

COURSE FILE

PROGRAM/YEAR/SEMESTER/SECTION: Pharm. D / IInd year

NAME OF THE COURSE: Pharmacognosy & Phytopharmaceuticals.

COURSE CODE: 23

ACADEMIC YEAR: 2023-24.


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Balaji Institute of Pharmaceutical Sciences
Lakshapally (V), Narsampet (M)
Warangal (Dt) - 506 331 (T.S)

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1. Institute Vision and Mission:

Vision

To become a premier institute of national and international reputation by delivering outstanding pharmaceutical education and research to develop high-caliber pharmaceutical professionals to meet the healthcare needs of the community and the technological requirements of pharmaceutical industries.

Mission

- M1 – To establish ourselves as a leading educational and research institution in the field of pharmaceutical education in order to earn national and international acclaim.
- M2 – To ensure that students get exposed to the latest Pharmaceutical industry technology and trends in the curriculum.
- M3 – To educate and develop high – caliber pharmaceutical graduates and post graduates order to enable them ready to complete for employment on a global scale.




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POs&PSOs
POs (Program Outcomes) for B.Pharm, Pharm.D & M. Pharm Programs

PO1	Pharmacy Knowledge	Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.
PO2	Planning Abilities	Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
PO3	Problem analysis	Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyse, evaluate and apply information systematically and shall make defensible decisions.
PO4	Modern tool usage	Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations
PO5	Leadership skills	Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfilment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well-being.
PO6	Professional Identity	Understand, analyse and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees)



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PO7	Pharmaceutical Ethics	Honor personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions
PO8	Communication	Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions
PO9	The Pharmacist and society	Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice
PO10	Environment and sustainability	Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development
PO11	Life-long learning	Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-asses and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis



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PSOs (Program Specific Outcomes) for B.Pharm

PSO1	The students shall be able to apply the knowledge and skill gained from various subjects and the aptitude developed throughout the course of the program in performing a job either independently or as a member of a team in various fields of pharmacy profession
PSO2	The students shall be able to make an initiation and achieve an innovation by properly integrating the input from various resources either independently or as a member of a team in various fields of pharmacy profession for betterment of the quality of life of the patients in the society

PSOs for Pharm.D

PSO1	Anticipate the patient's needs, participate in the creation of individualized disease management and prevention plans including patients self-management and behavioural changes
PSO2	Knowledge to participate with inter-professional health care team members in the management of health promotions for all patients by providing pharmaceutical care (including Medication therapy management / Therapeutic drug monitoring)

PSOs for M.Pharm (Pharmaceutics)

PSO1	To expertise in technical skills and gain knowledge in bioavailability and bioequivalence studies
PSO2	To impart knowledge and skill development on designing of dosage forms as per GMP guidelines




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PSOs for M.Pharm (Pharmaceutical analysis)

PSO1	To learn advanced analytical techniques for the determination of various drugs in single and combination dosage forms
PSO2	To operate, control, analyse and evaluate chemical substances, cosmetic products, finished products using hyphenated techniques

PSOs for M.Pharm (Pharmaceutical Quality Assurance)

To learn advanced analytical techniques for the determination of various drugs in single and combination dosage forms
To operate, control, analyse and evaluate chemical substances, cosmetic products, finished products using hyphenated techniques



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**OFFICE OF THE DEAN : ACADEMIC AUDIT
KAKATIYA UNIVERSITY
WARANGAL - 506 009 (Telangana State)**

**Prof.G.SHAMITHA
DEAN**

No: 78 / Acad Audit / KU / 2023

Date: 08-08-2023

To
The Principals of
University and Affiliated Colleges offering Pharm-D Course
KAKATIYA UNIVERSITY

Sub: **ALMANAC - Almanac for Pharm-D (I to VI-Year) for the academic years 2022-2023 and 2023-2024 - Communicated - Regarding**

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Sir/ Madam,

I am herewith communicating the following Almanac for -D (I to VI-Year) for the academic years 2022-2023 and 2023-2024.

Particulars	Pharm-D (I-Year) 2022-2023
Commencement of Classes	01.12.2022
Sankrathi Holidays (Pragat)	08.01.2023 to 16.01.2023
1 st Sessional Examinations	01.03.2023 to 03.03.2023
2 nd Sessional Examinations	14.06.2023 to 17.06.2023
3 rd Sessional Examinations	21.08.2023 to 25.08.2023
Last day of Instruction	26.08.2023
Commencement of Annual / Supply Examinations	01.09.2023

Particulars	Pharm-D (VI-Year) 2022-2023
Commencement of Internship / training	05.08.2022
General Medicine Dept.	05.08.2022 to 04.02.2023
Speciality Department-I	05.02.2023 to 04.04.2023
Speciality Department-II	05.04.2023 to 04.06.2023
Speciality Department-III	05.06.2023 to 31.07.2023
Last day of Instruction	01.08.2023

Particulars	Pharm-D (II-Year) 2023-2024
Commencement of Class work	15.09.2023
Dusara Vacation	18.10.2023 to 25.10.2023
Reopening after vacation	26.10.2023
1 st Sessional Examinations	08.12.2023 to 12.12.2023
Sankrathi Vacation	10.01.2024 to 16.01.2024
Reopening after vacation	17.01.2024
2 nd Sessional Examinations	29.02.2024 to 02.03.2024
Summer Vacation	01.05.2024 to 31.05.2024
Reopen after vacation	01.06.2024
3 rd Sessional Examinations	19.06.2024 to 21.06.2024
Last day of instructions	26.06.2024
Exams Preparation Holidays	27.06.2024 to 07.07.2024
Commencement of Annual / Supply Examinations	08.07.2024

Particulars	Pharm-D (III-Year) 2023-2024
Commencement of Class work	07.09.2023
Dusara Vacation	18.10.2023 to 25.10.2023
Reopening after vacation	26.10.2023
1 st Sessional Examinations	27.11.2023 to 30.11.2023
Sankrathi Vacation	10.01.2024 to 16.01.2024
Reopening after vacation	17.01.2024
2 nd Sessional Examinations	07.02.2024 to 09.02.2024
Summer Vacation	01.05.2024 to 31.05.2024
Reopen after vacation	01.06.2024
3 rd Sessional Examinations	06.06.2024 to 10.06.2024
Last day of instructions	11.06.2024
Exams Preparation Holidays	12.06.2024 to 15.06.2024
Commencement of Annual / Supply Examinations	17.06.2024

Particulars	Pharm-D (IV and V-Year) 2023-2024
Commencement of Class work	16.08.2023
Dusara Vacation	18.10.2023 to 25.10.2023
Reopening after vacation	26.10.2023
1 st Sessional Examinations	30.10.2023 to 02.11.2023
Sankrathi Vacation	13.01.2024 to 17.01.2024
Reopening after vacation	18.01.2024
2 nd Sessional Examinations	29.01.2024 to 02.02.2024
3 rd Sessional Examinations	22.04.2024 to 27.04.2024
Last day of instructions	29.04.2024
Exams Preparation and Summer Holidays	30.04.2024 to 31.05.2024
Commencement of Annual / Supply Examinations	01.06.2024



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Particulars	Pharm-D (VI-Year) Internship 2023-2024
Commencement of Internship/training	01.08.2023
General Medicine Dept.	01.08.2023 to 31.08.2023
Speciality Department-I	01.02.2024 to 31.03.2024
Speciality Department-II	01.04.2024 to 31.05.2024
Speciality Department-III	01.06.2024 to 30.07.2024
Last day of Instruction	31.07.2024
Commencement of Examinations	01.08.2024

Note : Remuneration will be paid to the extent of 90-days only.

