



**CD 8.5.1 DISCIPLINE SYLLABUS FOR
UNIVERSITY STUDIES**

Edition: 09

Date: 08.09.2021

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**FACULTY OF PHARMACY
STUDY PROGRAM PHARMACY**

CHAIR OF PHARMACOGNOSY AND PHARMACEUTICAL BOTANY

APPROVED

at the meeting of the Commission for Quality
Assurance and Evaluation of the Curriculum in
Pharmacy

Minutes No. 2 of 09.11.2021
Chairman, associate professor,
PhD of pharmacy

Uncu Livia



APPROVED

at the Council meeting of the Faculty of
Pharmacy

Minutes No 3 of 16.12.2021

Dean of Faculty, associate professor,
PhD of pharmacy

Ciobanu Nicolae



APPROVED

at the meeting of the Chair of pharmacognosy and
pharmaceutical botany

Minutes No. 27 of 30.06.2021

Head of chair, professor, Dr. hab. of biol.

Calalb Tatiana

SYLLABUS

DISCIPLINE AROMATHERAPY

Integrated studies

Type of course: **Free choice discipline**

Curriculum was elaborated by author:

Cojocaru-Toma Maria, PhD of pharmacy, associate professor

Chisinau, 2021



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I. INTRODUCTION

- **General presentation of the discipline: place and role of the discipline in the formation of the specific competences of the professional / specialty training program**

Aromatherapy is a branch of integrative medicine by using medicinal plants, vegetal products containing terpenoids and essential oils in order to change the mood, cognitive function or population health. The application of aromatherapy together with other allopathic techniques, promotes the knowledge and use of medicinal plants, vegetal and phytotherapeutic products containing essential oils and presents new trends related to the strategy of aromatherapy to benefit from preventive or curative treatment.

The study of the Aromatherapy course will enable future pharmacists to know other methods of prophylaxis and treatment applied in phytotherapeutic practice. The knowledge gained will contribute in the application of aromatherapy as complex therapies for the prevention and treatment of diseases.

- **Mission of the curriculum (aim) in professional training**

Advising patients on the use of aromatherapy as a branch of integrative medicine through the study of vegetal products containing essential oils. Benefits of using aromatherapy based on acyclic, monocyclic, bicyclic, sesquiterpens and aromatic essential oils (chemical compounds, pharmacological action).

The skills formed during the Aromatherapy course will serve as a benchmark in the development of the professional attitude regarding the capitalization of vegetal products and medicinal plants containing essential oils, and their use in the pharmaceutical industry. The knowledge gained will contribute to the development of thinking in addressing the basic problems of applying aromatherapy with other allopathic techniques.

- **Language (s) of the course:** Romanian, English;
- **Beneficiaries:** students of the IIrd year, Faculty of Pharmacy

II. MANAGEMENT OF THE DISCIPLINE

Code of discipline			
Name of the discipline		Aromatherapy	
Person(s) in charge of the discipline		PhD, associate professor, Cojocaru-Toma Maria	
Year	IIrd	Semester/Semesters	IV
Total number of hours, including:			60
Lectures	15	Practical/laboratory hours	
Seminars	30	Self-training	15
Clinical internship			
Form of assessment	Exam	Number of credits	2



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III. TRAINING AIMS WITHIN THE DISCIPLINE

At the end of the discipline study the student will be able to:

- **at the level of knowledge and understanding:**
 - concepts of vegetal product, terpenoids, essential oils, aromatherapy;
 - to define and know the advantages of aromatherapy;
 - to know the pharmacological action, the therapeutic indications, the particularities in the administration of vegetal products and phytopreparations with essential oils;
 - to know the applications of aromatherapy with other complementary and alternative therapies.
- **at the application level:**
 - the collection, drying and conditioning of vegetal products containing essential oils;
 - the rational use of vegetal products containing essential oils;
 - development of skills to apply the aromatherapy as a method of prevention and treatment;
 - advising patients and the public on the benefits of using aromatherapy.
- **at the integration level:**
 - to appreciate the role of aromatherapy in the context of other complementary and alternative therapies;
 - to promote skills and knowledge of aromatherapy;
 - to apply the knowledge acquired for the subsequent acquisition of Pharmacognosy and Phytotherapy courses;
 - to be able to assimilate the new developments in the field of aromatherapy.

