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2.3.5 Teaching learning process nurtures creativity, analytical skills and innovation among students

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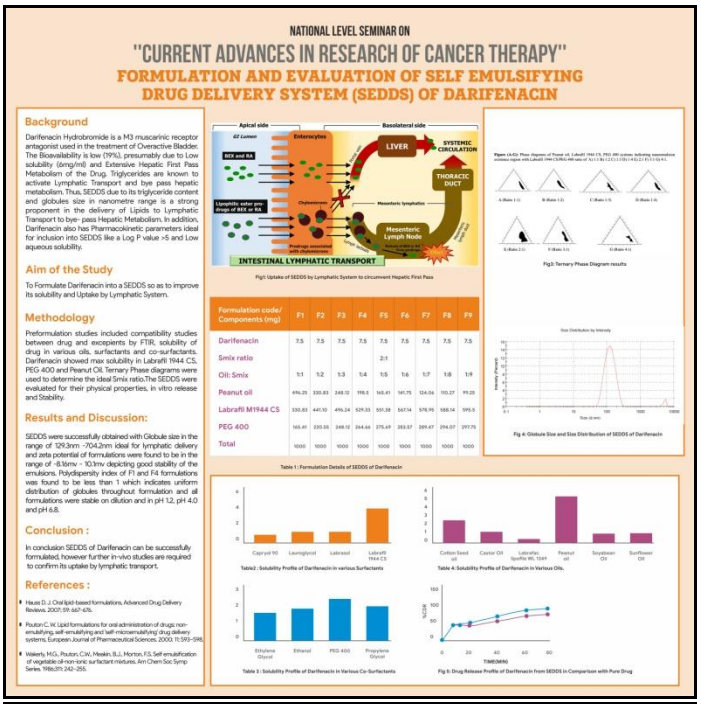
TEACHING LEARNING PROCESS NURTURES CREATIVITY