The above almanac may please be brought to the notice of the staff and the students concerned accordingly.

Yours faithfully,

DEAN

Copy to:

- 1) The Dean, College Development Council, KU.
- 2) The Chairpersons of Board of Studies concerned, KU.
- 3) The Controller/Addl. Controller of Examinations (PG & Conf.), KU.
- 4) The Finance Officer, KU / The Asst. Registrar (Acad.Admn.(T) /Accounts/Audit) / The S.F.



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Pharm.D -II Year Nominal Rolls for the Academic Year - 2023-2024

S.No.	Permanent H. T. No.	Name of the Student	Father's Name	Gender	Community	Category
1	23351D1001	ABDUL KUDDUS	ABDUL HAMID	M	GENERAL	SPOT
2	23351D1002	ABDULLAH AL FARHAD CHOUDHURY	ABDUL KADIR CHOUDHURY	M	GENERAL	SPOT
3	23351D1003	BADE MADHU	BADE SAIDULU	M	BC-B	Convenor
4	23351D1004	BODA BOOBA	BODA BIKSHAM	F	ST	Convenor
5	23351D1005	DAMERAKONDA RAKSHITHA	DAMERAKONDA KOMRAIAH	F	BC-D	Convenor
6	23351D1006	DEVARAKONDA OM PRAKASH	D DASARAIAH	M	BC-B	Convenor
7	23351D1007	DYAGALA GIRIJA	DYAGALA KUMAR	F	BC-D	SPOT
8	23351D1008	GURRAM STHUTHI OLIVE	GURRAM RAJU	F	BC-C	Convenor
9	23351D1009	JINKALA MANASA	JINKALA PEDDAUPENDAR	F	BC-D	Convenor
10	23351D1010	K RAJU	K NARSIMHULU	M	SC	Convenor
11	23351D1011	KHUSHI SAHA	SANKAR SAHA	F	GENERAL	MNGT
12	23351D1012	KORADA JOSHITH	KORADA VENKATA RAMANA	M	SC	Convenor
13	23351D1013	M ARUN KUMAR	M PULINDHAR REDDY	M	OC	Convenor
14	23351D1014	MALLAVARAPU NAVYA	MALLAVARAPU BUCHAIAH	F	BC-A	Convenor
15	23351D1015	MANERU AKHILA	MANERU LACHI REDDY	F	OC	Convenor
16	23351D1016	MD HAMIM BARBHUIYA	ANAMUL HOQUE	M	GENERAL	SPOT
17	23351D1017	MD SAMIDUL ISLAM	MD NURUL ISLAM	M	GENERAL	MNGT
18	23351D1018	MIRZA SOHEL BAIG	MIRZA LASHKAR BAIG	M	BC-E	Convenor
19	23351D1019	NAGAVELLI NITHIN	NAGAVELLI RAVINDER	M	BC-A	MNGT
20	23351D1020	NURJAMAL HOQUE	HALIM UDDIN	M	GENERAL	MNGT
21	23351D1021	PIDUGU NAVYA SRI	PIDUGU VENU	F	BC-D	Convenor
22	23351D1022	POLEPAKA DIVYA	POLEPAKA JANARDHAN	F	SC	Convenor
23	23351D1023	RAKIBUL HUSSAIN	MAYNUL HOQUE	M	GENERAL	SPOT
24	23351D1024	ROHUL CHOUDHURY	ABUL HUSSAIN	M	GENERAL	SPOT
25	23351D1025	RUBUL HASSAN	BILLAL ALI	M	GENERAL	MNGT
26	23351D1026	SANIDUL ISLAM	HURMUZ ALI	M	GENERAL	SPOT
27	23351D1027	SHIRAJUL HOQUE	ABDUL SATTAR	M	GENERAL	MNGT
28	23351D1028	SUNKI NEHA	SUNKI VENU GOPAL	F	BC-B	Convenor
29	23351D1029	TAZIRUL ISLAM	SAMSUL HOQUE	M	GENERAL	MNGT
30	23351D1030	VISLAVATH SANTHOSH	VISLAVATH RAVI	M	ST	Convenor
31	23351D1031	NAJMUNNISA	SYED MASEEUDDIN	F	OC	MNGT
32	23351D1032	VARDELLI SAMARJITHKUMAR GOUD	VARDELLI YAKAIAH	M		MNGT



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LESSON PLAN for the academic year 2023-24

PROGRAM/YEAR/SEMESTER/SECTION: PHARM D / II YEAR /

S.No.	Week No.	Unit No.	Topics	References
1	Week 1	Unit 1	Introduction.	1,2
2			Definition, history of Pharmacognosy	
3			Scope of Pharmacognosy	
4			Cultivation and methods of cultivation	
5			Advantages and Disadvantages	
6	Week 2		Factors influencing on cultivation of medicinal plants.	
7			Pests and Pest control	
8			Plant hormones	
9	Week 3		collection, processing of crude drugs.	
10			storage methods crude drugs	
11			Unit test - 1	
12	Week 4	Unit 2	Study of cell wall constituents and cell inclusions.	
13			Study of cell inclusions.	
14			Microscopical study of crude drugs	
15			Microscopical study of crude drug powders	
16			Detailed study of various cell constituents	
17	Week 5	Unit 3	Unit test - 2	1,2
18			Introduction on Carbohydrates	
19	Classification and chemical tests of carbohydrates			
20	Tragacanth gum,			
21	Karaya gum			
22	Guar gum			
23	Acacia gum			
24	Pectin,			
25	Agar,			
26	Honey			
27	Isapgol seeds			
28	Sodium alginate			
29	Dextrin			
30	Week 8		starch	
31	Unit test - 3			
32	Week 9	Definition, sources of Lipids	PRINCIPAL Balaji Institute of Pharmaco	
33		Method extraction of Lipids		
34		Chemistry of Lipids		
35		Method of analysis of lipids		
36		Bees wax		
37		Carnauba wax		



