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حائزة على دكتوراه في العلوم الصيدلانية من قسم
العقاقير والكيمياء النباتية في جامعة بيروت العربية
أستاذ مساعد في جامعة بيروت العربية والجامعة
البنانية الدولية





Herbal Medicine and Drug interaction

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*Rational Healthy Food & Herbal Contributing to Sustainable
Development Goals Conference*

Importance of medicinal plants

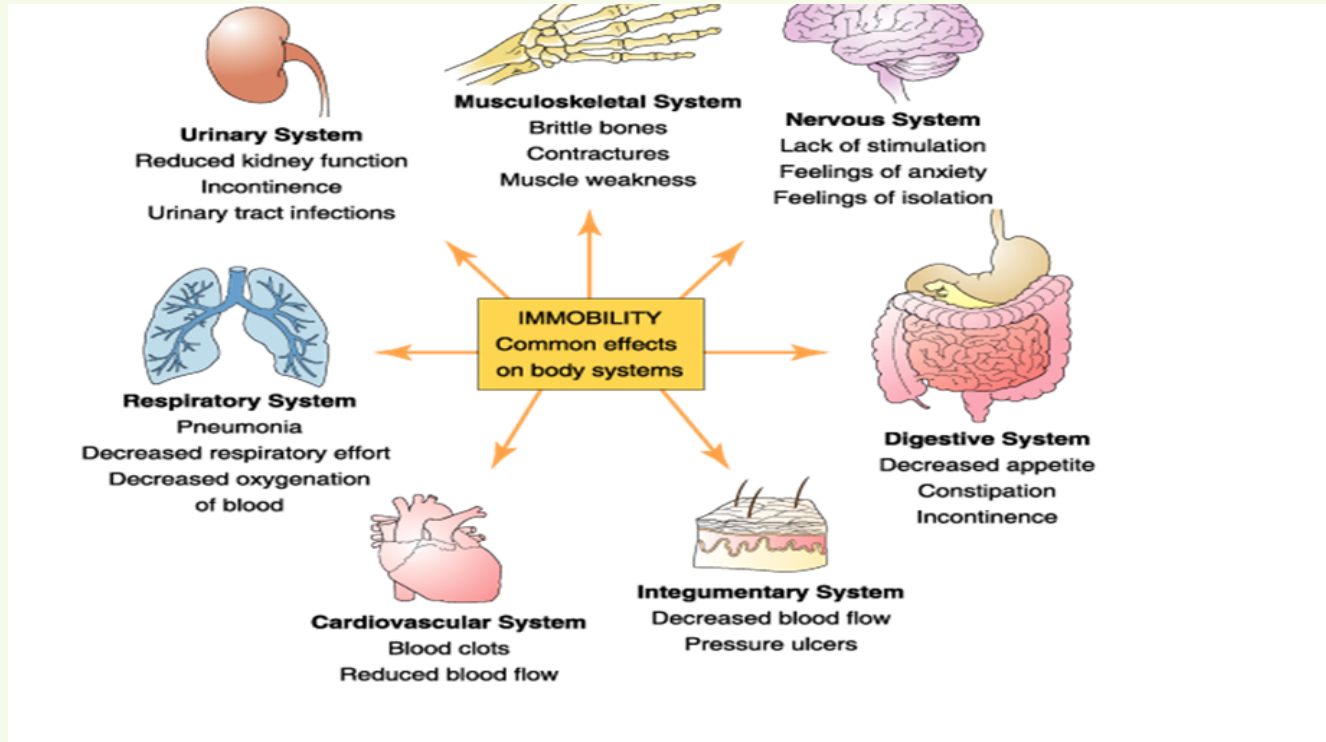
- Natural products formed the basis of medicines.
- Nature ability to produce fantastic array of structurally complex & diverse molecules.
- About 80% of the world population treat themselves only with herbal medicine
- Over 50% of prescription drugs are of medicinal plants.

Why are people attracted towards herbal medicine?

- Tradition : used throughout history
- Natural : perceived as gentler and safer
- Cost : often less expensive than prescription medicine
- Access : patient maintains control & no prescription necessary
- Synergism : a view that multiple ingredients working together yield better results

Each plant contain a
Chemical constituent that
affect specific body systems.





Role of Pharmacognosists

Identification of natural drug sources

Deter of morphological characters

Planning for cultivation of medicinal plants

Protocol development (collection, drying...)

Evaluation Micro/Macroscopically, genetically, chemically, and biologically for QC purposes

Evaluation of pharmacology of crude extracts & active constituents

Isolation characterization of active secondary metabolite

Relationship with other disciplines...

