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**Department of Field Crop and Medicinal Plants**

**College of Agricultural Engineering Sciences Salahaddin University- Erbil**

**Subject: Medicinal and Aromatic Plants**

**Course Book (Theoretical Part)**

**Fourth Year Students**

**Lecturer's name**

**Dr. Aryan Suad Ahmad Dizayee**

**BSc. Plant Production 2008**

**Msc. Medicinal and Aromatic Plants 2013**

**PhD. Crop Ecology 2020**

**Academic Year: 2022-2023**

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**Department of Field Crop and Medicinal Plants**

**College of Agricultural Engineering Sciences Salahaddin University- Erbil**

**Subject: Medicinal and Aromatic Plants**

**Course Book (Practical Part)**

**Fourth Year Students**

**Lecturer's name**

**M.Sc. Arian Mustafa Abdullah**

**B.Sc. Plant Production, Agriculture College / Salahaddin University 2006-2007**

**Master of Biotechnology / Plant Breeding – Biosciences / The University of Melbourne 2015**

**Academic Year: 2022-2023**

**Course Book**

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| **1. Course name** | Medicinal and Aromatic Plants |
| **2. Lecturer in charge** | Lecturer: Dr. Aryan Suad Ahmad Dizayee |
| **3. Department/ College** | Field Crops / Agricultural Engineering Sciences  |
| **4. Contact** | e-mail: aryansuad@yahoo.comTel: (optional): 07504958591 |
| **5. Time (in hours) per week**  | Tuesday 8:30am-10: 30am  |
| **6. Office hours** | Daily from 8:30 to 2:00 |
| **7. Course code** |  |
| **8. Teacher's academic profile**  | Date of Birth: 11 June 1987Place of Birth: ErbilNationality: IraqMarital status: SingleSex: Female**Education:** **B.Sc:** Plant Production/ / College of Agricultural Engineering Sciences (2007-2008)/ University of Salahaddin/ Kurdistan Region/ Iraq.**M.Sc:** Field Crops/ Medicinal & Aromatic plant/ College of Agricultural Engineering Sciences (2013)/University of Salahaddin/ Kurdistan Region/ Iraq.**PhD:** Crop Ecology/ College of Agricultural Engineering Sciences (2020) / University of Salahaddin/ Kurdistan Region/ Iraq.**Work History:**College of Agriculture, Field Crops department/ University of Salahaddin /IraqJune 2020 until date (Lecturer)As an lecturer, I have teaching:I was assisting assistant lecturer in teaching Tobacco production for Third year student, from 2013-2014.I was assisting assistant lecturer in teaching Tobacco technology for Fourth year student, from 2014-2015. **3.** I was assisting assistant lecture in teaching Medicinal & Aromatic plant for Fourth year student, from 2014-2015, 2015-2016, 2016-2017, 2017-2018. **4.** I was assisting lecturer in teaching Agro-ecology and Agro-meteorology for Second year student, from 2018-2019, 2019-2020 and 2021-2022. |
| **9. Keywords** | What are medicinal & aromatic plants, Cultivation, Classification, Collection & Drying, Chemical constituents, Extraction? |
| **10. Course overview:**This course deals with the history of medicinal and aromatic plants uses in different cultures and folk medicine of plant origin as practiced in other countries. Importance of both cultivated and wild grown medicinal species is emphasized.The course includes information on species distribution in relation to ecological factors and agricultural practices required for commercial production.Preparations and formulations of medicinal and aromatic plants and their healing properties are discussed. Information on the most important wild and cultivated species including their taxonomy, botanical description, parts used, chemical constituents, medicinal importance and precautions, cultivation, harvesting and storage of their chemical products are all considered. |
| **11. Course objective:**The aim is to introduce students with the most important species of our wild and cultivated medicinal plants that are increasingly required in the domestic and foreign markets, as the necessary raw materials for the pharmaceutical and food industries. The richness of our medical flora, both in number of species, but also according to their chemical diversity is very high.Students learn as they can on medicinal and aromatic plants in their local habitats and abroad, and gain useful knowledge on their cultivation and commercial production for possible investment in this part of plant production sector.Students should also know on medicinal and aromatic plants, their parts and products used in folk medicine. Their useful uses to treat ailments and possible side effects due to overdoses.Students should be able to direct the uses and utilization of these plants in treatment of human diseases and for national income increases as a priority. The importance of medicinal and aromatic plants of both cultivated and wild grown in the local flora and for general ecosystem is emphasized.  |
| **12. Student's obligation**The objective is for the student to understand What medicinal & aromatic plants are, production, Classification, Collection & drying, extraction. |
| **13. Forms of teaching****Teaching Methods** 1. Lecture 2. Self‐study **Teaching Media** 1. PowerPoint presentations 2. Texts and teaching materials |
| **14. Assessment scheme**Each student will be asked on collecting literature and write a scientific report (term paper) on 1-2 plant species not studied in this course with all information on their taxonomy, botanical description, chemical constituents, medical uses, and ailments are used for, cultivation and production . Most recent literature on these species should be consulted and incorporated. The term paper should be submitted by the end of the semester and before the final exam.We will start most class periods with a short quiz. The quizzes could cover any information presented before that date, but will usually cover information presented in the most recent lectures. The quizzes will be given during the first 5 to 7 minutes of the class period.Exams will consist of a variety of questions, including definition, multiple choices, true/false, matching, diagram and reasons for, occasionally short answer. **Note:** Number of exams and lectures for each exam did not specify.  |
| **15. Student learning outcome:*** Students have an idea on the importance of medicinal and aromatic plants in different cultures, and their historical uses.
* Students able to categorize medicinal and aromatic plants according to different systems, which enable them to know better these species and their role in human and animal health.
* Students know the role of different ecological factors on growth and productivity of these species and their responses to modification in growth factors.
* Students able to cultivate, grow, process and economically produce medicinal and aromatic plants.
* Students able to obtain the active constituents of medicinal and aromatic plants and know their chemistry and values.
* Students know on methods of medicinal and aromatic plants preparations, formulations for marketing and healing properties.
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| **16. Course Reading List and References‌:**1. 1. Ahmad, J.A.Al-Saed and Bedawe M. (1993). Medicinal and Aromatic Plants. University of Cairo, Egypt.
2. 2. Bunney, S. (1984). Herbs: Their Medicinal and Culinary Uses. Octopus Book. Ltd, London
3. 3. Duke, T.A. (1989). Handbook of Medicinal Herbs. CRC Press Inc. Florida, USA.
4. 4. Eagle, R. (1981). Herbs, Useful Plants. BBC Publications, London.
5. 5. FAO-UN. (1983). Selected Medicinal Plants (Production & Protection).
6. 6. Fluck, H. (1976). Medicinal Plants and Their Uses. W. Foulshman Co. Ltd.
7. 7. Grewal, R.C. (2000). Medicinal Plants. D.K. Publishers Distributors.