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38	Week 10	Unit 4	Jojoba wax	2,3		
39			Candelia wax			
40			Castor oil			
41	Week 11		Wool fat			
42			Lard			
43			Cod liver oil			
44			Shark liver oil			
45	Week 12		Linseed oil			
46			Unit test- 4			
47			Unit 5		Definition, classification of Proteins	2,4
48	Chemistry and method of analysis of protein.					
49	Gelatin					
50	Introduction on enzymes					
51	Pepsin ,					
52	Trypsin					
53	Chymotrypsin					
54	lipase					
55	Papain					
56	Unit test - 5					
57	Week 15	Unit 6	Introduction on Fibers	4,6		
58			Classification of fibers			
59			Characteristics of fibers			
60			Plant fibers Cotton,			
61	Wool					
62	Week 16		silk			
63			Diffences between Silk and wool			
64			asbestos			
65	Week 17		Nylon and Terylene			
66			Jute			
67			Warp and weft bandages			
68			Crepe bandages			
69	Week 18		Identification and Chemical tests on fibers			
70			Unit 7		unit test - 6	5,6
71					Introduction on Adulteration	
72					Types of Adulteration with examples	
73		Evaluation of drugs				
74	types of Evaluation					
75	Unit test- 7					



Text books

1. Pharmacognosy by G.E. Trease & W.C.Evans.
2. Pharmacognosy by C.K.Kokate,Gokhale & A.C.Purohit.
3. Pharmacognosy by Brady & Tyler.E.
4. Pharmacognosy by T.E.Wallis.
5. Pharmacognosy by C.S. Shah & Qadery.
6. Pharmacognosy by M.A. Iyengar.

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Practical Plan for the academic year 2023-24

PROGRAM/YEAR/SECTION: PHARM D/ 2nd Year

Subject: Pharmacognosy and Phytopharmaceuticals

S.no	Weeks	Contents	References
1	1	Introduction of Pharmacognosy laboratory and experiments	1 - 6
2	2	Study of cell wall constituents and cell inclusions	1,2,4
3	3	Macro, powder and microscopic study of Datura.	1,3,4,6
4	4	Macro, powder and microscopic study of Senna.	1,3,4,6
5	5	Macro, powder and microscopic study of Cassia.cinnamon	1,3,4,6
6	6	Macro, powder and microscopic study of Cinchona.	1,3,4,6
7	7	Macro, powder and microscopic study of Ephedra.	1,3,4,6
8	8	Macro, powder and microscopic study of Quassia.	1,3,4,6
9	9	Macro, powder and microscopic study of Clove	1,3,4,6
10	10	Macro, powder and microscopic study of Fennel.	1,3,4,6
11	11	Macro, powder and microscopic study of Coriander.	1,3,4,6
12	12	Macro, powder and microscopic study of Isapgol.	1,3,4,6
13	13	Macro, powder and microscopic study of Nux vomica.	1,3,4,6
14	14	Macro, powder and microscopic study of Rauwolfia.	1,3,4,6
15	15	Macro, powder and microscopic study of Liquorice.	1,3,4,6
16	16	Macro, powder and microscopic study of Ginger.	1,3,4,6
17	17	Determination of Iodine value and Saponification value and unsaponifiable matter.	3,5,6
18	18	Determination of ester value and Acid value.	3,5,6
19	19	Chemical tests for Acacia.	3,5,6
20	20	Chemical tests for Tragacanth.	3,5,6



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21	21	Chemical tests for Agar.	3,4,5
22	22	Chemical tests for Starch.	3,4,5
23	23	Chemical tests for Lipids.(castor oil, sesame oil)	3,4,5
24	24	Chemical tests for Lipids (shark liver oil, Bees wax)	3,4,5
25	25	Chemical tests for Proteins (Gelatin).	3,4,5

Recommended Books

1. W.C.Evans, Trease and Evans Pharmacognosy, 16th edition, W.B. Saunders & Co., London, 2009.
2. Text Book of Pharmacognosy by T.E. Wallis
3. Mohammad Ali. Pharmacognosy and Phytochemistry, CBS Publishers & Distribution, New Delhi.
4. Text book of Pharmacognosy by C.K. Kokate, Purohit, Gokhlae (2007), 37th Edition, Nirali Prakashan, New Delhi.
5. Essentials of Pharmacognosy, Dr.SH.Ansari, IInd edition, Birla publications, New Delhi, 2007
6. Practical Pharmacognosy: C.K. Kokate, Purohit, Gokhlae
6. Anatomy of Crude Drugs by M.A. Iyengar




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PHARM D II YEAR I SESSIONAL EXAMINATION

Subject: Pharmacognosy and Phytopharmaceuticals

Date: 03-02-2024 Time: 10:30-12:00

Marks: 30M

Q.No	Questions	Marks	CO	Blooms level
I.	Answer Any THREE questions			
1.	a. Define the Pharmacognosy and discuss about scope of pharmacognosy?	05	Co1	L2
	b. Define crude drugs& Discuss about history of pharmacognosy?	05	Co1	L2
2.	a. Write in detail note on chemical & pharmacological classification of crude drugs with examples?	05	Co2	L1
	b. Discuss the sources of crude drugs?	05	Co2	L2
3.	Write in detail notes on methods of cultivation of crude drugs?	10	Co2	L1
4.	Explain the collection and processing of crude drugs?	10	Co2	L2



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PHARM D II YEAR II SESSIONAL EXAMINATION

Subject: Pharmacognosy and Phytopharmaceuticals

DATE: 02/04/2024 Time: 10.30 to 12.00

Marks: 30M

Q.No	Questions	Marks	CO	Blooms level
I.	Answer Any THREE questions			
1.	Describe the cell wall constituents and cell inclusions with neat diagram and examples?	10	Co1	L1
2.	Discuss the Pests and pesticides, pest control methods with suitable examples?	10	Co2	L2
3.	a. Compare the Acacia with Tragacanth gums?	05	Co3	L4
	b. Give the Brief notes on Karaya gum and Guar gum?	05	Co3	L1
4.	a. Write detail notes on Carbohydrates ?	05	Co3	L1
	b. Give detail notes on Agar?	05	Co3	L1



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PROGRAMME: Pharm.D II YEAR (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals (THEORY)

COURSE OUTCOMES

2.3.T.1	CO1	To know history, scope, sources, classification and quality control methods of natural origin, meaning and significance of Pharmacognostic parameters and Pharmacognostic scheme of study of crude drugs.
2.3.T.2	CO2	To understand techniques of cultivation, collection, storage of crude drugs, morphology and anatomy of plant parts and know primary and secondary metabolites of crude drugs.
2.3.T.3	CO3	To know the source, properties, methods of extraction, active constituents, uses of crude drugs, pharmaceutical and industrial applications of carbohydrates, natural fibres, lipids and proteins and their derived products.
2.3.T.4	CO4	To understand adulteration and methods of adulteration of crude drugs.

