

Al Azhar University-Gaza

Faculty of Pharmacy

Phytochemistry (1)



Jun 01, 2015

Time: 2 h

Mark: /100

إسم الطالب/ة ثلاثي بالعربية:

Final Exam 2013/2014

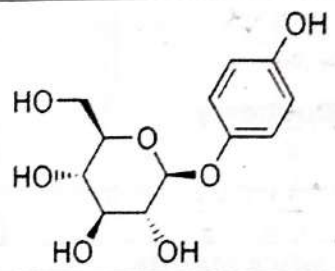

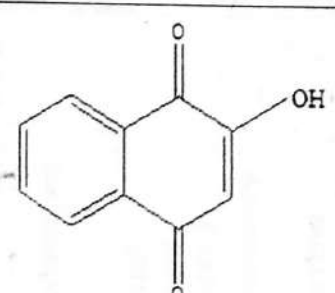
- I. Please Reading Carefully the following statements and put Truth (T) or False (F) conform each one: (40M)

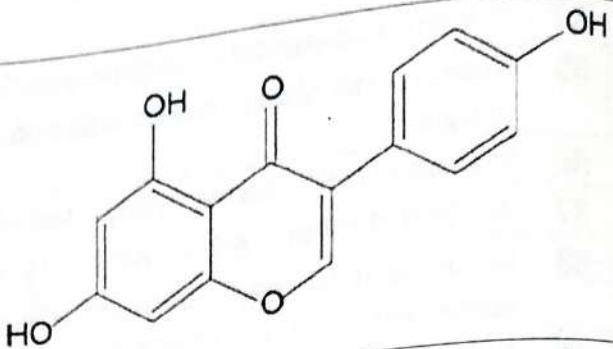
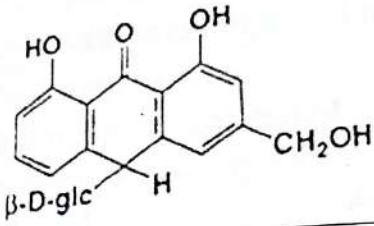
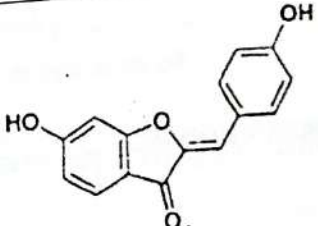
No.	Statement	T/F
1	The use of plants as medicines goes back to Civilizations of the ancient Arabian	
2	Phytochemistry is a knowledge of the drug obtaining from raw material to medicament.	
3	The bioassay-guided fractionation leading to isolation of active ingredient (s).	
4	A remarkable trend by many users towards herbal remedies due to safe use of herbs.	
5	Secondary metabolites are more important than primary metabolites because of their large distribution in plant kingdom	
6	Determination of accompanying substance refer to chemical contains of the drug.	
7	Choosing the most suitable methods for extraction play a role in quality of the drug.	
8	Phenolic are aromatic ring substituted by one or more hydroxyl group, can be ether, ester or glycoside, include primary & secondary metabolites.	
9	Phenolic play a main role in brain protection, from both points of view chemical and biological.	
10	The interaction of the hydroxyl groups of phenolic with the π -electrons of the benzene ring gives the ability to chelate metal ions involved in the production of free radicals.	
11	Carbolic acid derived from <i>Tolu balsamum</i>	

12	The most abundant biopolymer, contributes largely to the impermeability, strength and resistance to enzymatic degradation of lignified cell walls is lignin.
13	Benzoic acid derivatives are naturally occurring phenolic compounds having an aromatic ring to which a three-carbon side chain is attached.
14	Cinnamic derivatives tend to isomerize in alkaline medium.
15	Separation of the phenolic constituents of mixtures can be achieved by spectrophotometric methods.
16	The most common pathway to obtain phenolic compounds is acetate pathway
17	Condensation of PEP with E4P yield to chorismic acid
18	Claisen-type pericyclic re-arrangement, via phenyl pyruvate, to prephenate lead to phenylalanine.
19	Glycosidic Phenylpropanoids esters have interesting Antidiarrheal potential activity
20	Arctostaphylos uva-ursi belong to Fabaceae family
21	Anti-inflammatory properties of Uva-ursi due to present of Phenylpropanoids glycosides
22	Uva-Ursi preparations should not be administered with Drugs or foods that increase uric acid.
23	Liver damage results from the over dose of Uva-ursi administration due to hydroquinone.
24	Cynaropicrin, one of the main phenolic compounds present in Artichoke
25	Artichoke can increase the bile flow, this fact due to present of Cynarin
26	Ingredients in artichoke rhizomes have been shown to reduce cholesterol by inhibiting HMG-CoA reductase.
27	Unlike antibiotics, Echinacea makes our own immune cells more efficient in attacking bacteria.
28	Angelicin one of the linear coumarin.
29	The principal Lignans precursor found in flaxseed is secoisolariciresinol diglucoside.
30	Silibinin reduces intracellular and secreted forms of prostate-specific antigen (PSA) levels and inhibits prostate cancer cell growth.
31	Dry ginger is more potent than Fresh ginger because of gingerol & shogaol are formed during storage
32	The anti-inflammatory effect of Ginger is thought to be due to inhibition of both pathways cyclooxygenase and 5-lipoxygenase.
33	Rosemary stimulate hair growth because of high content of anti-inflammatory agents.