Designing theme –based information bulletin boards

Designing Research Posters for Presentation



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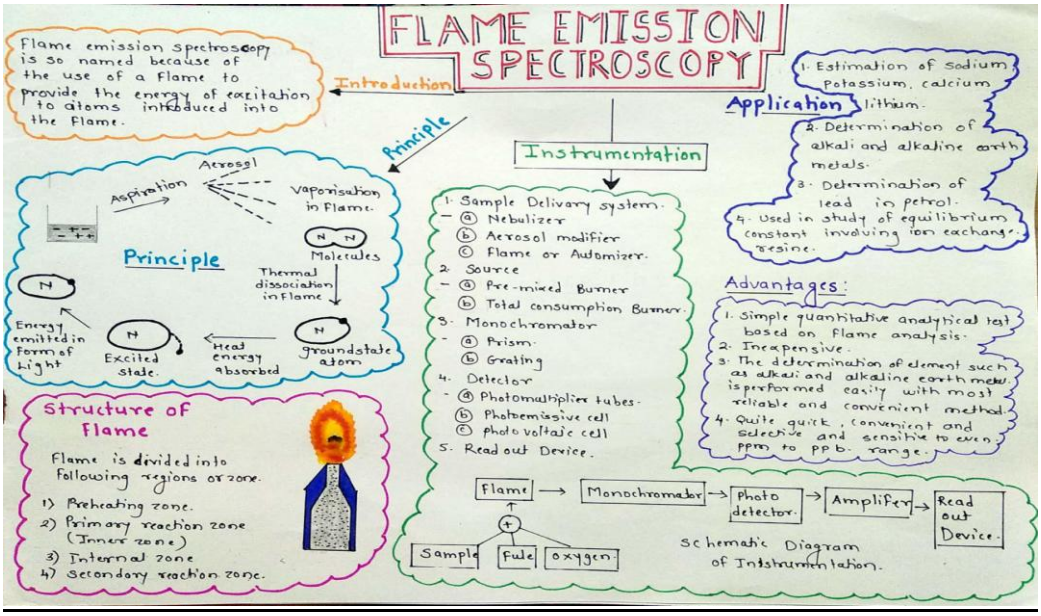
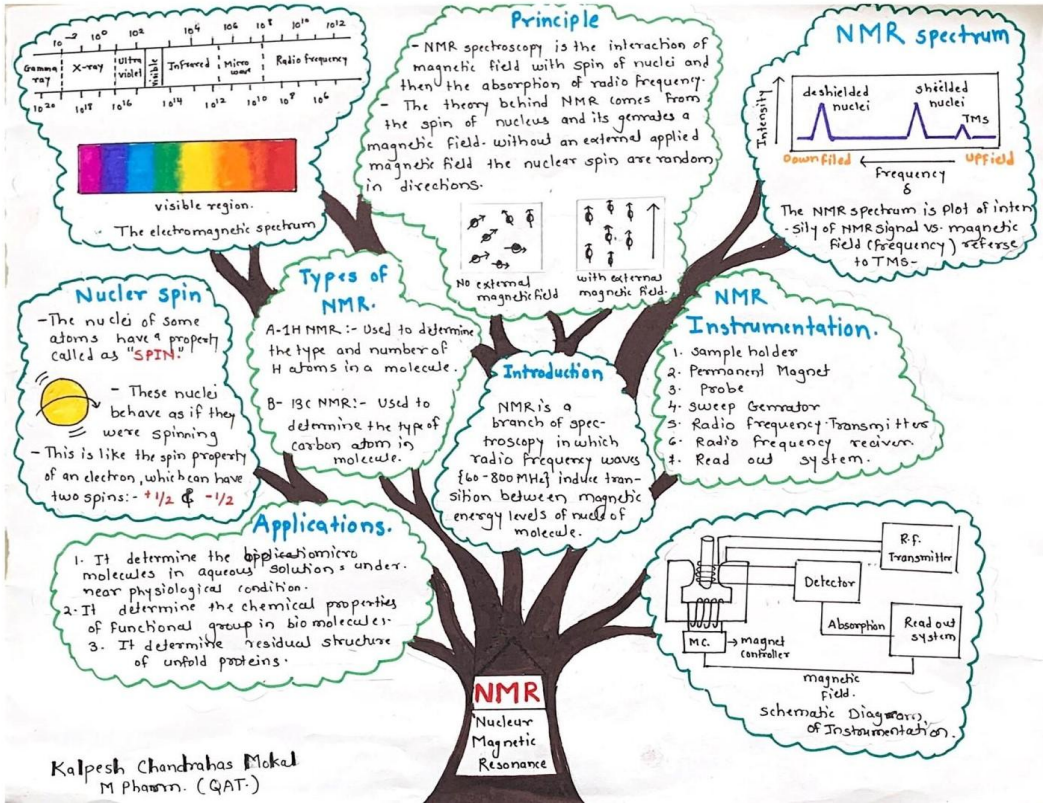
Students created Mind Maps for effective recall of concept





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Teaching- Learning Process Nurtures Analytical Skills: The students of pharmacy are trained to enhance their analytical skills in the practical lab work of most courses.

Practical Quality Assurance - I
M.Pharm - I
Sem - I

CONTINOUS ASSESSMENT
Academic Year 2018-2019

Sr. No.	Name of Experiment	Page No.	Date of performance	Date of Submission	Assessment max. marks 10	Sign
1	Estimation of Quinine sulphate by fluorimetry	01	5/9/18	12/9/18	7	
2	Simultaneous Estimation of multi component containing formulation by UV spectrometry	07	8/9/18	12/9/18	6 Absent repeated	
3	To Perform Pre-formulation study for Paracetamol tablets	23	12/9/18	19/9/18	7	
4	To Perform assay of the raw material mg. stearate as per official monograph	31	19/9/18	26/9/18	8	
5	To develop a stability study protocol for the conduction of Product under need for study	36	26/9/18	26/9/18	6	
6	To determine QC tests of packaging materials ampoules & eye bottles	42	22/9/18	26/9/18	6	
7	Effect of pH on solubility of drug	49	26/9/18	6/10/18	7	
8	To study Effect of various co-solvents on solubility of poorly water soluble drug paracetamol	55	26/9/18	6/10/18	7	
9	To study Effect of surfactant on solubility of drug	58	3/10/18	13/10/18	8	

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Sr. No.	Name of Experiment	Page No.	Date of performance	Date of Submission	Assessment max. marks 10	Sign
10	To determine the dissociation constant & pKa value of given weak acid by using pH meter	63	6/10/18	13/10/18	6 repeated	
11	Analysis of Pharmaceutical compounds in bulk & in their formulation by UV spectrophotometer	66	10/10/18	17/10/18	7	
12	To Perform Quality control tests of finished product (tablet)	69	17/10/18	24/10/18	6 repeated	
13	Demonstration of HPLC	75	17/10/18	24/10/18	6	
14	Demonstration of flame Photometry	81	20/10/18	24/10/18	7	
15	To determine the Partition coefficient of benzoic acid between distilled water & benzene	85	24/10/18	24/10/18	8	

6.8
Attendance = 07

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Marks will be given based on the following criteria : Attendance, regularity & sincerity, Performance, Cleanliness, Completion of Journal, Behavior during practical.

Name of the Student : Swapnali D. Harde
Roll No. : 05
Total No. of Experiments : 15
Total Marks Obtained : 102
Avg. Marks : 6.8
Date :
Name of Lecturer : Arghya Mam
Signature of lecturer :

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Co-Curricular / Extra Curricular Activity Record

Activity Done	Total Expt./ Activity	Expt. Performed / Activity	Total Marks Scored	Marks Out of 10	Sign (I/C Practical)
Seminar on IPR & academic research & scientific article writing (2 days)	2	0	0	0	
Total Marks					

= (6.8 + 0) / 2 = 3.4 + 07 = 10.4 = 11/20

➤ *Average Marks = 0
➤ The journal will be assessed at the time of viva of sessional examinations
➤ The final certification for university examination will be on the day of internal sessional examination itself.

*Avg. of journal, co-curricular participation.

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1/12/18

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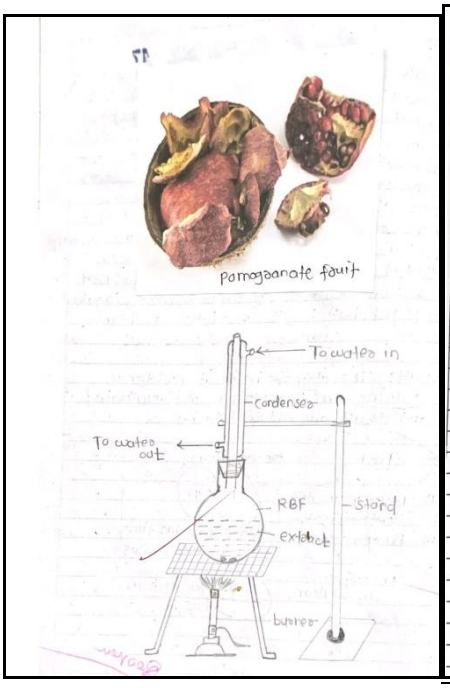
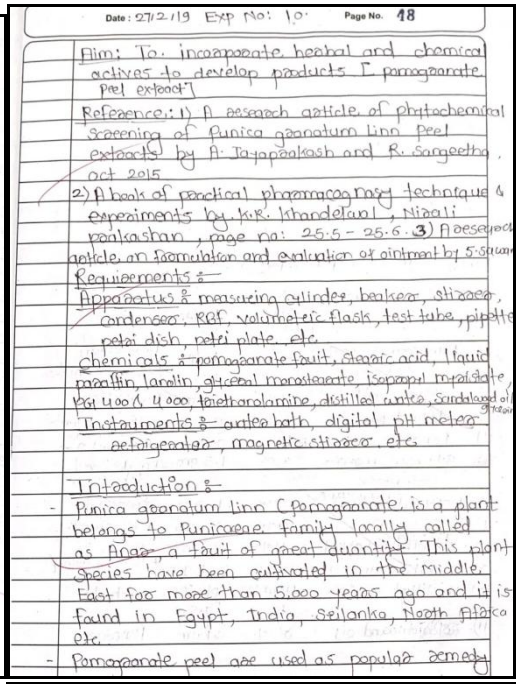
Teaching-Learning Process Nurtures Innovation

