakeskin, etc.).

Herbal Teas

- 1. Mono teas:** Herbal drugs are used on their own.
- 2. Mixture teas:** These preparations are prepared by mixing the drugs which are the drugs of the same effect group, the active adjuvant and other taste regulating drugs, in the pharmacy or the factory.

Pharmacopoeias and Standart Manuals are used for the preparation of mixture teas

Active ingradients should be 70% in the mixtures.

Other drugs that improve smell, taste and appearance are selected from the appropriate drug lists.

Herbal Teas- Preparation

- Infusion and Decoction used to prepare the Herbal Teas.
- Leaf, flower, herb teas are prepared generally using Infusion
- Root, bark and seed teas are prepared generally using Decoction
- Water is the general solvent for Herbal teas.

Herbal Teas

- Rarely, drugs or inorganic or organic water-soluble substances are added to the herbal teas.
- These are firstly dissolved in an inert liquid, usually water, and some of the components within the tea composition are impregnated with this water and dried at 30-40 ° C.
- Only drugs that will not be affected by this process will be used for this purposes.

Herbal Teas

Attention should be paid to the following points when preparing tea:

- ❖ drug (for single dose) and liquid ratio
- ❖ drug particle size
- ❖ extraction method (temperature, time, etc.)

Herbal Teas

Quality Control Methods for Herbal Teas:

- ❖ On the medicinal herbals in drug wholesale market
 - ❖ Foreign matter
 - ❖ Ash value
 - ❖ Water amount
 - ❖ Insect and bacretial contamination
 - ❖ Heavy metals
 - ❖ Radioactivity and pesticid control

- ❖ In pharmacy
 - ❖ Morphological control
 - ❖ Microscobic control
 - ❖ Small phytochemical controls

Herbal Teas-Indications

- 1. Gastrointestinal complaints:** Herbal drugs here are not only to **increase stomach secretion and appetite** (drugs that carry bitter substances); it is often used in **constipation** (swollen drugs such as flax seeds, drugs containing anthracene glycosides) and **diarrhea** (drugs containing tannins). **Carminative** (containing essential oil) or **spasmolytic** drugs are also included in this group.

Herbal Teas-Indications

- 2. Bile duct disorders:** Although there are many drugs used for this purpose, only some of the effects have been proven. The bile tea, which contains 15 or more drugs in its preparation, should be viewed with suspicion.
- 3. Psychological problems:** Herbal drugs are frequently and safely used for **irritability**, **insomnia** and **similar symptoms**. It is interesting to find aromatic compounds (essential oils) in their composition.

Herbal Teas-Indications

- 4. Colds, coughs, etc.:** In this group, there are a large number of secretory and secretomotor expectorants containing saponins and / or essential oils and mucilage drugs preventing throat irritation.
- 5. Kidney and bladder disorders:** Herbal drugs with this indication are usually used only in **preventive care** because the urinary tract is weak as a disinfectant or diuretic.

Herbal Teas-Samples

Species antisystitae (for cystitis) [Ph.Helv. VII]

- 25 part (Betulae folium) (*Betula pendula* veyá *B. pubescens*)
- 45 part (Uvae-ursi folium) (*Arctostaphylos uva-ursi*)
- 30 part (Glycyrrhizae radix) (*Glycyrriza glabra*)

Herbal Teas-Samples

Species sedativae (sedative tea) [Ph.Helv.VII]

- 10 part (Melissae folium) (*Melissa officinalis*)
- 10 part (Menthae piperitae folium) (*Mentha x piperita*)
- 25 part (Valerianae radix) (*Valeriana officinalis*)
- 20 part (Aurantii flos) (*Citrus aurantium*)
- 15 part (Anisi fructus) (*Pimpinella anisum*)
- 20 part (Passiflorae herba) (*Passiflora incarnata*)

Herbal Teas-Samples

Species carminativae (carminative) [ÖAB]

25 part (Menthae piperitae folium) (*Mentha piperita*)

25 part (Matricariae flos) (*Matricaria recutita*)

25 part (Calami rhizoma) (*Acorus calamus*)

25 part (Carvi fructus) (*Carum carvi*)

Herbal Teas-Samples

Species laxantes (Laxative tea) [Ph.Helv.VII]

50 part (Sennae fructus acutifoliae) (*Cassia acutifolia*)

15 part (Anisi fructus) (*Pimpinella anisum*)

15 part (Foeniculi fructus) (*Foeniculum vulgare*)

10 part (Glycyrrhizae radix) (*Glycyrriza glabra*)

10 part (Sambuci flos) (*Sambucus nigra*)

Herbal Teas-Samples

Mesane ve böbrek çayı I [St.Zul. 1959.99.99]

20 part (Betulae folium) (*Betula pendula* veya *B. pubescens*)

20 part (Graminis rhizoma) (*Agropyron repens*)

20 part (Solidaginis junceaе herba) (*Solidago juncea*)

20 part (Ononidis radix) (*Ononis spinosa*)

20 part (Glycyrrhizae radix) (*Glycyrriza glabra*)

Prospectus:

Usage: Kidney and bladder complaints, diuretic, prevent stone formation

Contrendications: Edema due to heart and kidney diseases. In chronic kidney disease, a medicine should be consulted before using this tea.

Dosage: Freshly prepared infusion use orally and 3-4 times (150 mL)/day with meal.

Note: Protect from light and humidity.

Herbal Teas-Samples

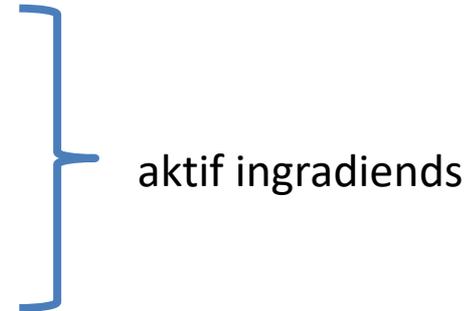
Cough tea [St.Zul. 1979.99.99]

30 part (Sambuci flos) (*Sambucus nigra*)

30 part (Tiliae flos) (*Tilia cordata* or *T. platyphyllos*)

20 part (Filipendulae herba) (*Filipendula ulmaria*)

20 part (Cynosbati fructus) (*Rosa canina*)



aktif ingrediends

Prospectus:

Usage: It is preferred for sweating treatment in colds with fever.

Dosage: Freshly prepared infusion use orally and 2-3 times (150 mL)/day.

Herbal Teas-Samples

Bile tea [St.Zul.1989.99.99]

10 part (Carvi fructus) (*Carum carvi*)

20 k (Curcuma xanthorrhizae rhizoma) (*Curcuma xanthorrhiza*)

30k (Taraxaci herba) (*Taraxacum officinalis*)

20 k (Silybi herba) (*Silybum marianum*)

20 k (Menthae piperitae folium) (*Mentha piperita*)

Prospectus:

Usage: It is used for the supportive treatment of gall bladder disorders and gallbladder deficiency related disorders and in gastro-intestinal system diseases such as swelling, flatulence and dyspepsia.

Contrendications: Inflammation and obstruction of the bile duct; intestinal obstruction

Dosage: Freshly prepared infusion use orally and 3 times (150 mL)/day 30 min before meals.