34	The chief component in Yarrow is Chamazulene	
35	Humus, one of the most traditional food for Palestinians, consider rich in lignin	
36	Malvadin is 3' Methyl 3,5,7,4' tetra(OH) anthocyanidin	
37	Wu wei zi meaning five taste fruit, this refer to schizandra	
38	In turmeric the ingredient which responsible to aroma is α & β tumerone	
39	Ginkgolide B is a potent inhibitor of platelet-activating factor, as a result induced Prevention of lipid peroxidation	
40	Linustatin and neolinustatin yielding under optimal conditions 30-50 mg of Hydrogen cyanide	

II. Match from column A the suitable item to column B (15M)

No.	A	No. selection	B
1	Postmenopaus		
2	Laxative		
3	Aloin		St.John Worts
4	Hawthorn		Reagent for anthraquinon
5	Witch Hazel		
6	Genistein		Astringent & antidiarrheal
7	Aurone		Inhibit tumor growth

8	Humulene		
9	Lawsone		Vascular protective & antiedemic Cardiotropic effect
10	Cannabis sativa		
11	Rubus fruticosus		
12	Blueberry		
13	Lady's Mantle		Euphoric
14	Bornträger		Hemorrhoids
15	Arbutin		Aloe anthranoids
16	Flavokavin		
17	Ginger		
18	Curcuminoids		
19	Gomisin		
20	Etoposide		

III. Please, complete the following table:

(40M)

No.	Common name	Scientific name	Main Active ingredient	Effect	Target Patient
1	Hops				
2	St. John Wort's				
3	Aloe				
4	Senna				
5	Black Walnut				
6	Hawthorn				
7	Witch Hazel (Bark)				
8	Blueberry				
9	Yarrow				
10	Turmeric				

IV. Starting from 3-p-glyceric acid to obtain 5-dehydroquinic acid.

(5M)

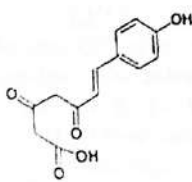
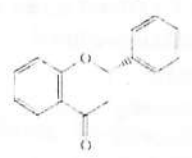
Good Luck
Dr. Mazen A. El-Sakka
Jun, 2015

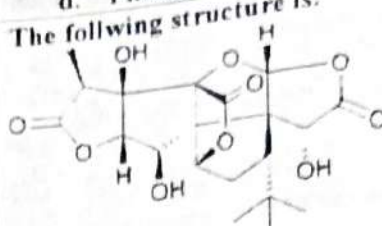
FINAL EXAM 2013

إسم الطالب/ة بالعربية (ثلاثي):