Legal & regulatory issues.

Medical Herbalism

It includes:

- Aromatherapy
- Flower remedy therapy
- Homeopathy (arnica tablets & gel)
- Anthroposophical medicine



Continued

Aspects of modern Herbalism:

1. Herbalism takes approach in that the patient psychological, emotional well being as well as physical health are considered.
2. Herbalist: selects herbs on individual bases
3. He Identifies the cause
4. Herbs stimulate body functions.
5. Herbs eliminate toxins.



Many conditions are treated with medical Herbalism

1. IBS.
 2. PMS.
 3. Depression
 4. Eczema.
 5. Menopausal syndrome.
 6. Migraine & other conditions
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- Traditional medicine is an accessible and affordable health care resource for many countries including countries of the Eastern Mediterranean region.
- In Lebanon, herbal medicine has been widely used as a traditional and complementary approach to healthcare.
- Concurrent use of herbal products and conventional medications can lead to pharmacokinetic and pharmacodynamic interactions called Herbal-Drug Interactions (HDIs), which may alter drug efficacy and safety profiles.

Herbal Medicine

- Herbal medicines are obtained from specific plant parts, such as leaves, flowers, seeds or roots.



- Being "natural" doesn't necessarily mean they are safe. Just like conventional medicines, herbal medicines will have an effect on the body and can be potentially harmful if not used properly.

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- Herbal medicines are one type of dietary supplement and dispensed in many forms such as : tablets, capsules, powders, teas.....
 - Recently there was a revolution in this field as many stores were founded by herbalists or people having certain knowledge in herbal remedies and showing mostly their prescription on medias and how to administer it either by infusion, decoction etc....
 - From my studies in this field for about 17 years and researches done on animals I realize that most of these remedies are useful but they have side effects and might cause death if not given to the right person.
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- Lets take an example (*Crataegus laevigata*) used for angina, heart failure and blood pressure, they are recommending it all times dismissing if the patient takes drugs and blood thinners.
- For this reason patients have to consult his pharmacist or doctor to be in safe side and avoid side effects.
- That what I ask patient to do in medias before starting herbal medication.
- In universities where I teach this material, we explain most drugs derived from plant origin with drug herbal interaction.

- Concurrent use of herbal products and conventional medications can lead to pharmacokinetic and pharmacodynamic interactions called Herbal-Drug Interactions (HDIs), which may alter drug efficacy and safety profiles.
- Pharmacologically, pharmacokinetic interactions involve changes in the absorption, distribution, metabolism and elimination of drugs.
- Pharmacodynamic interactions affect the drug's pharmacological effect on the body. It is important for patients to be aware of these interactions to ensure optimal therapeutic outcomes and minimize potential risks.

- Recently, World Health Organization estimated that 80% of people worldwide rely on herbal medicines for some part of their primary health care.
- Newly, most companies exported herbal medications treating several illnesses and distributing them into pharmacies after registration in MOPH.
- These drugs treat specific system in the body.
- Below I will present some of these drugs newly exported either in form of drugs or herbs and making some kind of propaganda .

Ashwagandha:

- *Withania somnifera* known as ashwagandha was used for hundreds of years.
- People have used the roots and orange-red fruit of ashwagandha for medicinal purposes. The herb is also known as Indian ginseng or winter cherry. Its name describes the smell of its roots (horse smell).



- The species name *somnifera* comes from the Latin word for sleep inducing. In addition to sleep, ashwagandha is commonly promoted for stress, anxiety, serum cortisol level reduction and for cognitive disorders.
- Ashwagandha interact with other medications including antidiabetes medications, antihypertensives, immunosuppressants, sedatives and alzheimer's drugs.
- In addition, ashwagandha may have potential adverse effects on the liver and thyroid and might not be safe for people with prostate cancer or those who are pregnant or nursing.

1-Mandlik Ingawale DS, Namdeo AG. Pharmacological evaluation of Ashwagandha highlighting its healthcare claims, safety, and toxicity aspects. J Diet Suppl 2021;18:183-226 .

2- Holvoet H, Long DM, Law A, McClure C, Choi J, et al. Withania somnifera Extracts Promote Resilience against Age-Related and Stress-Induced Behavioral Phenotypes in *Drosophila melanogaster*; a Possible Role of Other Compounds besides Withanolides. Nutrients 2022;14.

Moisture level

- All drugs are at risk of decaying if the humidity in the drug material exceeds 15%.
- Improperly stored botanical drugs have a musty and often change color.
- However, different levels of moisture are acceptable for each drug.
- For example, 8-10%, moisture in chamomile is allowed.