CO-PO-PSO MAPPING

Course Outcomes	Program Outcomes											PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	0	1	2	0	3	2	1	2	3	3	2	3
CO2	3	0	1	2	0	3	2	1	2	3	3	2	2
CO3	3	0	1	2	0	3	2	1	2	3	3	3	2
CO4	3	0	1	2	0	3	2	1	2	3	3	3	3
Average	3.00	0.00	1.00	2.00	0.00	3.00	2.00	1.00	2.00	3.00	3.00	2.50	2.50



Signature

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Balaji Institute of Pharmaceutical Sciences
Laknepally (V), Narsampet (M)
Warangal (Dt) - 506 331 (T.S)

COURSE OUTCOME ATTAINMENT

PROGRAMME: Pharm.D II YEAR (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals (THEORY)

S.NO	HT number	Name of the student	Direct course Attainment				Indirect Course attainment
			Sessional marks (30M)			External marks	by feedback
			I	II	III		
1	23351D1001	ABDUL KUDDUS	20	15	25	40	2.5
2	23351D1002	ABDULLAH AL FARHAD CHOUDHURY	26	10	25	40	2.5
3	23351D1003	BADE MADHU	26	26	28	39	2.5
4	23351D1004	BODA BOOBA	16	26	26	34	2.3
5	23351D1005	DAMERAKONDA RAKSHITHA	16	21	24	32	2.3
6	23351D1006	DEVARAKONDA OM PRAKASH	27	14	13	40	2.8
7	23351D1007	DYAGALA GIRIJA	27	27	28	42	2.8
8	23351D1008	GURRAM STHUTHI OLIVE	28	20	28	47	2.3
9	23351D1009	JINKALA MANASA	29	26	27	52	2.0
10	23351D1010	K RAJU	ab	ab	19	36	2.8
11	23351D1011	KHUSHI SAHA	17	18	20	35	2.3
12	23351D1012	KORADA JOSHITH	29	27	29	46	2.0
13	23351D1013	M ARUN KUMAR	24	24	25	46	2.8
14	23351D1014	MALLAVARAPU NAVYA	25	20	26	46	2.8
15	23351D1015	MANERU AKHILA	29	22	28	48	2.5
16	23351D1016	MD HAMIM BARBHUIYA	27	12	20	42	2.3
17	23351D1017	MD SAMIDUL ISLAM	15	15	15	44	2.8
18	23351D1018	MIRZA SOHEL BAIG	29	23	27	50	2.3
19	23351D1019	NAGAVELLI NITHIN	22	22	27	37	2.5
20	23351D1020	NURJAMAL HOQUE	4	9	ab	21	2.3
21	23351D1021	PIDUGU NAVYA SRI	29	27	28	44	2.3
22	23351D1022	POLEPAKA DIVYA	20	16	15	40	2.8
23	23351D1023	RAKIBUL HUSSAIN	13	18	25	44	2.8
24	23351D1024	ROHUL CHOUDHURY	6	9	21	21	2.3
25	23351D1025	RUBUL HASSAN	7	18	20	45	2.5
26	23351D1026	SANIDUL ISLAM	6	14	27	41	2.5
27	23351D1027	SHIRAJUL HOQUE	12	13	20	41	2.8
28	23351D1028	SUNKI NEHA	25	20	26	46	2.0
29	23351D1029	TAZIRUL ISLAM	ab	ab	ab	ab	2.5

30	23351D1030	VISLAVATH SANTHOSH	20	17	12	41	2.3
31	23351D1031	NAJMUNNISA	23	19	28	31	2.8
32	23351D1032	VARDELLI SAMARJITHKUMAR GOUD	20	22	27	41	2.8
Target Marks (50%):			15.00	15.00	15.00	35.00	1.50
Mapping Course Outcomes:			CO1, CO2	CO3, CO4, CO5	CO3, CO6	CO1 TOCO6	CO1 TOCO6
Number Of Students			23	21	26	25	32
No. of Students Attempted:			30	30	30	31	32
% of Students above Target Marks :			76.67	70.00	86.67	80.65	100.00
Attainment level			3.00	3.00	3.00	3.00	3.00




PRINCIPAL
 Balaji Institute of Pharmaceutical Sciences
 Waranapally (V), Narsampet (R),
 Warangal (Dt) - 506 331 (T.S)

COURSE OUTCOME ATTAINMENT

Attainment Level (3 ≥ 65%, 2 ≥ 55%, 1 ≥ 50%, 0 < 50%)

Sessional Exam Attainment value	3.00
External Exam Attainment value	3.00
overall direct attainment value (70% of external + 30% of internal Examination)	3
Indirect attainment value	3
Overall CO attainment (80% of direct attainment + 20% of Indirect attainment)	3

CO-PO-PSO ATTAINMENT

PROGRAMME: Pharm.D II YEAR (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals (THEORY)

PO ATTAINMENT VALUE= COURSE ATTAINMENT VALUE*MAPPING VALUE/3

Course Outcomes	Program Outcomes											PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO-PO-PSO- MAPPING VALUE	3.00	0.00	1.00	2.00	0.00	3.00	2.00	1.00	2.00	3.00	3.00	2.50	2.50
CO-PO-PSO ATTAINMENT VALUE	3.00	0.00	1.00	2.00	0.00	3.00	2.00	1.00	2.00	3.00	3.00	2.50	2.50



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Balaji Institute of Pharmaceutical Sciences

Laknepally (V), Narsampet (M)

Warangal (Dt) - 506 331 (T.S)

PROGRAMME: Pharm.D II Year (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals(Theory)

INDIRECT EVALUATION OF COURSE OUTCOMES BY STUDENT FEEDBACK

LEVEL 1	LOW
LEVEL 2	MODERATE
LEVEL 3	HIGH

S No.	Hall Ticket No.	Name of the Student	CO1	CO2	CO3	CO4	AVG
1	23351D1001	ABDUL KUDDUS	3	2	3	2	2.5
2	23351D1002	ABDULLAH AL FARHAD CHOUDHURY	3	2	2	3	2.5
3	23351D1003	BADE MADHU	2	3	3	2	2.5
4	23351D1004	BODA BOOBA	2	3	2	2	2.3
5	23351D1005	DAMERAKONDA RAKSHITHA	2	2	2	3	2.3
6	23351D1006	DEVARAKONDA OM PRAKASH	2	3	3	3	2.8
7	23351D1007	DYAGALA GIRIJA	3	3	3	2	2.8
8	23351D1008	GURRAM STHUTHI OLIVE	3	2	2	2	2.3
9	23351D1009	JINKALA MANASA	2	2	1	3	2.0
10	23351D1010	K RAJU	3	2	3	3	2.8
11	23351D1011	KHUSHI SAHA	2	3	2	2	2.3
12	23351D1012	KORADA JOSHITH	1	2	2	3	2.0
13	23351D1013	M ARUN KUMAR	3	3	3	2	2.8
14	23351D1014	MALLAVARAPU NAVYA	2	3	3	3	2.8
15	23351D1015	MANERU AKHILA	3	2	3	2	2.5
16	23351D1016	MD HAMIM BARBHUTYA	3	2	2	2	2.3
17	23351D1017	MD SAMIDUL ISLAM	2	3	3	3	2.8
18	23351D1018	MIRZA SOHEL BAIG	2	3	2	2	2.3
19	23351D1019	NAGAVELLI NITHIN	2	3	2	3	2.5
20	23351D1020	NURJAMAL HOQUE	2	3	2	2	2.3
21	23351D1021	PIDUGU NAVYA SRI	2	2	2	3	2.3
22	23351D1022	POLEPAKA DIVYA	2	3	3	3	2.8
23	23351D1023	RAKIBUL HUSSAIN	3	3	3	2	2.8
24	23351D1024	ROHUL CHOUDHURY	2	2	3	2	2.3
25	23351D1025	RUBUL HASSAN	3	2	3	2	2.5
26	23351D1026	SANIDUL ISLAM	3	2	3	2	2.5
27	23351D1027	SHIRAJUL HOQUE	2	3	3	3	2.8
28	23351D1028	SUNKI NEHA	2	2	2	2	2.0
29	23351D1029	TAZIRUL ISLAM	2	3	2	3	2.5
30	23351D1030	VISLAVATH SANTHOSH	2	2	3	2	2.3
31	23351D1031	NAJMUINNISA	3	3	3	2	2.8
32	23351D1032	VARDELLI SAMARJITHKUMAR GOUD	3	3	3	2	2.8




PRINCIPAL
 Balaji Institute of Pharmaceutical Sciences
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 Warangal (Dt) - 506 331 (T.S)



BALAJI INSTITUTE OF PHARMACEUTICAL SCIENCES

(Approved by AICTE & PCI, Under Section 12, New Delhi and Affiliated to kakathiya University, Wgl)

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PROGRAMME: Pharm.D II YEAR (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals (Practical)

COURSE OUTCOMES

2.3.P.1	CO1	To understand cell wall constituents and cell inclusions
2.3.P.2	CO2	To understand morphology, microscopy and powder characteristics of crudedrugs.
2.3.P.3	CO3	To be able to determine the quality of lipids
2.3.P.4	CO4	To be able to identify unorganized drugs by chemical methods

CO-PO-PSO MAPPING

Course Outcomes	Program Outcomes											PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	0	1	2	0	3	2	1	2	3	3	2	3
CO2	3	0	1	2	0	3	2	1	2	3	3	2	2
CO3	3	0	1	2	0	3	2	1	2	3	3	3	2
CO4	3	0	1	2	0	3	2	1	2	3	3	3	3
Average	3.00	0.00	1.00	2.00	0.00	3.00	2.00	1.00	2.00	3.00	3.00	2.50	2.50



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BALAJI INSTITUTE OF PHARMACEUTICAL SCIENCES

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BIPS
NARSAMPET
Estd: 2005

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COURSE OUTCOME ATTAINMENT

PROGRAMME: Pharm.D II YEAR (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals (THEORY)

S.NO	HT number	Name of the student	Direct course Attainment		Indirect Course attainment
			sessional	External	by feedback
			30	70	3
1	23351D1001	ABDUL KUDDUS	27	33	2.8
2	23351D1002	ABDULLAH AL FARHAD CHOUDHURY	27	34	2.3
3	23351D1003	BADE MADHU	29	35	2.3
4	23351D1004	BODA BOOBA	27	33	2.5
5	23351D1005	DAMERAKONDA RAKSHITHA	29	34	2.5
6	23351D1006	DEVARAKONDA OM PRAKASH	27	33	2.8
7	23351D1007	DYAGALA GIRIJA	29	34	2.8
8	23351D1008	GURRAM STHUTHI OLIVE	29	38	2.8
9	23351D1009	JINKALA MANASA	28	45	2.5
10	23351D1010	K RAJU	20	30	2.3
11	23351D1011	KHUSHI SAHA	27	33	2.8
12	23351D1012	KORADA JOSHITH	29	37	1.8
13	23351D1013	M ARUN KUMAR	28	37	2.3
14	23351D1014	MALLAVARAPU NAVYA	28	35	2.5
15	23351D1015	MANERU AKHILA	29	41	2.3
16	23351D1016	MD HAMIM BARBHUIYA	27	35	2.5
17	23351D1017	MD SAMIDUL ISLAM	27	31	2.5
18	23351D1018	MIRZA SOHEL BAIG	28	32	2.8
19	23351D1019	NAGAVELLI NITHIN	29	33	2.8
20	23351D1020	NURJAMAL HOQUE	20	30	2.5
21	23351D1021	PIDUGU NAVYA SRI	29	39	2.0
22	23351D1022	POLEPAKA DIVYA	28	32	3.0
23	23351D1023	RAKIBUL HUSSAIN	28	32	2.5
24	23351D1024	ROHUL CHOUDHURY	27	36	2.0
25	23351D1025	RUBUL HASSAN	27	32	2.8
26	23351D1026	SANIDUL ISLAM	28	31	2.8
27	23351D1027	SHIRAJUL HOQUE	27	31	2.5
28	23351D1028	SUNKI NEHA	28	38	2.5
29	23351D1029	TAZIRUL ISLAM	ab	ab	2.5



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Laknepally (V), Narsampet (M),
Warangal (Dt) - 506 331 (T.S)

30	23351D1030	VISLAVATH SANTHOSH	28	32	2.5
31	23351D1031	NAJMUNNISA	28	35	2.5
32	23351D1032	VARDELLI SAMARJITHKUMAR GOUD	28	33	2.5
Target Marks (50%):			15.00	15.00	1.50
Mapping Course Outcomes:			CO1, CO2	CO3, CO4, CO5	CO1 TO CO6
Number Of Students			31	31	32
No. of Students Attempted:			31	31	32
% of Students above Target Marks :			100.00	100.00	100.00
Attainment level			3.00	3.00	3.00



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Narsampet (V), Narsampet (M)
Warangal (Dt) - 506 331 (T.S)



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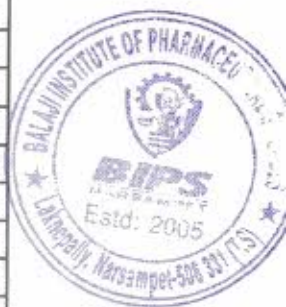
Contact : +91 9866050044 (Office), +91 9866652412 (Principal), +91 8718-230521 (Fax)

PROGRAMME: Pharm.D II Year (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals (Practical)