M.pharm students displayed their creativity in formulation and development by extracting pomegranate peel, purifying the extract, characterising it, formulating a cream and an ointment of it and finally performing quality Control tests on the formulated products.




Date: 27/2/19 Exp No: 10 Page No. 48

Aim: To incorporate herbal and chemical actives to develop products [pomegranate Peel extract]

Reference: 1) A research article of phytochemical screening of Punica granatum Linn peel extracts by A. Jayaprakash and R. Sangeetha, oct 2015

2) A book of practical pharmacognosy technique & experiments by K.R. Khandelwal, Nirali prakashan, page no: 25.5 - 25.6. 3) A research article on formulation and evaluation of ointment by S. Saran

Requirements :-

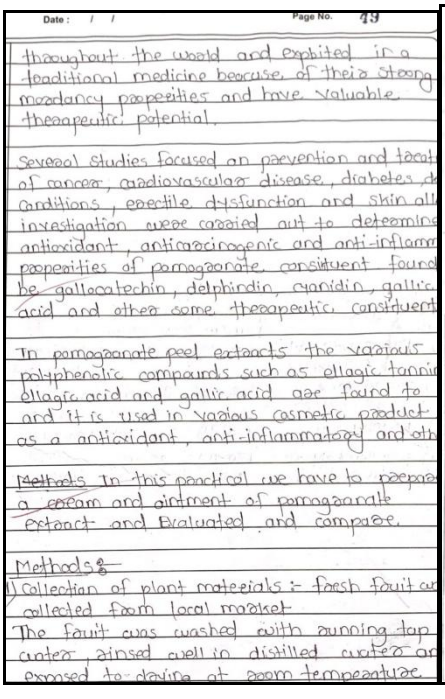
Apparatus :- measuring cylinder, beakers, stirrer, condenser, RBF, volumetric flasks, test tube, pipette petri dish, petri plate, etc.

Chemicals :- pomegranate fruit, stearic acid, liquid paraffin, lanolin, glyceryl monostearate, isopropyl myristate, PEG 400 & 4000, triethanolamine, distilled water, Sandalwood oil, Glycerin

Instruments :- water bath, digital pH meter, refrigerator, magnetic stirrer etc.

Introduction :-

- Punica granatum Linn (pomegranate) is a plant belongs to Punicaceae family locally called as Anar, a fruit of great quantity. This plant species have been cultivated in the middle East for more than 5,000 years ago and it is found in Egypt, India, Srilanka, North Africa etc.
- Pomegranate peel are used as popular remedy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throughout the world and exhibited in a traditional medicine because of their strong mordancy properties and have valuable therapeutic potential.

Several studies focused on prevention and treat of cancer, cardiovascular disease, diabetes, d conditions, erectile dysfunction and skin all investigation were carried out to determine antioxidant, anticarcinogenic and anti-inflamm properties of pomegranate. constituent found the gallocatechin, delphindin, cyanidin, gallic acid and other some therapeutic constituent

In pomegranate peel extracts the various polyphenolic compounds such as ellagic tanni ellagic acid and gallic acid are found to and it is used in various cosmetic product as a antioxidant, anti-inflammatory and oth

Methods: In this practical we have to prepar a cream and ointment of pomegranate extract and Evaluated and compare.