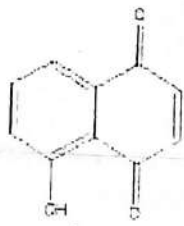
الرجاء عدم الكتابة بالقلم الرصاص

I. Select the Best Correct Answer: (40M)

1	The use of plants as medicines goes back to: a. Ayurveda medicine b. Pharmacognosy knowledge c. Early man d. Written evidence of traditional medicine	41	Phospholipids present in high amount reach more than 50% in: a. Flaxseed b. Soybean c. Ginger d. Curcum
2	The knowledge of drugs means: a. Pharmacognosy b. Phytochemistry c. Plant metabolism d. Traditional Medicine	42	The following type of structure is refer to:  a. Ar-C3 + 2 × C2 (stylpyrones) b. Ar-C3 + 3 × C2 (isoflavonoids)
3	Isolation of the natural active ingredient a science belong to: a. Screening clinical trials b. Pharmacognosy c. Phytochemistry d. Biochemistry	43	Aroma source of turmeric due to: a. α & β tumerone b. Curcumin c. Gingerol d. Shogoul
4	Other chemical groups than the main one refer to: a. Active ingredient(s) b. Substance contents c. Accompanying ingredient(s) d. Mineral & Vitamins	44	All Flavonoids have a common biosynthetic origin. a. Truth b. False
5	Phenolics are able to react as: a. Antioxidant b. Pro-oxidant c. Anti-inflammatory d. All of the above	45	One of the functions of flavonoids in plants: a. Dfence & protection b. Reproduction c. Heavy metal tolerance d. All of the above
6	C ₆ -C ₁ phenolic acids that are hydroxylated derivatives of: a. Benzoic acid b. Cinnamic acid c. Phenylpropanoids d. Simple phenols	46	The following structure is: 

			<ul style="list-style-type: none"> a. Flavanol b. Flavonol c. Flavanone d. Flavone
7	<p>From stability point of view phenols are:</p> <ul style="list-style-type: none"> a. Stable b. Unstable c. Most of phenols are stable d. Most of phenols are unstable 	47	<p>The following structure is:</p>  <ul style="list-style-type: none"> a. Sylimarin b. Ginkgolide B
8	<p>Detection of phenols with TLC must be in:</p> <ul style="list-style-type: none"> a. Acid medium b. Alkaline medium c. Present of ferric chloride d. Vanillin and HCl 	48	<p>Less polar flavonoids are extracted with chloroform while more polar with alcohol.</p> <ul style="list-style-type: none"> a. Truth b. false
9	<p>The first reaction in Shikimic pathway is:</p> <ul style="list-style-type: none"> a. Formation of 3-P-glyceric acid b. PEP + 3-P- Erythrose c. Cyclization of DAHP to 5-dehydroquinate 	49	<p>Catechins & proanthocyanidins are extracted with water.</p> <ul style="list-style-type: none"> a. Truth b. False
10	<p>Chorismate acid holds a key position in metabolism.</p> <ul style="list-style-type: none"> a. Truth b. False 	50	<p>Anthocyanins are extracted with cold acidified methanol.</p> <ul style="list-style-type: none"> a. Truth b. False
11	<p>Amination and anthranilate formation from responsibility of:</p> <ul style="list-style-type: none"> a. Pyruvic acid b. 5-HO-quinic acid c. Chorismic acid d. Phosphoenol Pyruvic 	51	<p>The first flavonoids is:</p> <ul style="list-style-type: none"> a. Chalcone b. Naringenin c. Kaemferol d. Quercetin
12	<p><i>Arctostaphylos uva-ursi</i> belong to:</p> <ul style="list-style-type: none"> a. Ericaceae family b. Fabaceae family c. Asteraceae family d. Lamiaceae family 	52	<p><i>Japanese Pagoda</i> refer to:</p> <ul style="list-style-type: none"> a. <i>Ginkgo biloba</i> b. <i>Sophora japonica</i> c. <i>Passiflora japonica</i>
13	<p>The active ingredient of Uva-ursi is:</p> <ul style="list-style-type: none"> a. Arbutin b. Cyanidin c. Gallotannins d. Lithospermic acid 	53	<p>The principal and high amount ingredient in Thyme is:</p> <ul style="list-style-type: none"> a. Thymonine b. Thymol c. Rosemarinic acid d. Salvigenin
14	<p>The tannins in Uva-Ursi act as an:</p> <ul style="list-style-type: none"> a. Anti-inflammatory b. Antiseptic c. Antibleeding d. Antibacterial 	54	<p>The effect of thyme is:</p> <ul style="list-style-type: none"> a. Bronchial antispasmodic & antibacterial b. Expectorant c. Cough d. All of the above

