



Model (No 12)
Course Specification : Phytochemistry (1)
2020/2021

Faculty of Pharmacy

Farabi Quality Management of Education and Learning - 14/1/2021

University : Mansoura University

Faculty : Faculty of Pharmacy

Department :

1- Course data :-

Code:	PG315 PG315		
Course title:	Phytochemistry (1)		
Level:	Three		
Program Title:	• pharmaceutical sciences		
Specialization:			
Teaching Hours:	Theoretical: 2	Tutorial:	Practical: 1

2- Course aims :-

1. At the end of the course the student should: Gain valuable knowledge about the chemistry of carbohydrates , glycosides and tannins
2. Master the different methods of isolation and characterization of naturally occurring compounds as carbohydrates, glycosides, tannins, bitter principles and natural toxins as well as their pharmacological potential.
3. Gain understanding of qualitative and quantitative estimation methods of carbohydrates, glycosides and tannins

3- Intended learning outcomes of course (ILO'S) :-

a- Knowledge and understanding

1. [a3] List the different analytical techniques for drugs from synthetic and natural origin using good laboratory practice (GLP) guidelines and validation procedures.
 - o a3.1-Recognize the various analytical technique for qualitative and quantitative determination of carbohydrates, glycosides, tannins and bitter principles adapting the suitable laboratory rules

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2. [a4] Enumerate the theories of isolation, synthesis, purification, identification and standardization methods of chemicals, natural and pharmaceutical compounds; as well as the fundamentals of drug design and development.
 - a4.1-List the different theories of isolation, purification and characterization of carbohydrates, glycosides, tannins and bitter principles as well as their pharmacological effects.

b- Intellectual skills

1. [b3] Determine suitable methods of analysis and QC of drugs as raw material, in dosage forms and in biological fluids.
 - b3.1-Design appropriate methods for qualitative and quantitative determination of carbohydrates, glycosides, tannins and bitter principles as natural constituents
2. [b5] Design appropriate methods for isolation, synthesis, purification, identification and standardization of various chemicals and pharmaceutical compounds.
 - b5.1-Discover new methods for the isolation and purification of carbohydrates, glycosides tannins and bitter principles from their natural sources
3. [b16] Predict the physical and chemical properties and biological activity of natural and synthetic compounds based on molecular structure.
 - b16.1-Anticipate the physical, chemical and pharmacological characters of carbohydrates, glycosides, tannins and bitter principles

c- Professional and practical skills

1. [c4] Apply appropriate methods for extraction, isolation, synthesis, purification, identification and standardization of active substances from different origins.
 - c4.1-Manipulate the suitable methods for carbohydrates, glycosides and tannins extraction, isolation and purification from their natural origin and assure their rational uses
2. [c11] Conduct experimental and research studies and present, analyze and interpret the results.
 - c11.1-Implement the research study on how to purify, analyze and formulate natural products (sp. carbohydrates, glycosides and tannins).
3. [c14] Apply different qualitative and quantitative analytical, chemical, microscopical, and biological methods for identification, quality control (QC) and assay of raw materials as well as pharmaceutical preparations.

- c14.1-Conduct the appropriate method for the carbohydrates, glycosides and tannins qualitative and quantitative determination

d- General and transferable skills

1. [d3] Interact effectively in team working.
 - d3.1-Work effectively in a team.
2. [d6] Adopt professional ethical, legal and safety guidelines in pharmacy practice
 - d6.1-Adapt safety guidelines in pharmacy practice
3. [d8] Present information clearly in written, electronic and oral forms.
 - d8.1-Communicate clearly in written, electronic and oral forms.
4. [d9] Promote critical thinking, problem-solving, decision-making, and time managing capabilities.
 - d9.1-Demonstrate decision making abilities and time management capabilities

4- Course contents :-

No	Topics	Week No.
1	Introduction to carbohydrates	1
2	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: monosaccharides	2
3	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: disaccharides	3
4	Separation , purification, qualitative identification and medicinal uses of homo-polysaccharides, hetero polysaccharides and polysaccharide containing amino-sugar units	4,5
5	Introduction to glycosides	6
6	Phenolic glycosides: separation, purification, identification, quantitative and quantitative evaluation and their medicinal uses.	8-9
7	Terpenoid glycosides: separation, purification, identification, quantitative and quantitative evaluation and their medicinal uses . And Bitter principles	10
8	Tannins: Introduction, classification and study of different classes and biological activities	11

5- Teaching and learning methods :-

S	Method	Knowledge and understanding	Intellectual skills	Professional skills	General skills
1	Lectures using white board and data show.	a3.1,a4.1	b3.1,b5.1,b16.1		d6.1,d8.1
2	Practical session using laboratory equipment	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d9.1
3	Discussion session	a3.1,a4.1	b3.1,b5.1,b16.1		d3.1,d8.1,d9.1

6- Teaching and learning methods of disables :-

1. non

7- Student assessment :-

a- Student assessment methods

No	Assessment Method	Knowledge and understanding	Intellectual skills	Professional skills	General skills
1	Written exam	a3.1,a4.1	b3.1,b5.1,b16.1		d8.1
2	Practical exam	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d9.1
3	Oral exam	a3.1,a4.1	b3.1,b5.1,b16.1		d3.1,d6.1,d8.1,d9.1

b- Assessment schedule

No	Method	Week
1	Mid-Term	7
2	Practical	11
3	Written	15
4	Oral	15

c- Weighting of assessments

No	Method	Weight
1	Mid_term examination	10
2	Final_term examination	50
3	Oral examination	15
4	Practical examination and Semester work	25
5	Other types of assessment	0
Total		100%

8- List of references

S	Item	Type
1	Evans, W.C "Trease and Evans". "Pharmacognosy" 15th edition, 2002	Books
2	Torsell B. G "Natural Product Chemistry, A Mechanistic, Biosynthetic and Ecological Approach", 1999	Books
3	Dewick P. M."Medicinal Natural Products, a Biosynthetic Approach", 3rd edition John Wiley & sons, 2009	Books
4	Lecture notes prepared by staff members	

9- Matrix of knowledge and skills of the course

S	Course contents	Knowledge and understanding	Intellectual skills	Professional skills	General skills
1	Introduction to carbohydrates	a4.1	b16.1	c11.1	d8.1
2	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: monosaccharides	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d8.1,d9.1
3	Classification, separation , purification, qualitative and quantitative evaluation and medicinal uses of: disaccharides	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d8.1,d9.1
4	Separation , purification, qualitative identification and medicinal uses of homo-polysaccharides, hetero polysaccharides and polysaccharide containing amino-sugar units	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d8.1,d9.1
5	Introduction to glycosides	a4.1	b16.1	c11.1	d8.1
6	Phenolic glycosides: separation, purification, identification, quantitative and quantitative evaluation	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d8.1,d9.1

	and their medicinal uses.				
7	Terpenoid glycosides: separation, purification, identification, quantitative and quantitative evaluation and their medicinal uses.	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d8.1,d9.1
8	Tannins: Introduction, classification and study of different classes and biological activities	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1,c14.1	d3.1,d6.1,d8.1,d9.1
9	Bitter principles	a3.1,a4.1	b3.1,b5.1,b16.1	c4.1,c11.1	d6.1,d8.1

Course Coordinator(s): -

Weaam Nabil ELSayed Ibrahim

Head of department: -

Mona Goudah Mohamed Zaghlol