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		LEVEL 1		LOW			
		LEVEL 2		MODERATE			
		LEVEL 3		HIGH			
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4	23351D1004	BODA BOOBA	2	3	3	2	2.5
5	23351D1005	DAMERAKONDA RAKSHITHA	2	2	3	3	2.5
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10	23351D1010	K RAJU	3	2	2	2	2.3
11	23351D1011	KHUSHI SAHA	2	3	3	3	2.8
12	23351D1012	KORADA JOSHITH	1	2	2	2	1.8
13	23351D1013	M ARUN KUMAR	3	2	2	2	2.3
14	23351D1014	MALLAVARAPU NAVYA	2	2	3	3	2.5
15	23351D1015	MANERU AKHILA	3	2	2	2	2.3
16	23351D1016	MD HAMIM BARBHUIYA	3	2	3	2	2.5
17	23351D1017	MD SAMIDUL ISLAM	2	3	3	2	2.5
18	23351D1018	MIRZA SOHEL BAIG	2	3	3	3	2.8
19	23351D1019	NAGAVELLI NITHIN	2	3	3	3	2.8
20	23351D1020	NURJAMAL HOQUE	2	3	2	3	2.5
21	23351D1021	PIDUGU NAVYA SRI	2	2	2	2	2.0
22	23351D1022	POLEPAKA DIVYA	3	3	3	3	3.0
23	23351D1023	RAKIBUL HUSSAIN	3	2	3	2	2.5
24	23351D1024	ROHUL CHOUDHURY	2	2	2	2	2.0
25	23351D1025	RUBUL HASSAN	3	2	3	3	2.8
26	23351D1026	SANIDUL ISLAM	3	2	3	3	2.8
27	23351D1027	SHIRAJUL HOQUE	2	3	3	2	2.5
28	23351D1028	SUNKI NEHA	2	3	2	3	2.5
29	23351D1029	TAZIRUL ISLAM	2	3	2	3	2.5
30	23351D1030	VISLAVATH SANTHOSH	2	3	3	2	2.5
31	23351D1031	NAJMUNNISA	3	3	2	2	2.5
32	23351D1032	VARDELLI SAMARJITHKUMAR GOUD	3	3	2	2	2.5



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Balaji Institute of Pharmaceutical Sciences

Laknepally (V), Narsampet (M)

Warangal (Dt) - 506 331 (T.S)



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COURSE OUTCOME ATTAINMENT

Attainment Level ($3 \geq 65\%$, $2 \geq 55\%$, $1 \geq 50\%$, $0 < 50\%$)

Sessional Exam Attainment value	3.00
External Exam Attainment value	3.00
overall direct attainment value (70% of external + 30% of internal Examination)	3
Indirect attainment value	3
Overall CO attainment (80% of direct attainment +20% of indirect attainment)	3

CO-PO-PSO ATTAINMENT

PROGRAMME: Pharm.D II YEAR (2023-24)

COURSE: Pharmacognosy and Phytopharmaceuticals (THEORY)

PO ATTAINMENT VALUE= COURSE ATTAINMENT VALUE*MAPPING VALUE/3

Course Outcomes	Program Outcomes											PSOs	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO-PO-PSO-MAPPING VALUE	3.00	0.00	1.00	2.00	0.00	3.00	2.00	1.00	2.00	3.00	3.00	2.50	2.50
CO-PO-PSO ATTAINMENT VALUE	3.00	0.00	1.00	2.00	0.00	3.00	2.00	1.00	2.00	3.00	3.00	2.50	2.50



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Lecture Notes

Collection and Processing of Crude Drugs.

- Crude drugs are required to be processed before the collection for following reasons:
- Requirement Reasons for proper collection of C.D. are as follows:
- Stabilization during transport and storage of crude drug.
 - To ensure the absence of foreign organic matter, adulterant and substituents.
 - To improve the Pharmaceutical elegance.

Methods in collection and processing of Crude Drugs.

- Collection
- Harvesting
- Drying
- Grubbing (Dressing)
- Packing.



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Collection: Collection of C.D requires to take into consideration of Type of C.D, Area of collection, Environmental conditions, skilled labour for water collection. Age of the plants.

→ Boswellia does not produce sallaki up to 5 years of their growth.

→ oreotha sp. does not produce menthol only produce pulegone at early stage of their growth.

Feelers. The tree is cut at base & bark is peeled off.

Cypripedium - The root is dug out & bark is peeled off from that.

Gephorus - Allow to grow a definite period then cut the off & at specific distance from foot. Compare to other methods that is economical & less time consuming, ex: Cypripedium, Cypripedium.

→ Fruit: collected when they are in ripe or half ripe.

by fully grown.

ex: Cardamom → Just before their dehiscence.

Bael & Tamarind → Full green stage.

Caraway, Fenel, Coriander - Fully ripe.



Roots - In sprouts before vegetation stage stops.

Shrimp - Rich with source of food.

Underground stems: Roots, Gums, Latices are collected or even as the core out of plant.

Acacia - 2-3 weeks after roasting incisions on the bark when it becomes hard.

- Opium & Papaya latices are collected after coagulation & latex.

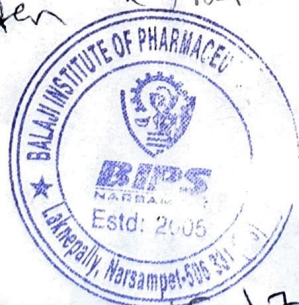
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- Turpentine oleoresin & balsam of Peru are collected when the resin is 8-10 years old.

Harvesting: ^{cultivation} ~~part~~ part in collection of C.D.

- It reflects economical status of Harvester.
- It requires skilled labour. for selection of ^{genuine} C.D.
- Other than admixture.
- Some C.D. collection done by using mechanical device such as diggers and lifters. ex. tuber, rhizomes w/ roots.
- Aerial parts harvested by binders.
- Flower, seed - fruits are - seed stripper.
- Leaves harvested by beating & bamboo sticks.
- Coconut seeds from branches by brushes.
- Agar from seaweeds by long handed forks.
- Peppermint sprigs - mowers.
- Linseed, Coriander, Caraway - uprooted & ~~stripped~~ After drying thrashed & beaten & fruits are separating, winnowing.

Drying:

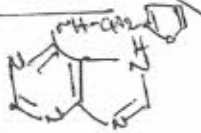


4, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 18, 20, 21, 28, 26, 28, 29, 40,
41, 42, 49, 51, 54, 57, 58, 60, 62, 64, 65, 67, 68, 72, 77, 78,
83, 85, 87, 91, 101, 102,

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Cytokinins:



- Natural - Zeatin
 - cell division
 - Leaf senescence
- Synthetic - Kinetin
 - Promoting lateral bud development
 - Inhibition of senescence

Functions:

- Promotion of cell division.
- Embryos development slows seed formation.
- Expansion of cells in leaf discs & cotyledons.
- Delaying of breakdown of Chlorophyll & degradation of proteins in ageing leaves. (1st leaf of seed)



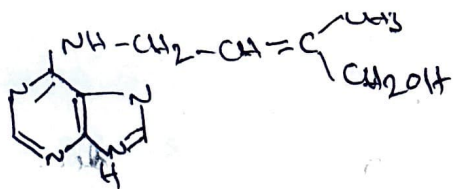
Miller isolated the crystalline substance from *Hevea* sperm DNA. known as Kinetin which is used in cell culture (named)

in Tobacco cultures. (6-benzyladenine)

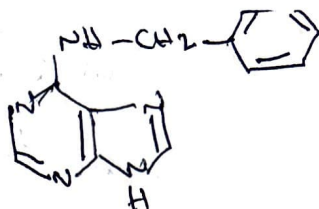
- Kinetin plays significant role in protein synthesis & nucleic acid metabolism
- Natural cytokinins are zeatin, N⁶-dimethylaminopurine, N⁶-isopentenylaminopurine.
- Synthetic - Kinetin, Adenine, 6-benzyl adenine benz/midazole N,N'-diphenyl urea.
- Cytokinins are present in young active tissue embryos, seedlings, apical meristems.
- C are reported to ↑ senescence content in turnerella tree leaves, also ↑ dry weight of stem.
- In apical by tips. cause to elongated corolla length, but ↓ the chlorophyll content.
- On Datura hybrids - application of cytokinins ↓ the chlorophyll content & increase content.

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Zestrin



6-Benzyl adenine

Ethylene: Simple organic molecule in the form of colorless gas

Function: Ripens fruits, flowers, stems, roots, tubers

- in plants it is present in some quantity 0.1 ppm
- Ethylene is produced by incomplete burning of carbon rich substances like natural gas, coal & petroleum.
- Henry identified yeasts of lemons due to (1924) stone gas.
- Crane (1925) found that a gas evolved from ripening apples also effect on ripening of green apples.
- Fruit ripening
- Leaf abscission
- Stem swelling
- Leaf buds, flower petal differentiation
- inhibition of stem & root growth.
- induction of fruit abscission.
- breeding cottons,
- stimulation of latex flow in rubber trees,



Spam

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Cinnamomum zeylanicum, O. menthaefolium, C. camphora
 E. alba, O. sanctum have violet content have
 varied content of aromatic constituents.

Hybridization: Hybrid is an organism which
 obtained from cross of two species w/ qualities
 different at least, in one set of characters.

- The process by which hybrids are produced
 known as hybridization.
- The resultant hybrids known as monohybrids
 (one pair - diff character)
- Poly hybrid (more than two pair of diff character)
 in which
- It is able to produce favorable character in
 new hybrid, ~~from~~ present in two different
 species
- Some time produce new variety character
 in hybrid.
- Ex: Withania somnifera (Speed)
 South Asian Chastity tree to be new variety hybrid
 which contain new withanolides.

ex D. p. x D. lutea
 ()
 H

Ex. lanoster A, B x G
 2 D - yman - A

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Lobelia, Cinchona, belladonna, Scutella, Cannabis, Poppy

↑ yield in form

Sometimes ^{poppy} The yield ↓ in case of D. purpurea & D. lanata
of c glycoside ↓ ↑

Chemodemes: are a group of plants of a species which have identical morphological characters but differ in their chemical nature. So, defined as chemically separable groups within species.

- The chemical characters of Chemodemes are hereditary.



Ex:- D. purpurea & D. lanata
↓

The chemical reactions they identify are Streptoxide, Digiboxin & Digibromin, these on still preparations which are observed from Digiboxin & Digibromin.

- In case of D. lanata, dependent on colour of lanatide A+C - the colour is same as D. lanata skin.

2. Rheum palmatum. differ in value when Chrysophanol.

- Prunus communis (Almond) differ in the presence of

in 2 of amygdalin.

- withania somnifera - Chemotype I withafem
" II " withafem
" III withafem. } differ

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✓ called induced mutations.

ex: UV rays, X-rays, ionizing radiation

— chemical mutagens — nitrogen mustard, formaldehyde, nitrous acid, ethylmethane sulphonate, 5-bromouracil, 2-aminopurine, manganese chloride.



— Some times favourable changes achieved in m. plant by mutations. which are without gross of yield & other resistant plants.

Some times negative effects are observed in medicinal plants like Retardation of growth, easily susceptible to animal cropping, diseases which are overcome by breeding techniques & selection of viable plants.

— 1, 2, 6, 7, 16, 17, 18, 21, 34, 35, 37, 38, 39, 40, 46, 47, 48, 49, 52, 53, 54, 56, 57, 61, 62, 64, 65, 72, 74, 75, 77, 78, 82, 85, 87, 89, 90, 91, 94, 95, 96, 97, 98, 100, 101

2, 6, 7, 12, 15, 16, 17, 18, 20, 21, 24, 25, 26, 27, 30, 32, 34, 35, 37, 38, 39, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 57, 59, 60, 62, 63, 64, 65, 66, 72, 74, 75, 77, 78, 79, 82, 84, 85, 87, 88, 89, 90, 91, 94, 95, 96, 98, 99, 100, 101, 102

Polyploidy

The specific number of chromosomes is a character of each sp & is called genome.

1 - If the species contain single set of chromosome

known as monoploidy. Haploid.

2 sets of c - Diploid

3 " " - Triploid

4 " " - Tetraploid

If the species contain more than two genomes known as polyploids. i.e. $2 \times 3, 2 \times 4, 2 \times 5, 2 \times 6$ etc.

- Reasons - cell generators, x-ray, centrifugation, temp shock & chemical agents like Colchicine, Veratrine, Sulphuric acid, hexachlorocyclohexane, etc.

- Chemical agent cause disturbance in mitotic spindle of division diploid cell & can non-segregation of duplicated chromosome which convert to tetraploid.

- Temp: Formation of new species.

- Adaptability to various habitats.

- Accumulation of mutants.

- Increase the yield capacity of species.

Colchicum for *C. autumnale*, *C. luteum* & *C. speciosum*.

which induce polyploidy in strawberry, etc.

↑ yield 60-80% in an farm.



Crabbling (Dressing):

This process is imp when the plant (a) parts contains sand, dirt & foreign organ, ~~so~~ other parts of same plant & drug with which C. Conc. ~~need~~ required to be removed.

- If F.O.M. is present in C.D, it influence on the quality of drugs & does not pass Pharmacopoeia limit.

Ex: Excessive stem in Lobelia & Stramonium.

Stalks from clove buds.

Root & rootlets from Rhizomes.

Pieces of Town from Castor seeds before crushing.

Bark from Acacia.



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Packing: ~~Each~~ Type of Packing based on morphological & chemical nature of a drug.

Ex: Aloe - goat skin, calophony, balsam of gelly - Kerobae
Asafetida - well closed container to prevent the loss of

V. oil.

- Spc can be used for Digitalis, ~~stems~~ Ergot & Sutee.

Why hear Ergot & Sutee sensitive to m.o. growth

- Digitalis is decomposed by losses its potency by decompo
of glycoside of mother liquor & preserva

②

Depends upon Chem conc. Drying Natural D (sun)
Artificial D.

1. N.D.: done by may be either sun drying / shade.

Ex Digitalis, Senna, some prefer shed dryer for retaining of their colour.

- Drugs which are stable to temperature prefer sun drying
ex: Acaia, seeds & fruits

A.D.: Drying the C.D by a) an oven b) Vacuum dryers
c) Spray dryers. (Tray dryers) (T.D)

a). T.D: (C.D) which do not contain v. oil & are stable to heat in which need destruction of enzymes are dried in T.D.

Ex. Belladonna root, Cinchona bark, Tea & Yerberry leaves & gums

b). Vacuum D: Drugs which are sensitive to ~~sun~~ higher temp
Tannic acid & Starch leaves.

c). Spray Dryers Highly sensitive to Atmospheric conditions
further followed for better drying of clumping pow
Note: For Cinchona bark, Starch, etc.