Methods :-

1) Collection of plant materials :- fresh fruit wa collected from local market

The fruit was washed with running tap water, rinsed well in distilled water an exposed to drying at room temperature

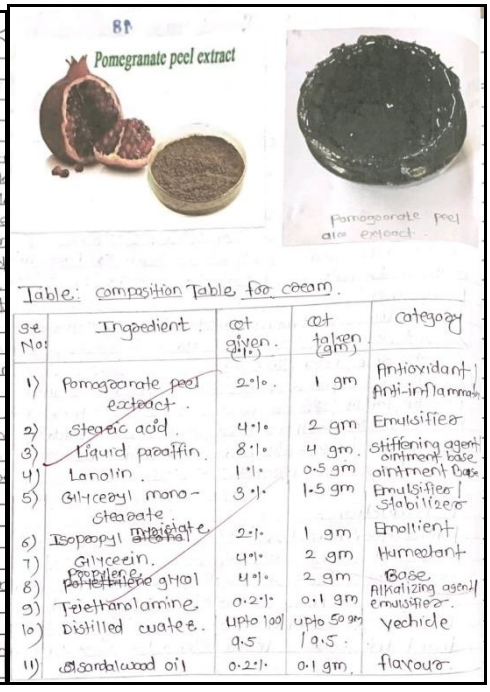

Table: composition Table for cream.

Sr No:	Ingredient	Qt given (%)	Qt taken (gm)	Category
1)	Pomegranate peel extract	2.%	1 gm	Antioxidant / Anti-inflamma
2)	Stearic acid	4.%	2 gm	Emulsifier
3)	Liquid paraffin	8.%	4 gm	Stiffening agent ointment base
4)	Lanolin	1.%	0.5 gm	ointment Base
5)	Glyceryl mono-stearate	3.%	1.5 gm	Emulsifier / Stabilizer
6)	Isopropyl myristate	2.%	1 gm	Emollient
7)	Glycerin	4.%	2 gm	Humectant
8)	Polyethylene glycol	4.%	2 gm	Base
9)	Triethanolamine	0.2.%	0.1 gm	Alkalizing agent / emulsifier
10)	Distilled water	Upto 100 / 9.5	upto 50 gm / 9.5	Vechicle
11)	Sandalwood oil	0.2.%	0.1 gm	flavour

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Formulation of cream and Ointment of the extracted pomegranate peel

Date : / / Page No. 50

for about 5 min in open air. The peel from the fruit was removed carefully by knife and allowed to dry. The dried material was properly ground into powder and kept in refrigerator.

2) Preparation of pomegranate peel extract
The stored peel powder of pomegranate (1g) was extracted with 20 ml solvent namely ethanol. After extraction process, the solvent was removed by air drying using water bath at 40°C to obtain crude extract and stored at 18°C in refrigerator.

3) Preparation of cream and ointment.
i) Ingredients & Procedure.
First pomegranate peel extract was dissolved in polyethylen glycol (2 gm), then glycerin (2 gm) was added to it. — (A)

Stearic acid (2 gm), liquid paraffin (4 gm), lanolin (0.5) was melted on water bath at 60°C in a petri dish until clear liquid solution obtained. Then glyceryl monostearate (1.5) and isopropyl myristate (1 gm) add on it.

Above soln (A) was added to soln (B) and water bath at 60°C with continuous stirring.

Then few drops of sandalwood oil and triethanolamine was added on it and ma

Composition table for ointments

Sr No:	Ingredients	Qty given/ 100 gram (mg)	Qty taken for 20 gram	Category
1)	Pomegranate peel extract	20 mg	0.4 gm	Anti-inflammatory, Anti-oxidant
2)	Polyethylene glycol 4000.	332 mg	6.64 gm	ointment Base.
3)	Polyethylene glycol 400	498 mg	9.96 gm	Solvent
4)	Propylene glycol	150 mg	3 gm	Solvent
5)	Sandalwood oil	9.5	9.5	flavour

ointments

* Evaluation Test A) Physical test.