IV. PROVISIONAL TERMS AND CONDITIONS

Aromatherapy is a faculty discipline, the study of which at the university stage will allow future pharmacists to know alternative and complementary methods that applied in phytotherapeutic practice through good knowledge of vegetal products containing essential oils.

For assimilation the discipline of Aromatherapy are necessary knowledge in the field of Pharmaceutical botany, Physiology, Biochemistry, as well as communication skills ability, teamwork, etc.

V. THEMES AND ESTIMATE ALLOCATION OF HOURS

Lectures, practical hours/ laboratory hours/seminars and self-training

No.	THEME	Number of hours		
		Lectures	Seminars	Self-training
1.	Aromatherapy. History. Notions. Traditions regarding the application of aromatherapy together with other allopathic techniques. The science and art of Aromatherapy. Forms of application of aromatherapy (topical, massage, spraying, inhalation, bath salts, compresses, masks, etc.). Benefits of aromatherapy	1	2	1
2.	Requirements for the collection, drying and condition of vegetal products containing essential oils. Analytical Normative Documentation and Pharmacopoeias reference. Phytotherapeutic products with essential oils.	1	2	1



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No.	THEME	Number of hours		
		Lectures	Seminars	Self-training
3.	Medicinal plants. Vegetal products containing essential oils (active principles, pharmacological action).	1	2	1
4.	Terpenoids. Essential oils. Classifications. Techniques and methods for obtaining of essential oils. Advantages and disadvantages of methods.	1	2	1
5.	Aromatherapy on the basis of vegetal products containing acyclic terpenoids: <i>Coriandri fructus</i> , <i>Lavandulae flores</i> , <i>Melissae herba</i> , <i>Rosae flores</i> (active principles, pharmacological actions, phytotherapeutic products).	1	2	1
6.	Aromatherapy on the basis of vegetal products containing monoterpenoids: <i>Carvi fructus</i> , <i>Eucalypti folia</i> , <i>Menthae piperitae folia seu herba</i> , <i>Salviae folia</i> (active principles, pharmacological actions, phytotherapeutic products).	1	2	1
7.	Aromatherapy on the basis of vegetal products containing bicyclic monoterpenoids: <i>Hyssopi herba</i> , <i>Juniperi fructus</i> , <i>Tanacetii flores seu herba</i> , <i>Valerianae rhizomata cum radicibus</i> and camphorus sources (active principles, pharmacological actions, phytotherapeutic products).	1	2	1
8.	Aromatherapy on the basis of vegetal products containing sesquiterpenoids: <i>Arnicae flores</i> , <i>Betulae gemmae</i> , <i>Betulae folia</i> , <i>Chamomillae flores</i> , <i>Inulae rhizomata et radices</i> , <i>Populi nigrae gemmae</i> (active principles, pharmacological actions, phytotherapeutic products).	1	4	1
9.	Aromatherapy on the basis of vegetal products containing aromatic terpenoids: <i>Anisi vulgaris fructus</i> , <i>Asari folia</i> , <i>Asari rhizomata</i> , <i>Basilici herba</i> , <i>Foeniculi fructus</i> , <i>Origanii vulgaris herba</i> , <i>Serpilli herba</i> , <i>Thymi vulgaris herba</i> (active principles, pharmacological actions, phytotherapeutic products).	1	2	1
10.	Application of vegetal products containing essential oils in the pharmaceutical, cosmetic and food industries.	2	2	2
11.	Application of aromatherapy in some systemic disorders (central nervous system, cardiovascular, dermatological, gastrointestinal tract, etc.)	2	4	2
12.	Precautions in using of vegetal products containing essential oils, side effects, contraindications, toxicity. Risks in the application of aromatherapy.	1	2	1
13.	Advice for patients in the rational use of vegetal and phytotherapeutic products containing essential oils.	1	2	2
Total (60 hours)		15	30	15



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VI. PRACTICAL ABILITIES PURCHASED AT THE END OF THE COURSE

Purchased practical tools:

- to develop skills in identification of medicinal plants and vegetal products with essential oils;
- to apply correctly the rules of collection, drying and primary processing of vegetal products containing essential oils groups: acyclic, monocyclic, bicyclic, sesquiterpenoid and aromatic.
- to develop skills to apply aromatherapy as a method of prophylaxis and treatment;
- to contribute to the rational use of medicinal plants and products containing essential oils, for prophylactic and therapeutic purposes along with other allopathic techniques.