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①

Harvesting: Harvesting ^{can be} done by skilled labour (S.L.) ^{same time}
by mechanical devices (M.D)



- It reflects economic aspects of C.D.
- It is based on Type of ~~based~~ C.D.
- Selectivity is important for Harvesting of C.D.

Ex: Digitalis, Tea, Vinca, Senna leaf collection done by S.L.

Underground parts i.e roots, Rhizomes, tubers done by M.D, such as Diggers (Lifters). Then wash to remove earthy matter.

- Aerial parts are harvested by binders.
- Flowers, seeds & some fruits - seed stripper.
- Cane h. by beating the plant & bamboo sticks.
- Cactineae insects present on cacti plant ^{from} branches h. by brushing.
- Seaweed (Agar) - Long handled hobs.
- Peppermint, Spearmint h. by mowers.
- Fenugreek, Coriander & Caraway h. by uprooted & dried

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Drying: This process is necessary before marketing of crude drugs for longtime preservation & to improve the pharmaceutical elegance.

- For proper drying based on source of C.D.
(From P (w) A), & its chemical nature.



→ Drying need to remove of sufficient moisture from C.D. then to improve the quality of C.D.
& it facilitates resistant to the growth of m.o.
also inhibits the partially enzymatic reactions.

→ Drying facilitates the pulverizing (i) grinding of a C.D.

→ In some special drugs special methods are followed to reach specific standards eg; Fermentation in case of Cinnamomum Zingiberaceae bark & Gertson

roots.

- Slicing & cutting into small pieces in case of

Alcyonaria, Scutell & Columba.

- Flowers are dried in shade to retain colour & v. d.

Open

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- Colophony packed or by many to prevent the Auto oxidation
- Cinnamon bark packed in ~~silks~~ to facilitate transport
- Root seed packed in gunny bag, bag coated polythene interior
- The weight of certain drugs are kept constant during transport

Ex: Indian opium:

Storage & preservation of C.O.

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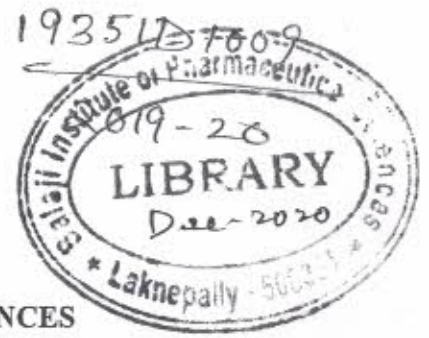
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85, 89, 90, 91, 95, 96, 97, 98, 99, 101, 102.



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9197/24

FACULTY OF PHARMACEUTICAL SCIENCES

Pharm. D (II Year) Examination

PHARMACOGNOSY AND PHYTOPHARMACEUTICALS

Paper III

Time : 2 Hours]

[Max. Marks : 70

Answer any five questions.

(Marks : $5 \times 14 = 70$)

1. Define pharmacognosy. Discuss about the future aspects of pharmacognosy.
2. Write a note on different methods of cultivation of crude drugs with examples.
3. Write the biological source, chemical constituents and uses of :
(a) Pectin (b) Podophyllum
4. Write a note on natural pesticides.
5. Write a note on macroscopical and microscopical evaluation of crude drugs.
6. Write briefly on cell wall constituents and cell inclusion.
7. Describe the method of extraction, chemistry and classification of lipids.
8. Classify proteins and write the methods of analysis of proteins.
9. Write the pharmacognostic study of cotton.
10. Write a note on gelatin. Classify crude drugs with examples. Write in detail on any two classifications.



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FACULTY OF PHARMACEUTICAL SCIENCES

Pharm. D (II YEAR) Examination

Pharmacognosy and Phytopharmaceuticals

Paper-III

Time: 3 Hours)

(Max Marks: 70

Answer any five questions (Marks 5 x 14 = 70)

All question carry equal marks

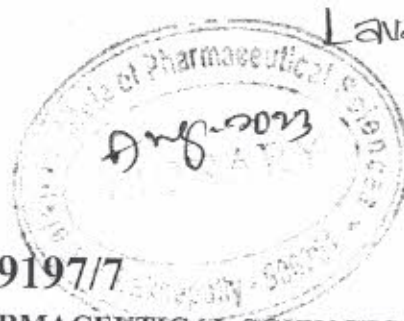
1. a) Define Pharmacognosy and describe the scope of Pharmacognosy with examples.
b) Discuss in detail the chemical and morphological classification of crude drugs with suitable examples.
2. List all the extrinsic and intrinsic factors affecting cultivation and explain about mutation and hybridization.
3. Explain in detail about plant growth regulators with examples.
4. What are natural pesticides? Describe in brief about Neem, Derris and Pyrethrum as natural pesticides?
5. a) Define and classify carbohydrates? Explain the chemical properties of carbohydrates?
b) Explain the biological source, chemical constituents, chemical tests and uses of Honey and Agar?
6. Describe the microscopical study of Senna and Cinchona?
7. a) What are cell inclusions. Write a note on calcium oxalate crystals and starch grains?
b) Draw a neat labeled diagram of a plant cell. Explain the functions of endoplasmic reticulum and mitochondria?
8. a) Describe various methods of extraction of oils?
b) Explain Kjeldahl method of analysis of proteins?
9. a) Explain various methods of adulteration of crude drugs with examples.
b) Classify fibers and discuss on any two plant fibers?
10. Explain the biological source, chemical constituents, and uses of Shark liver oil, Carnauba wax and Kokum butter?



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Lavanya Mahara

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FACULTY OF PHARMACEUTICAL SCIENCES
Pharm.D (II-Year) Examination
PHARMACOGNOSY AND PHYTOPHARMACEUTICALS
Paper-III

Time: 3 Hours)

(Max. Marks : 70

Answer any five of the following

1. (a) Define Crude drug and discuss the history of Pharmacognosy
(b) Write a note on Chemical and Pharmacological classification of crude drugs along with examples (6+8)
2. (a) Give a detail note on Collection, Processing and Storage of crude drugs.
(b) What is Pest? Elaborate the various pest control methods (7+7)
3. (a) Write a note on Cell inclusions.
(b) Write a note on various Cell constituents with their functions (6+8)
4. (a) Define Natural pesticides with examples and write the source, constituents, medicinal uses of
i) Pyrethrum ii) Neem
(b) Explain the Microscopical characteristics of any one leaf drug with a neat labelled diagram (8+6)
5. (a) Mention the general chemical tests for identification of Carbohydrates, Lipids and Volatile oils
(b) What are the different types of Starches? Describe the method of preparation of Starch from different sources (6+8)
6. (a) Describe the chemistry and analytical parameters of Lipids
(b) Explain the various methods of extraction of Volatile oils (8+6)
7. (a) Define, classify Fibres with examples and write the source, method of preparation for absorbent cotton
(b) What is adulteration? And write a note on different methods of adulteration of crude drugs with examples (7+7)



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