Pomegranate peel extract cream.

i) Physical examination.
a) color: light brown colour
b) odour: Aromatic.
ii) consistency: Smooth and no gritty particle observed.
iii) pH = 5.8
iv) washability: Good.
v) Non irritancy test:

Test	Apply on	Remove	observation
SPT	upper arm for 1 times	After 4 hrs & continue for 3 days	no redness, dryness
3 patch appn	upper arm for 3 times	After 24 hrs	No redness, dryness
21 days appn	Apply daily	Remove.	No redness, roughness, dryness

vi) Extrudability:
Extrudability was determined in terms of weight of cream required to extrude 0.5 cm of ribbon of cream in 10 sec.
Extrudability = 0.8 gm

vii) Spreadability:

Sr No:	Spreadability cm
A)	5.3 cm
B)	4.9 cm
C)	5.2 cm.
mean	15.4/3 = 5.13 cm

Pomegranate peel extract ointment

i) physical examination
a) color: light yellow
b) odour: Aromatic
ii) consistency: smooth no gritty particle observed.
iii) pH = 6.2
iv) washability: Good.
v) Non irritancy test

Test	Apply on	Remove
SPT	upper arm for 1 times	After 4 hrs & continue for 3 days
3 patch Appln	upper arm for 3 times	After 24 hrs
21 days appn	Apply daily	Remove

vi) Extrudability:
Extrudability was determined in terms of weight of ointment required to extrude of ribbon of ointment in 10 sec.
Extrudability = 0.5 g

vii) spreadability.

Sr No:	Spreadability cm
A	3.8
B	3.8
C	3.9
mean	11/3 = 3.83 cm

Date : / / Page No. 51

up the quantity with water (35 gm) and stored in a container for further evaluation.

ii) For ointment
First pomegranate peel extract (equivalent to 1 g) was dissolved in propylene glycol (3 gm) — (A)

Polyethylene glycol 4000 (6.64 gm) and polyethylene glycol 400 (9.96 gm) was melted on water bath at 60°C in a petri dish.—

Then soln (A) was added to soln (B) slowly on water bath at 60°C with continuous stirring until homogeneous mixture was obtained. also add few drops of sandalwood oil. obtained mixture was kept in container for further evaluation.

Evaluation: A) Physical evaluation.
i) Colour and odour: Physical parameter like color and odour was examined by visually.
ii) consistency: smooth and greetiness is ob
iii) PH determination: Before measuring the cream and ointment it was ensure that pH meter is calibrated.
The pH of 1:1 w/v of cream and ointm soln in distilled water was measured by using pH meter at R.T.

Sr. No.	Test	Observation	Inference
4)	Extract + Acetic acid soln.	Red color soln.	tannins & phenolic comp present
5)	Extract + Dil Iodine solution.	Transient red color.	positive
6)	Extract + dil HNO_3	Reddish to yellow color	Negative
7)	Extract + Gelatin soln	white ppt	positive.
8)	Extract + Dil NH_4OH & potassium ferricyanate soln.	Red colour solution	Negative.

Conclusion: Tannins & phenolic comp present.

ii) Test for flavonoids

Sr. No.	Test	Observation	Inference
1)	Shinoda test: alco-extract + 5 ml of 95% ethanol + few drops of con HCl + 0.5 gm magnesium turnings.	orange to pink red to purple color.	positive for cream (flavonoids, xanthones present) Negative for ointment
2)	Sulphuric Acid Test: Extract + con sulphuric acid soln.	Deep yellow color.	positive (flavones / flavonols present)
3)	To small quantity of residue, add lead acetate solution.	yellow colored ppt.	positive.
4)	Addition of increasing amount of NaOH to the residue show colouration, which decolourises after addition of acid	Coloration of residue after addition of NaOH & decolourise after addition of acid	positive (flavonoids present.

Conclusion: flavonoids present

Date: / / Page No. 53

ix) Stability study: stability study was carried out at 35°C & 65% RH for one month.