VII. REFERENCE OBJECTIVES OF CONTENT UNITS

Objectives	Content units
Theme (chapter) 1. Aromatherapy. Forms of application of aromatherapy.	
<ul style="list-style-type: none"> • to define the context of aromatherapy; • to know the advantages and disadvantages of aromatherapy; • to know the concepts of vegetal products and active principles. 	Aromatherapy. History. Notions. Traditions of applying aromatherapy alongside other allopathic techniques. Science and art in aromatherapy. Forms of application of aromatherapy (topical, massage, spray, inhalation, bath salts, compresses, masks, etc.). Benefits of aromatherapy. Conditioning and standardisation of vegetal products containing essential oils.
Theme (chapter) 2. Essential oils. Classifications. Aromatherapy on the basis on vegetal products containing essential oils.	
<ul style="list-style-type: none"> • to know the classification of terpenoids and essential oils; • to know the methods of obtaining essential oils and their applicability; • to define aromatherapy on the basis of vegetal products containing essential oils. 	Terpenoids. Essential oils. Classifications. Techniques and methods for obtaining of essential oils. Advantages and disadvantages of methods. Aromatherapy on the basis of vegetal products containing: <ul style="list-style-type: none"> - acyclic, - monocyclic, - bicyclic, - sesquiterpene, - aromatic terpenoids.
Theme (chapter) 3. Application of aromatherapy in industries and systemic disorders. Phytotherapeutic products containing essential oils	
<ul style="list-style-type: none"> • to know the applications of aromatherapy in the pharmaceutical, cosmetic and food industries; • to know the application of aromatherapy in systemic disorders; • familiarization with vegetal and phytotherapeutic products containing essential oils used in systemic diseases 	Aromatherapy. Application of vegetal products containing essential oils in the pharmaceutical, cosmetic and food industries. Phytotherapeutic products containing essential oils according to the State Nomenclature of Medicinal Products of the Republic of Moldova. Application of aromatherapy in some systemic disorders (central nervous system, cardiovascular, dermatological, immune, gastrointestinal tract, etc).



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Objectives

Content units

Theme (chapter) 4. Counselling patients in the rational use of essential oils.

- to know the adverse effects, contraindications and vegetal products containing potentially toxic volatile oils;
- to know the specifics of counselling patients in the application of aromatherapy.

Precautions in the use of products containing essential oils, adverse effects, contraindications, toxicity. Risks in the application of aromatherapy.
Counselling patients in the rational use of vegetal and phytotherapeutic products containing essential oils.

VIII. PROFESSIONAL (SPECIFIC (SC) AND TRANSVERSAL (TC) COMPETENCES AND STUDY OUTCOMES

✓ **Professional (specific) (SC) competences**

PC1. Knowledge, understanding and use of specific terms of aromatherapy.

PC2. Application of techniques and methods for obtaining of essential oils from various vegetal products.

PC3. Use and adaptation of theoretical knowledge from the field of aromatherapy in situations of practical activity.

PC4. Knowledge of vegetal products containing essential oils, their application in aromatherapy.

PC5. Knowledge of alternative and complementary therapies: phytotherapy, homeotherapy, aromatherapy, apitherapy, gemmotherapy, phytobalneology, acupuncture, kinetherapy, dieto therapy, balneotherapy, heleo therapy etc.

✓ **Transversal competences (TC)**

TC1. Responsible execution of professional tasks with the application of values of professional ethics, tendency to perfect knowledge and practical skills, selection of critical analysis and formulation of conclusions, observance of ethical and deontological rules.

TC2. Ability to social interaction and group activity, priority determination in professional training.

TC3. Fitting in to interdisciplinary projects, extracurricular activities, performing activities and accomplish specific roles in team activities. Promoting intuitive spirit, dialogue, cooperation, positive attitude and respect for colleagues.

✓ **Study outcomes**

- to define the benefits of aromatherapy as a branch of integrative medicine;
- to be competent in the rational use of phytopreparations through knowledge of vegetal products rich in essential oils, their active principles and their actions;
- be able to inform the public, doctors and pharmacists about vegetal products and phytopreparations containing essential oils;
- to know the specifics of counselling patients and the public in the application of aromatherapy as a branch of alternative and complementary therapy;
- to be able to implement the knowledge acquired in research work.

Note. Study outcomes (are deduced from the professional competencies and formative valences of the informational content of the discipline).



