Department of Environmental Science and Health

College of Science

University of Salahaddin

Subject: Medicinal Plants

Course Book: 4th Year/ 1st Semester

Lecturer's name: Assist. Prof. Dr. Badr Qader Surchi

M. Sakar Abdulqadr Saheed

Academic Year: 2022/2023

Course Book

1. Course name	**Medicinal Plants**
2. Lecturer in charge	**Dr. Badr Qader Surchi** **Sakar Abdulqadr Saheed**
3. Department/ College	Department of Environmental Science and Health College of Science
4. Contact	e-mail: badr.surchi@su.edu.krd badirbotany@gmail.com Tel Badr: 07504564589 e-mail: Sakar. Saheed@su.edu.krd Tel Sakar: 07504942040
5. Time (in hours) per week	Theory 2hrs./week Practical 2hrs/week
6. Course code	
7. Teacher's academic	Ph.D. – Assistant Professor
8. Keywords	Medicinal Plants – Secondary Metabolites– Health disorders - Complementary and Alternative Medicine
9. Teacher's academic profile	**Dr. Badr** • Date of Birth: 1 July 1973 • Place of Birth: Erbil • Nationality: Iraqi • Marital status: Married • Sex: Male **Education**: •B.Sc.: Biology/ College of Science (1997-1998)/ University of Salahaddin/ Kurdistan Region/Iraq. •M.Sc.: Plant Biology/ Biology Department/ College of Science (2006)/ University of Salahaddin/ Kurdistan Region/ Iraq. •Ph.D. Medicinal plant (2018)/Bioengineering and Sciences Department/ Natural and Applied Sciences Institute/ kahramanmaraş sütçü imam University (Turkey). **M. Sakar** I graduate from Salahaddin University, department of biology in education science College in 2005. In 2010 I finished my M.Sc. degree in Plant_nutrition. Finally, I became lecturer in 2021.

10. Course overview:

Due to the growing use of herbs and dietary supplements by consumers, students now need a basic knowledge of this topic for their professional practices. To meet this need, the course on medicinal plants is being taught at the department of environmental science and health college of the science University of Salahaddin. This course is designed to provide an appreciation for the contribution of plants to traditional (alternative) and modern medicines worldwide. To achieve this, we will examine historical and cultural aspects of plants and medicine, therapeutic uses of plants, illnesses caused by some plants and their toxins to humans and animals, psychoactive plants, beneficial effects of some food plants, the contribution of medicinal plants to alternative and modern medicines, some medicinal plants of the Kurdistan region, and the future of medicinal plants.

11. Course objective:

- To understand the basic principles of Medicinal plants.
- To provide an overview of Complementary and Alternative Medicine (CAM) therapies
- To understand the mechanisms of action and the important compounds
- To understand what is the best ways of using herbs and alternative medicine

12. Student's obligation

1. Attend all lectures/ teaching hall
2. Student engagements and activities will be monitored
3. Students should prepare for quizzes in each session
4. Show respect and dress appropriately
5. Respect fellow students and their ideas
6. Mobile phones should be switched off or at least keep it in silent mode
7. Performing the official tests/ exams
8. If a student missed more than 5% of the total hours during the course, he/ she will be informed by the dept. for initial warning, and if reached 10% or more will be informed to be expelled from that course in the academic year.

9. Provide reports and give presentation

13. Forms of teaching

1- Lecture presentation by lecturer using data show or board or both

2- Brainstorming and Group discussion

3- Direct questions

4- Use of relevant pictures/ educational films

5- Lectures slides will be distributed in PowerPoint/ PDF format to be printed or in a word document

6- Digital copy of each lecture will be given to all students weekly to obtain their hard copy before the lecture day. All the covered topics will be presented as power point presentations.

14. Assessment scheme:

The grades scheme is as follows:

One writing exam.

Several activities during the course include attendances, reports, quizzes, posters, workshops etc.

Midterm: 50%

Midterm exam(s): 15% Midterm Theory Exam

25% Midterm Practical Exam

10% Activities: Quizzes, attendances, reports, assignments …

Final examination 50% Theory Exam

A. Activities during the course include quizzes, seminar presentations, daily attendance, active participation, reports, and posters,...
B. First Midterm exam will be around 4th to 5thWeeks
C. Final semester exams will be at the end of the course.

15. Student learning outcome:

After finishing the course student will be able to :

- Define plant medicine
- Determine whether or not there is existing evidence for plant medicine therapies for various disease states
- Evaluate existing evidence that supports (or does not support) plant medicine therapies for various disease states
- Review current research about plant medicine efficacy
- Review current research about herb's safety for human consumption
- Discuss current regulation of plant medicine
- Develop answers to herbs and alternative medicine-related questions posed by patients or other health care practitioners
- Health disorders and how to treat them with medicinal plants

16. Course Reading List and References:

- Ben-Erik van Wyk. Medicinal Plants of the World. 2017.
- Linda , RN. And Karl L. Larson. Consumer Health and Integrative Medicine. ISBN 9781284144123. Printed in the United States of America, 2020.
- Andrew Chevallier. Encyclopaedia of Herbal Medicine. ISBN: 9781465449818. Dorling Kindersley, 2016

17. The Theoretical Topics:

W	Theoretical Topics	No. of hours	Date
1	An Overview and introduction to plants Explaining the Course-book	2	
2	History and importance of Medicinal plants	2	
3	Plant parts used dosage forms	2	
4	Plant route of administration. How do plant medicines work? Modes of action	2	
5	Overview of secondary metabolites and their effects 1	2	
6	The nutritional value of herbs	2	
7	**1st Midterm Exam**	1	
8	Alternative Medicine	2	
9	Ethnobotany and Traditional systems of medicine which use medicinal plants	2	
10	Medicinal Plants and Human Health	2	
11	Health disorders and how to treat them with plant medicine and herbs 1	2	
12	Health disorders and how to treat them with medicinal plants 2	2	
13	General Recommendations	2	
14	**2nd Midterm Exam**	1	
15	Review		

18. Practical Topics (If there are any)

W	Practical Topics (If there are any)	No. of hours	Date
1	Introduction	2	
2	Survy and plant collection	2	
3	Plant identification (Identification and classification of plants and seeds using herbarium voucher samples).	**2**	
4	Root and Rhizome medicinal plants	**2**	
5	Stem and leaf medicinal plants	**2**	
6	Flower, fruit and seed medicinal plants	**2**	
7	**1st Midterm Exam**	**1**	
8	Drying, cutting and powdering process	**2**	
9	Crud extraction	**2**	
10	Oil extraction	**2**	

11	The percentage yield, Determination of total condensed tannin and Determination of antioxidant activity	**2**	
12	Phytochemicals analysis in solvents extraction of plants by Liquid chromatography mass-spectrometry LC-MS/MS	**2**	
13	Phytochemicals analysis in solvents extraction of plants by Gas chromatography mass-spectrometry GC-MS/MS	**1**	
14	**2nd Midterm Exam**		

19. Examinations:

1. Compositional 2. Definitions, 3. True or false type of exams 4. Multiple choices, 5- Fill the blanks, 6- Matching between two groups, 7- Select the most appropriate words or statements
2. Why do we study medicinal plants?
3. Write the definition only (4) of the following terms or statements:
Astringent Herbs, Nutritive Herbs, Natural products, Antimicrobial, True alkaloids
4. What is the difference between Primary Metabolites and Secondary Metabolites
5. Count for example all plant parts used in the treatment of illnesses.

Compositional questions: In this type of exam the questions usually start with Explain how, What are the reasons for…?, Why…?, How….?
With their typical answers
6/ Fill in the following blanks
- Green plants absorb light in their leaves and convert it to energy by ----------.
- The term "medicinal plant" include various types of plants used in herbalism----------.
- At least ---------- such compounds have been isolated so far; a number estimated to be less than ---------- of the total.

Examples should be provided
Theory…….

20. Extra notes:

For the practical session, students need to bring their lab coats.
We must have some scientific trips to food factories/ or food companies to see the manufacturing process and hygienic conditions.
The planned schedule is flexible and may change depending on the local circumstances including unexpected holidays.

21. Peer review

This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing a few sentences in this section.
(A peer is a person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).