INSTRUCTIONAL DESIGN BOOK
FOR DISTANCE LEARNING EDUCATION

BASIC HERBAL MEDICINE MODULE

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CONTENTS

I. BACKGROUND

It was estimated that more than 80% of world population still rely on traditional herbal medicine for primary health care. Traditional herbal medicine has empirical evidence can be used to prevent and cure some diseases. Indonesia is endowed with a rich and unique biodiversity which make Indonesia becomes a home for about 80% of the world's medicinal plants. Traditional herbal medicine in Indonesia is categorized into jamu, standardized herbal medicine (OHT), and phytopharmaca. The government has promoted "jamu" as an authentic brand from Indonesia and also conducted the scientification of jamu programme.

Traditional herbal medicine interest was also increased during COVID-19 pandemic. More than a year after COVID-19 was declared as pandemic by WHO, the world is still struggling to overcome the COVID-19 pandemic. Researchers are still trying to discover a drug for this disease from plant and also, in several countries herbal medicine is used as complementary therapy for COVID-19. Due to current condition, learning basic herbal medicine is very pivotal. Limiting close face to face contact with others and avoiding gathering in public area are some actions to prevent the spread of COVID-19. Because of that, e-learning or distance learning is implemented in every educational institution including Universitas Indonesia (UI). E-learning in UI includes distance learning and massive online open course (MOOC). E-learning in UI gives a chance for students to connect with anyone from any country and learn directly from the experts.

For helping medical student from over the world to learn about basic herbal medicine and also introducing Indonesia's rich and unique biodiversity, Departement of Medical Pharmacy, Faculty of Medicine, Universitas Indonesia will conduct Basic Herbal Medicine Module. In this module, students will learn about basic concept of herbal medicine, type of herbal medicine dosage form, active metabolites in medicinal plants, benefit and safety of traditional herbal medicine, preclinical and clinical trial of herbal medicine, and use of herbal medicine in clinical practice. Students will also have virtual laboratory activities about extraction method and analyze active metabolites in medicinal plants. All lectures, assignments, and activities are conducted via Zoom and OCI following the suggested precautionary measures against the COVID-19 pandemic. This module is usually conducted at the 7th and 8^{th} semester in the fourth stage of medical education (medical sciences) with three credit points.

II. LEARNING OBJECTIVE

Terminal Learning Objectives

Students have basic knowledge and skills in using herbal medicine rationally for therapy in health services.

Supporting Learning Objectives

After completing this module, students are expected to have mastered the following learning objectives:

1. Explain the basic concept of herbal medicine
2. Explain the active metabolites in medicinal plants
3. Explain the herbal medicine dosage form and manufacturing
4. Explain the benefit, safety, and quality of herbal medicine
5. Explain the preclinical and clinical trial of herbal medicine
6. Explain the scientification programme of jamu

III. SCOPE OF STUDY
See table.

Scope	**Topics**	**Subtopics**	**References**	**Teaching Method**	**Evaluations Method**	**Number of questions**
Basic concept of herbal medicine	History and development of traditional medicine	Empirical use of herbal therapy	1,2,3,4	Online lecture Group discussion Virtual field trip	Summative	1
		The Rise of jamu				
	Definition of herbal drug	Definition of herbal medicine according to WHO				
		Definition of herbal medicine based on Ministry of Health (Indonesia)				
		Difference between herbal medicine and western therapy				
	Classification of herbal medicine	Classification of herbal medicine based on WHO				
		Classification of herbal medicine in Indonesia				

Active metabolites in medicinal plants	Primary metabolite in medicinal plants	Carbohydrate, lipid, protein	5,6	Online lecture Journal reading Group discussion	Presentation Summative Article Review Social media education	2
	Secondary metabolite in medicinal plants	Tanin, Alkaloid, Flavonoid, polyphenol, etc				
Benefit and safety of herbal medicine	Use of herbal medicine for disease prevention	Imunomodulator, Hepatoprotector, Neuroprotector	5,6	Online lecture Journal reading Virtual field trip	Presentation Summative *Article Review* Social media information about herbal medicine	
	Use of herbal medicine for disease treatment	Hypertension, Diabetes, Acne, Gastrointestinal Tract (GIT) Disorder, Hypercholesterolemia, Hyperuricemia, OA				
	Safety of herbal medicine	Herbal medicine interaction				
		Side effect of herbal medicine				
		Toxicity of herbal medicine				
Type of herbal drug dosage form and	Standardization of herb-drug	Planting, harvesting, distribution and storaging process	7	Lecture Journal reading	Presentation Article review	

manufacturing process		Production process, Good Manufacturing Process of Herbal Drug (*CPOTB*)		Group discussion Virtual field trip		
	Manufacturing of herb-drug	Extraction method				
		Formulation				
	Type of herb-drug dosage form	Oral dosage forms: capsule, Tablet, syrup, Pil				
		Topical dosage form: gargle, mouthwash, ointment, gel, cream, mask, *douche*, pasta				
Preclinical and clinical trial of herb-drug	Preclinical trial	In vitro and in vivo trial	8	Lecture	Summative	1
		Pharmacokinetic and pharmacodynamics study of herb-drug				
		Acute, sub-acute and chronic toxicity study of herb-drug				
	Clinical trial	Clinical trial phase 1,2,3,4				
Jamu scientification programme	Scientification of Jamu	Background and program objectives	9	Lecture Discussion	Summative	1
		Characteristic of Jamu which included in the program				