15	<p>The antimicrobial effect is associated with:</p> <ol style="list-style-type: none"> Aglycon hydroquinone released from arbutin in acid medium Aglycon hydroquinone released from arbutin in alkaline medium Aglycon hydroquinone released from benzoic acid Aglycon hydroquinone released from shikimic acid 	55	<p>Chamazulene present in:</p> <ol style="list-style-type: none"> <i>Thyme vulgaris</i> <i>Passiflora incarnate</i> <i>Achillea millefolium</i> <i>Ginkgo biloba</i>
16	<p>Administration of Uva-ursi with aspirin lead to:</p> <ol style="list-style-type: none"> Increasing of the activity of Uva-ursi. Decreasing of the activity of Uva-ursi. Delay of the activity of Uva-ursi. Inactivation of uva-ursi. 	56	<p>Anthocyanins arise from the general metabolism of:</p> <ol style="list-style-type: none"> Flavonoids Tannins Phenylpropanoids
17	<p>The fat burner effect of artichoke due to:</p> <ol style="list-style-type: none"> Chlorogenic acid Neochlorogenic acid Cynarin Cynaropicrin 	57	<p>Anthocyanins are soluble in chloroform and alcohols.</p> <ol style="list-style-type: none"> Truth False
18	<p>The antioxidant effect of artichoke due to:</p> <ol style="list-style-type: none"> Phenolic properties of the drug. Vitamins present in the drug. Quercetin & Silymarin Inhibiting HMG-CoA reductase 	58	<p>Blueberry Inhibit collagen induced platelet aggregations; this effect due to:</p> <ol style="list-style-type: none"> Anthocyanin Proanthocyanidins Flavonoids Minerals & vitamins
19	<p>Increasing of bile flow due to:</p> <ol style="list-style-type: none"> Antioxidant properties of cynarin. Cholagogue effect of cynarin Anti-inflammatory effect of cynarin High amount of fiber in the drug. 	59	<p>Astringent and antiseptic activities of tannins due to presence of:</p> <ol style="list-style-type: none"> Water soluble polyphenols Condensed tannins Hydrosoluble tannins (B+C)
20	<p>Fresh artichoke is an excellent source of:</p> <ol style="list-style-type: none"> Vitamin B₃ Vitamin B₆ Vitamin B₉ Vitamin B₁₂ 	60	<p>True tannins are simple phenols with molecular weight reach 5000 D</p> <ol style="list-style-type: none"> Truth False
21	<p><i>Cynara scolymus</i> is contraindication in cases of bile duct blockage.</p> <ol style="list-style-type: none"> Truth False 	61	<p>Hydrosoluble tannins are classified in</p> <ol style="list-style-type: none"> Condensed & complex tannins True & pseudo tannins True & Condensed tannins None of the above
22	<p>The anti-inflammatory effect of rosemary due to:</p> <ol style="list-style-type: none"> Phenolic acids Flavonoids Diterpen Triterpen 	62	<p>Pseudo tannins are simple phenolics that gives gallitannins & ellagitannins.</p> <ol style="list-style-type: none"> Truth False
23	<p>Rosemary consider one of the memory enhancer, this fact due to presence of:</p> <ol style="list-style-type: none"> Phenolic acids Flavonoids 	63	<p>Flavan-3,4-diols called:</p> <ol style="list-style-type: none"> Lecoanthocyanidins C-glucosidic ellagitannins Proanthocyanidins

	<p>c. Diterpen d. Triterpen</p>		<p>d. Phlobaphenes</p>
24	<p>The volatile oils in rosemary have a role in: a. Antiseptic b. Mood elevator c. Brain performance d. All of the above</p>	64	<p>Condensed tannins are converted into red insoluble compounds known as a. Lecoanthocyanidins b. C-glucosidic ellagitannins c. Proanthocyanidins d. Phlobaphenes</p>
25	<p>Rosemary is a very good source of: a. Vitamin A & iron b. Vitamin A & manganese c. Vitamin C & magnesium d. Vitamin D & calcium</p>	65	<p>The highest amount of tannins found in a. Blackberry b. Blueberry c. Tea d. Oak</p>
26	<p>Balsams are defined as oleoresine. a. Truth b. False</p>	66	<p>Lady's Mantle shown to inhibit tumor growth. a. Truth b. False</p>
27	<p>Echinacoside belong: a. Polysaccharide b. Alkamide c. Phenylpropanoids d. Caffeic acid derivatives</p>	67	<p>The cardiotropic effect of crataegus is caused by the increased membrane permeability for calcium as well as the stimulation of phosphodiesterase. a. Truth b. False</p>
28	<p>Prenylation in 6 position yield to a. Linear furanocoumarin b. Angular furanocoumarin c. Linear furano / pyrano coumarin d. Angular furano / pyrano coumarin</p>	68	<p>One of the best drugs for bleeding hemorrhoids Witch Hazel a. Truth b. False</p>
29	<p>The glycosides forms of coumarins are: a. More soluble in water b. Less soluble in water c. Non soluble in water</p>	69	<p>Lawson (2-hydroxy-1,4-naphthaquinone) is the active ingredient of lawsonia, from quinones. a. Truth b. False</p>
30	<p>Khellin is used in vitiligo and: a. UTI b. PMS c. BPH d. GIT</p>	70	<p>The following structure is:</p>  <p>a. Lawsone b. Juglone c. Myreicin d. Hyperforin</p>
31	<p>The main biological properties of dong quai due to: a. Coumarin b. Lignans c. Isoflavonoids d. Mineral & Vitamins</p>	71	<p>The sedation effect of hawthorn attributed to the oligomeric procyanidins. a. Truth b. False</p>