8. Qasem, J. R. (1997). Medicinal and Aromatic Plants. Al- Quds Open University Publications . 450 pp. |
| **17. The Topics:** | **Lecturer's name** |
| In this section The lecturer shall write titles of all practical topics he/she is going to give during the term. This also includes a brief description of the objectives of each topic, date and time of the lecture. **1st week:** Introduction, Importance and uses of Medicinal Plants and Herbs **2nd week:** Classification of medicinal and aromatic plant **3rd week:** Classification of natural Products **4th week:** What are Metabolites.**First Exam****5th week:** What are Essential Oils.**6th week:** Secondary Metabolites (Alkaloids)**7thweek:** Glycosides**8thweek:** Terpenes**Second Exam****9thweek:** Flavonoid constituents of essential oils**10thweek**:Production of some important Medicinal & Aromatic plants**.**  | Lecturer's nameDr. Aryan S. A. Dizayeeex: (2 hrs)7/2/202314/2/202321/2/202328/2/20237/3/202328/3/202331/3/20234/4/202311/4/202318/4/202328/4/2023 |
| **18. Practical Topics (If there is any)** |  |
| **1st week:** Introductory Lecture **2nd week:** Cultivation of Medicinal Plants **3rd week**: Production of Cumin and Mint.**4th week:** Production of Black seed and Chia Seeds**5th week:** Collection and Drying.**6th week:** Extraction System.**7th week: First Exam****8th week:** Cold Water Extraction**9th week:** Ethanol Extraction**10thweek:** Phenol Compound extraction**11thweek:** Tanin and Flavonoid extraction.**12th week: Second Exam**  | Lecturer's nameArian M. Abdullahex: (3 hrs)7/2/202314/2/202321/2/202328/2/20237/3/202328/3/202331/3/20234/4/202311/4/202318/4/202328/4/2023 |
| **19. Examinations:*****1. Compositional:*** In this type of exam the questions usually starts with Explain how, What are the reasons for…?, Why…?, How….? **1- write reasons of the following:** 1- Some primary metabolites are precursors for the synthesis of secondary metabolites.2- Enzymatic release of cyanide does not normally occur in intact plants.3- Many essential oils can be used for such a wide range of conditions.***2.True or false type of exams:***1. Primary metabolites are produced during the non- growth phase of cell while secondary metabolites are produced during the growth phase of the cell.**(False) growth phase, non-growth phase.**
2. A common cyanogenic glycoside is amygdalin which occurs in many representatives of the family Compositae.**(False) Rosaceae.**

***3. Multiple choices:***1. ………………………… define that a whole or parts of the plant contains the Essential oils such as Mint, Thyme.

a. medicinal plant **b.** aromatic plant c. ornamental plant 2- Cultivation of …………. requires a long, hot summer of three to four months. a. garlic b. clove **c.**cumun |
| **20. Extra notes:**Some of the lectures will be presented in PowerPoint lecture will be provided in class. Some textbooks (optional) are recommended for the Medicinal & Aromatic plant of the course. Also, the best wishes to the development of Lab. in the department. |
| **21. Peer reviewپێداچوونه‌وه‌ی هاوه‌ڵ** This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.*(A peer is 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).*ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌  |