



UNIVERSITAS SEBELAS MARET
FACULTY OF TEACHER TRAINING AND EDUCATION
BACHELOR OF BIOLOGY EDUCATION STUDY PROGRAM
Building D 3rd Floor FTTE UNS Jl Ir. Sutami No. 36 A Ketingan Surakarta 57126
Indonesia

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Medicinal Plants

Undergraduate Programme in Biology Education

Module Handbook

Module Name	Medicinal plants (Tanaman Obat)																		
Module level	Undergraduate Programme																		
Course Code	02013152020																		
Abbreviation, if applicable	-																		
Courses included in the module, if applicable	-																		
Semester/Term	6 th																		
Module coordinator (s)	-																		
Lecturer (s)	Dr. Ir. Yudi Rinanto, MP																		
Language	Bahasa Indonesia (Indonesian Language)																		
Classification within the curriculum	Compulsory /Elective																		
Teaching format/class hours per week during the semester	Direct instruction/face to face/blended learning: 26.7 hours / Week / semester : lecture, discussion, workshop Structured Activity: 32 hours / Week/semester (Through the case method with analysis of journal articles, students learn diversity of medicinal plants, through Team-based projects students) Self-study Activity: 32 hours / Week / semester (Students learn various learning methods according to the demands of 21st century learning from various sources.																		
Workload	<table><tr><th>Type</th><th>CSU</th><th>Face to Face</th><th>Structured Activities</th><th>Self-study</th></tr><tr><td>T</td><td>2</td><td>26.7h (0.88 ECTS)</td><td>32h (1.06 ECTS)</td><td>32h (1.06 ECTS)</td></tr><tr><td>Total</td><td>2</td><td colspan="3">90.7 h (3 ECTS)</td></tr></table>				Type	CSU	Face to Face	Structured Activities	Self-study	T	2	26.7h (0.88 ECTS)	32h (1.06 ECTS)	32h (1.06 ECTS)	Total	2	90.7 h (3 ECTS)		
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Total	2	90.7 h (3 ECTS)																	
Credit Points:	2 CSU (3 ECTS)																		
Requirements	-																		
Learning goals/competencies	PLO 2 They are able to apply the basic advance knowledge in biology to solve the problem in biology. PLO 7 They are able to solve problem and present the idea argumentatively.																		



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	PLO They are able to demonstrate creativity, accuracy, discipline, responsibility, adaptability, have an independent initiative, autonomous learning, and do lifelong learning CLO 1 Students can explain the characteristics of medicinal plants. (PLO 2) CLO 2 Students can analyze the content of active ingredients. (PLO 2) CLO 3 Students can do the multiplication of medicinal plants. (PLO 2, PLO 10) CLO 4 Students can do the processing of traditional medicine materials. (PLO 2, PLO7, PLO 10) <table><tr><td>CLO/ PLO</td><td>P L O 1</td><td>P L O 2</td><td>P L O 3</td><td>P L O 4</td><td>P L O 5</td><td>P L O 6</td><td>P L O 7</td><td>P L O 8</td><td>P L O 9</td><td>P L O 10</td></tr><tr><td>CLO1</td><td></td><td>*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CLO2</td><td></td><td>*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>CLO3</td><td></td><td>*</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>*</td></tr><tr><td>CLO4</td><td></td><td>*</td><td></td><td></td><td></td><td></td><td>*</td><td></td><td></td><td>*</td></tr></table>	CLO/ PLO	P L O 1	P L O 2	P L O 3	P L O 4	P L O 5	P L O 6	P L O 7	P L O 8	P L O 9	P L O 10	CLO1		*									CLO2		*									CLO3		*								*	CLO4		*					*			*
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CLO4		*					*			*																																														
Content	The Diversity of Medicinal and Herbal Plants course provides the following materials: 1. The diversity of traditional herbal plants in Indonesia, 2. The content of phytochemical compounds in herbal plants, 3. Cultivation of medicinal plants, 4. Processing, production and marketing of medicinal plants																																																							
Attribute Soft skill	1. Able to think conceptually, analitically, and logically 2. Have good communication skills 3. Able to solve problem and present the idea argumentatively																																																							
Study/exam achievements	Student is required to attend the face-to-face lecture minimum 75% to be able to take Mid and Final exam. It considered to complete the course and pass if student obtain at least 60% of maximum final score. The final score (FS) is calculated based on the following ratio: <table><tr><th>Aspect</th><th>(%)</th></tr><tr><td>Report of Case analysis</td><td>30</td></tr><tr><td>Participation and Project</td><td>30</td></tr><tr><td>Mid-Term Test</td><td>20</td></tr></table>	Aspect	(%)	Report of Case analysis	30	Participation and Project	30	Mid-Term Test	20																																															
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	Final Exam	20
	Final Score	100
Form of Media	Power point slide, article and specimen	
Literature (primary references)	1. Departemen Kesehatan RI. (1985). Cara Pembuatan Simplisia. Jakarta: Dirjen POM. 2. Departemen Kesehatan RI. (1995). Matera Medika Indonesia Jilid VI. Jakarta. 3. Departemen Kesehatan RI. (2000). Parameter Standar Umum Ekstrak Tumbuhan Obat. Jakarta: Dirjen POM. 4. Departemen Kesehatan RI. (2004). Monografi Ekstrak Tumbuhan Obat Indonesia Volume I. Jakarta: Badan POM RI. 5. Robinson, T. (2011). <i>Kandungan Organik Tumbuhan Tingkat Tinggi</i>. Bandung: ITB. 6. Sudarsono, dkk. (2002). <i>Tumbuhan Obat II</i>. Yogyakarta : POST UGM. 7. Wiryowidagdo, S. (2008). <i>Kimia dan Farmakologi Bahan Alam</i>. Jakarta : EGC. 8. Harefa, D. (2020). Pemanfaatan Hasil Tanaman Sebagai Tanaman Obat Keluarga (TOGA). <i>Madani: Indonesian Journal of Civil Society</i>, 2(2), 28-36. 9. Dwisatyadini, M. (2017). Pemanfaatan tanaman obat untuk pencegahan dan pengobatan penyakit degeneratif. <i>Optimalisasi Peran Sains dan Teknologi untuk Mewujudkan Smart City</i>, 2, 237-270. 10. Purnobasuki, H. (2019). Potensi mangrove sebagai tanaman obat. <i>Biota: Jurnal Ilmiah Ilmu-Ilmu Hayati</i>, 9(2).	

Assessment
Presentation Assessment Rubric

Dimension	Weight	Score	WxS	Comments
Material mastery	30%			
The accuracy of solving the problem	30%			
Communication skills	20%			
Ability to deal with questions	10%			



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Props/presentations	10%			
Final Score	100%			

DIMENSI ON	Scale				
	Very Good ≥85	Good 71-84	Sufficient 60-70	Deficient 40-59	Very Deficient <40
Organisati on	Well organized by presenting facts that are supported by examples that have been analyzed according to the concept	well organized and present convincing facts to support conclusions.	The presentation has focus and presents some evidence to support the conclusion	Sufficiently focused, but insufficient evidence to be used in drawing conclusions	There is no clear organization. Facts are not used to support statements.
Content	Content can inspire listeners to develop their minds.	Contents are accurate and complete. Listeners get new insights about the topic.	Content is generally accurate, but incomplete. Listeners can learn some implied facts, but they don't add new insight into the topic	The content is less accurate, because there is no factual data, it does not add to the listener's understanding	The content is inaccurate or too general. Listeners don't learn anything or are sometimes mislead.
Presentatio n Style	Speak with passion, transmit enthusiasm and enthusiasm to listeners	The speaker is calm and uses proper intonation, speaks without relying on notes, and interacts intensively with the listener. The speaker always makes eye contact with the listener.	In general the speaker is calm, but with a flat tone and quite often relies on notes. Sometimes eye contact with the listener is ignored.	Based on the notes, no ideas are developed outside the notes, the sound is monotonous	The speaker is anxious and uncomfortable, and reads notes rather than speaking. Listeners are often ignored. There is no eye contact because the speaker is looking more at the whiteboard or screen.

Test Rubric Assessment

CLO	Indicators	Numbe r
CLO 1	1. Able to explain development of medicinal plants	1
	2. Able to explain the scope of medicinal plants	1
	3. Able to classifying medicinal plants	1
	4. Able to understand	1
CLO 2	1. Able to explain	1
	2. Able to elaborate	1
	3. Able to analysis	1
	4. Able to explain the process	1
	5. Able to explain the mechanism	1
	6. Able to give examples	1
CLO 3	1. Able to explain the kinds of medicinal plants	1
	2. Able to explain the characteristic	1
	3. Able to classifying	1



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CLO 4	4. Able to explain the role of medicinal plants	1
	5. Able to analysis syntesis reaction	1
	6. Able to mention kinds of syntesis reaction	1
	1. Able to explain the structure	1
	2. Able to explain the mechanism	1
	3. Able to explain the structure	1
	4. Able to explain	1
	5. Able to analysis	1
	6. Able to identify	1



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FINAL EXAM

Course : Medicinal Plants
Date : Monday, June 28 2021
Time : 1 hour
Lecture : Dr. Yudi Rinanto, MP.

1. The use of medicinal plants in treatment therapy is recommended for **preventive** efforts than **curative**. Why is this, give an explanation!
2. Among the many types of medicinal plants that have been studied, according to you, what medicinal plants have the prospect of being developed in Indonesia, and what is the reason why you choose these types of medicinal plants. Give an explanation!
3. Each type of medicinal plant has the ability to synthesize specific secondary metabolites as natural medicinal ingredients. The amount of content varies, even for the same type of medicinal plant. What factors influence and how is the explanation?
4. a. If medicinal plants produce only secondary metabolites in very small quantities, then why does this happen in plants? What are the benefits? Give an explanation!
b. Provide an explanation of the secondary metabolite synthesis pathway and how it relates to the primary metabolite synthesis pathway. Give an explanation!