32	Vasodilatory effect of dong quai due to: a. Coumarin b. Lignans c. Isoflavonoids d. Mineral & Vitamins	72	<i>Cascara sagrada</i> is a. Emollient b. Laxative c. Purgative
33	Dong quai is contraindicated in case of: a. CHF b. PMS c. Pregnancy d. Children	73	Senna is contraindication in cardiac patients, this fact due to: a. Purgative effect of senna b. Hypokalemia effect c. Increase the side effect of cardiac drugs d. Dehydration
34	Results from bonding between the β carbons of side chain of two units derived from 1-phenylpropane: a. Lignans b. Neolignans c. Flavonoids d. Isoflavonoids	74	Walnut is a great remedy for the brain functions. This fact due to: a. Oleic acid b. Omega 3 c. Juglone d. All of the above
35	The drug obtaining from <i>Podophyllum pelatum</i> is: a. Taxol b. Pellatin c. Etoposide d. Teniposide e. None of the above	75	St. John's Wort theoretically increasing the risk for hypertensive crisis. a. Truth b. False
36	Lignans are famous as: a. Antitumors b. Anti-inflammatory c. Nutritive d. Diuretics	76	The medicinal part of cannabis is: a. Leaves b. Twig tips of the female flowers c. Twig tips of the male flowers d. Whole plant
37	Milk thistle belong to: a. Ericaceae family b. Fabaceae family c. Asteraceae family d. Lamiaceae family	77	The active ingredient in cannabis is: a. 9-tetrahydrocannabinol b. Cannabidiol c. Cannabinol d. Caryophyllen
38	The hepatoprotective effect of silibinin due to: a. Decreases production of superoxide by the Kupffer cells. b. Inhibits leukotriene formation. c. Increases glutathione production by the liver. d. All of the above	78	Psychotropic action of cannabis due to: a. 9-Tetrahydrocannabinol b. Cannabidiol c. Cannabinol d. All of the above
39	Gomisin, one of the active ingredients of: a. <i>Sylibum marinum</i> b. <i>Schizandra chinensis</i> c. <i>Linum usitatissimum</i> d. <i>Glycine soja</i>	79	Lack of the effect of lethal dose in marijuana due to: a. Poperity of addiction b. Properity of dependancy c. Properity of tolerance. d. Properity of the chemical group which belong.
40	The dengerous effect of Linum refer to: a. Flaxseed b. Flaxseed oil	80	Hops is an estrogen, thus its indicate for menopause cases. a. Truth b. False

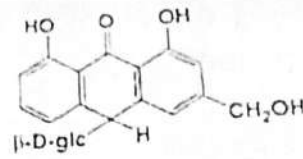
1		21		41		61	
2		22		42		62	
3		23		43		63	
4		24		44		64	
5		25		45		65	
6		26		46		66	
7		27		47		67	
8		28		48		68	
9		29		49		69	
10		30		50		70	
11		31		51		71	
12		32		52		72	
13		33		53		73	
14		34		54		74	
15		35		55		75	
16		36		56		76	
17		37		57		77	
18		38		58		78	
19		39		59		79	
20		40		60		80	

II. Starting from Chorismic acid to obtain phenylalanine: (4M)

III. Comment the following structure:

(6M)

a. Mention the name of the structure. (1M)



b. Mention the name of chemical group? (2M)

c. Mention one benefit & one precaution for the drug. (3M)

i. Benefit is:

ii. Precaution is:

IV. Discuss briefly just 2 of the following drugs:

a. Thyme

(3M)

Phytochemical (s):

Target patient (s):

(2M)

b. Oak

Phytochemical (s):

(3M)

Effect:

(2M)

c. Frangula

Chemistry:

(3M)

Effect:

(1M)

Contraindication:

(1M)

GOOD LUCK!
Dr. Mazen A. El-Sakka
May 4, 2016