Resume


- Natural products very important to medicine
- Exist in range of structures that one wouldn't think of synthesizing
- Can act as templates for new drug development
- Untapped reservoir of new compounds

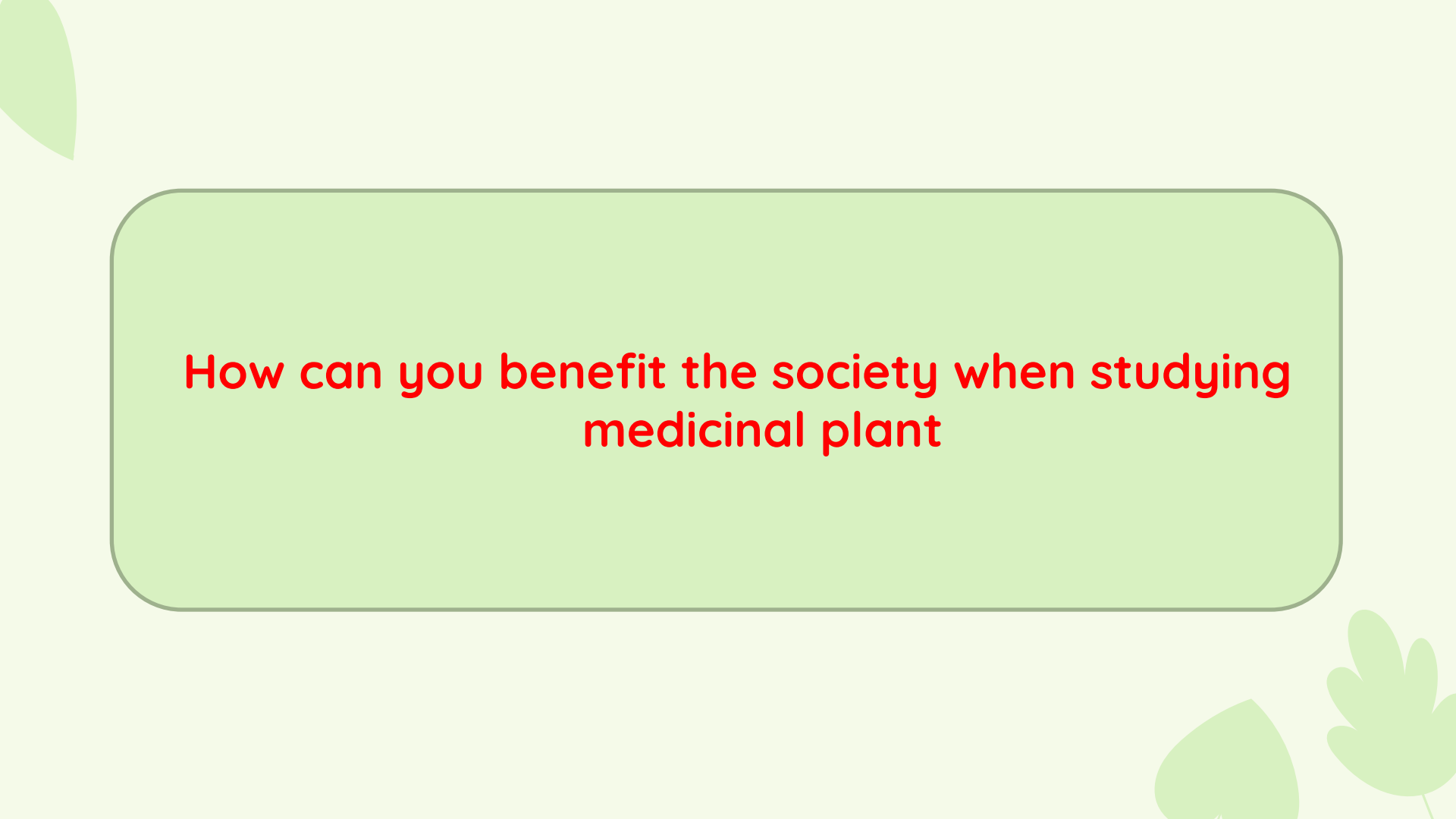


Due to the large use of natural derived materials in all over the world :

- ❖ It is not wise to rely also on the tradition or beliefs.
- ❖ Practical and descriptive studies are helpful and should be considered complementary in the acquisition of reliable data both for scientists and patients too in order to avoid any risk or misuse.

3- Fabio Firenzuoli ., et al. Herbal. Pharmacological evaluation of Ashwagandha highlighting its healthcare claims, safety, and toxicity aspects. J Diet Suppl 2021;18:183-226 .





How can you benefit the society when studying medicinal plant



Thank You