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1. World Health Organization. Guidelines for the regulations of herbal medicines in the south-east Asia regions.2003
2. SK Kepala Badan POM mengenai penandaan obat tradisional Indonesia. 2011.
3. Peraturan Menteri Kesehatan. Penyelenggaraan Pengobatan Komplementer-Alternatif di FasilitasPelayanan Kesehatan. 2007.
4. Keputusan Menteri Kesehatan Republik Indonesia. Standar Pelayanan Medik Herbal. 2008.
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6. World Health Organization. WHO guidelines on safety monitoring of herbal medicines in pharmacovigilance systems. 2004
7. Badan POM. AcuanSediaanHerbal, Vol. 3, Ed.7. Badan POM. 2007.
8. World Health Organization. Research guidelines for evaluating the safety and efficacy of Herbal Medicines. 1993.
9. Peraturan Menteri Kesehatan. Saintifikasi Jamu. 2010

IV. TEACHING METHODS

Teaching method in this elective module is Distance Learning method. The learning activities in this module include group discussions, self-study, group presentations and feedback by resource persons. The detailed teaching methods are shown in the Activities Matrix.

Learning time duration

Lectures via *Zoom*

No.	Lectures Topic	Facilitator	Duration (hour)
1	Introduction	RWH	1
2	Basic concept of herbal medicine	EHP	2
3	Phytochemistry of medicinal plants	RWH	2
4	Herbal drug dosage form and manufacturing process	ADS	2
5	Preclinical trial of herb-drug	SF	2
6	Use of herb-drug for several metabolic syndrome disease	DGB	2
7	Clinical trial of herb-drug	SF	2
8	Standardization of herb-drug	DGB	2
9	Scientification of Jamu	EHP	2
10	Capita selecta	EHP	2
	Total		19 hours

Discussion via *platform* OCI and *Zoom*

No	Discussion Topic	Speaker/Fasilitator	Duration (hours)
1	Introduction videoof Jamu	EHP	2
2	Article review and social media education leaflet assignment	RWH	2
3	Journal reading ADS	ADS	3
4	Journal reading RWH	RWH	3
5	Journal reading DGB	DGB	3
6	Discussion Special Topic SF	SF	3
7	Journal reading WF	WF	3
8	Presentation article review	RWH dan SF	4
	Total		23 hours

Laboratorium work via platform OCI and *Google Classroom*

No	Labwork Topic	Tutor	Duration (hours)
1	Phytochemistry	RWH	2
2	Extraction method and TLC	WF	3
3	Spectrophotometry	WF	2
4	Dosage form formulation	DGB	3
	Total		10 hours

Credit points

No	Activities	Hours	Credits
1	Interactive lecture	19	1,188
2	Virtual Laboratory work	10	0,312
3	Discussion	23	0,718
4	Self-study	70	1,093
5	Virtual Field Trip	6	0,09
	TOTAL		**3, 401**

Learning sources
Textbooks; resources persons; film; slide presentations; practical guidebook; internet

Instructional media
Computers / laptop, synchronous/asychronous platform (EMAS), synchronous platforms (Zoom, Microsoft teams atau Google Meet), notebooks.

V. RESOURCES

Module team

- Chair : Rani Wardani Hakim, SSi, Apt, M.Biomed (RWH)
- Secretary : dr. Adisti Dwijayanti, M.Biomed (AD)
- Trigger Team : Prof. Dr. dr. Erni H. Purwaningsih. MS. (EHP)
  Dr. dr. Siti Farida, M.Kes (SF)
  dr. Adisti Dwijayanti, M.Biomed (AD)
  Desak Gede Budi K, S.Farm, Apt., M.Biomed (DGB)
  Rani Wardani Hakim, S.Si., Apt., M.Biomed (RWH)
  Wilzar Fachri, S.Farm, Apt, M.Si (WF)
- PIC of lab work : Wilzar Fachri, S.Farm, Apt, M.Si (WF)
- PIC of examination : Wilzar Fachri, S.Farm, Apt, M.Si (WF)
- PIC of e-learning : Desak Gede Budi K, S.Farm., Apt., M.Biomed (DGB)
- Secretariat : Emi Endah Lestari
- Laboratory staff : Refita Kusuma Putri

Facilities

1. Instructional Design Book (IDB), Student Guide Book (SGB), and Tutor Guide Book (TGB) that have been adjusted for Distance Learning which sent by email and uploaded to EMAS. Students can download SGB from EMAS
2. Handouts/lecture outlines, articles (pdf/msword) that can be downloaded from EMAS
3. Laboratory manuals
4. Computer, laptop, internet network
5. Practical Lab facilities (demo video recording, picture, picture of preparate and drug dosage form, youtube)
6. Online lecture room in Zoom (capacity: 100 people)
7. Secretariat
8. Laboratorium

VI. STUDENT ASSESSMENTS (SA)

Student assessment will be based on the process and the outcome of the learning activities. To fulfill the minimal prerequisite for summative assessments the students must attend at least 80% of learning activities especially group discussion, lab work and virtual field trip. Every student must submit all task such as draft of article review and leaflet of herbal information which will be uploaded to Instagram.

Weighting

Process:

Discussion	15 %
Lab work	10%
Article Review	25%
Leaflet of herbal Information in social media	15 %

Knowledge:

Journal reading	15 %
Summative (Essay)	20 %

Program Evaluation (PE)

- The number of students who got score B- (B minus) is <10% of total students
- 90% of the planned teaching activities run according to schedule.
- Changes in schedule, whether time or type of activity, should not exceed 10%.
- Every student must attend at least 80% of planned teaching activity
- Every tutors attend planed teaching activity punctually