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IX. STUDENT'S SELF-TRAINING

No.	Expected product	Implementation strategies	Assessment criteria	Implementation terms
1.	Working with information sources	Reading, comprehending and viewing information on the subject	Critical capacity to evaluate accumulated information	During the semester
2.	Preparing and supporting of the presentations	Selection of the theme and establishment of the components of thematic project; Establishing the terms of the realization and the requirements; Mentioning of practical applications, creativity elements, conclusions and sources of bibliography; Including the reviews from teachers and colleagues.	The degree of penetration in the essence of the project theme; The level of scientific argumentation of necessity; Formation of the personal attitude, coherence of exposure and scientific correctness; The presentation method.	During the semester

X. METHODOLOGICAL SUGGESTIONS FOR TEACHING-LEARNING-ASSESSMENT

• ***Teaching and learning methods used***

The Aromatherapy discipline is taught in classical ways: with lectures, practical works and self training. They are used different methods and classical didactic methods, oriented towards the efficient acquisition and achievement of the objectives of the didactic process. In the theoretical course, along with the traditional methods (lectures-exposure), are used the modern methods with the information technologies. During the practical works are used individual forms and group activity, For learning of material are used different systems (scientific language, graphical and computerized language) and teaching materials (tables, schemes, herbarium, vegetal products, essential oils phytodrugs, etc.).

• ***Applied teaching strategies / technologies (specific to the discipline)***

In the process of studying Aromatherapy, the students acquire new methods and practical skills: they systematically learn to work, to think scientifically, to analyze, to recapitulate, to find the connection between theory and practice. Particular attention is paid to the student's individual work, content and organization.

• ***Methods of assessment (including the method of final mark calculation)***

Current:

The modality and volume of the material for the assessment of knowledge is determined at the chair meeting at the beginning of the academic year, in such a way as different methods can be combined for the evaluation.

The annual mark being made up of a totalization and individual work

Final: Exam

The exam of Aromatherapy discipline (summative assessment) is a combined and consisting of the annual mark and exam (0,5/0,5).

Method of mark rounding at different assessment stages

Intermediate marks scale (annual average, marks from the	National Assessment	ECTSEquivalent
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examination stages)	System	
1,00-3,00	2	F
3,01-4,99	4	FX
5,00	5	E
5,01-5,50	5,5	
5,51-6,0	6	
6,01-6,50	6,5	D
6,51-7,00	7	
7,01-7,50	7,5	C
7,51-8,00	8	
8,01-8,50	8,5	B
8,51-8,00	9	
9,01-9,50	9,5	A
9,51-10,0	10	

The average annual mark and the marks of all stages of final examination (computer assisted, test, oral) - are expressed in numbers according to the mark scale (according to the table), and the final mark obtained is expressed in number with two decimals, which is transferred to student's record-book.

Absence on examination without good reason is recorded as "absent" and is equivalent to 0 (zero). The student has the right to have two re-examinations.

XI. RECOMMENDED LITERATURE:

A. Compulsory:

1. Gille E., Crețu R., Gavril G., Crețu M., Ștefanache C., Sidorov E. Medicinal and aromatic plants from the wild flora of Dobrogea (Romania), Piatra Neamt, 2020.
2. Nisteanu A. Farmacognozie. Chișinău, 2000.
3. Gîrd C. Curs de Farmacognozie-Fitochimie-Fitoterapie, vol.I, II, ediția a II-a, Ed. Printech, București, 2013.
4. Cojocaru-Toma M. Produse vegetale și fitopreparate din Republica Moldova. Compendiu pentru lucrări de laborator la farmacognozie. Chișinău, 2017.

B. Additional:

1. WHO Monographs on medicinal plants commonly used in the Newly Independent States (NIS), World Health Organization, Geneva, 2010.
2. European Pharmacopoeia (Ph. Eur.) 10th ed., EDQM (<https://www.edqm.eu/en/european-pharmacopoeia-ph-eur-10th-edition>).
3. Stanescu U., Miron A., Hancianu M., Aprotosoia C. Plante medicinale de la A la Z; monografiile ale produselor de intereaterapeutic. Vol.I, Iasi: Ed. "Gr.T.Popa", 2004.
4. Istudor V. Farmacognozie. Fitochimie. Fitoterapie, vol. III, Ed. Medicală, București, 2005.
5. Acimovic M., Cvetkovic M., Stankovic J. et al. Analysis of volatile compounds from vegetal products obtained by headspace method. Arabian Journal of Medicinal and Aromatic Plants, 2017.