B) chemical test & preliminary phytochemical te[st]

a) Test for tannins and phenolic compounds
To 2-3 ml of aq or alcoholic extract and [a] few drops of following reagent.
i) 5% $FeCl_3$ soln: deep blue black color.
ii) Lead acetate soln: white ppt
iii) Bromine water: Decolorization of bromine [water]
iv) Acetic acid soln: Red color soln.
v) Dil iodine soln: Transient red color.
vi) Dil HNO_3: Reddish to yellow color.
vii) Gelatine soln: white ppt.

b) Test for flavonoids.
i) Shinoda Test: To dry powder or extract add 5 ml of 95% ethanol, few drops of con H[Cl] and 0.5 magnesium turnings. Orange, pink [red] to purple color appears (flavonols, dihydro derivatives and xanthons).

ii) Sulphuric acid test: on addition of sulphuric acid flavones and flavonols dissolve into it and gives a deep yellow soln.
iii) To small quantity of residue, add lead acetate soln yellow coloured ppt is formed.
iv) Addition of increasing amount of sodium hyd[roxide] to the residue, shows colouration, which decolourises after addition of acid.

Evaluation of the Pomegranate Peel Extract Cream and Ointment

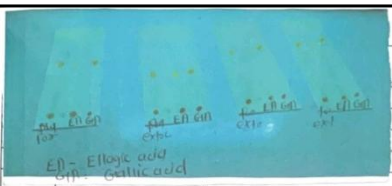
* Procedure for preparation of nutrient agar medium
1) suspend 28 gm of nutrient agar powder in 100 ml of distilled water.
2) Heat the mix while stirring to fully dissolve all com[ponents]
3) Autoclave the dissolved mix at 121°C for 15 min.
4) once the nutrient agar has been autoclaved, allow it to cool but not solidify
5) Pour nutrient agar into petri plate & leave plate on the sterile surface until the agar has solidified
6) Made hole in the nutrient agar medium with the help of sterile test tube and filled sample into the hole and place lid on it and observe after 60 min for diffusion.

Table: For irritancy test.

Test	Application	Remove	irritant if
single application patch test (SAPT)	undiluted test material - upper arm applied for 1 time.	Removed after 4 hrs observed for further 3 days.	Redness, dryness, roughness present.
3 patch application test.	undiluted test material upper arm part Applied for 3 times.	Removed after 24 hrs observed for sign.	Redness, dryness, roughness present.
21 days - cumulative irritancy patch test	Apply daily on back of forearm same site for 21 days	Daily applied & removed	Redness, dryness, roughness present.

* Thin layer chromatography [at 254 nm]
1) stationary phase:
2) Mobile phase:
i) Toluene: Ethyl acetate: Formic acid (8:1:5:0.3)
ii) Toluene: Ethyl acetate: formic acid (7:5:1)
iii) Toluene: Ethyl acetate: Formic acid (3:3.5:0.3).
3) Applied sample spot: formulation extract, std gallic acid & ellagic acid

Conclusion: we have confirmed that in our form[ulation] GA & EA present



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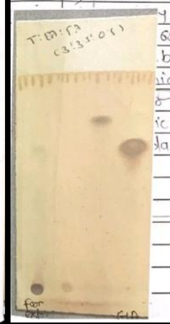
Result: Herbal and chemical actives (pomegranate peel extract) ~~was incorporated and develope cream and ointment~~ & also evaluated and result are given below.

Sr No.	Test (Physical Test)	Observations: Pomegranate peel extract cream	Pomegranate peel extract ointment
1)	Physical examination		
	i) Color	Light brown color	Light yellow color
	ii) odour	Aromatic	Aromatic
2)	consistency	Good	Good
3)	PH	5.8	6.2
4)	Non irritant test	Non irritant	Non irritant
5)	Extrudability (gm)	Good [0.8 gm]	Good [0.5 gm]
6)	spreadability (cm)	5.13 cm	3.83 cm
7)	Diffusion study (cm)	0.5 cm	0.1 cm.
[illegible]	[illegible]y test at [illegible] 65% RH	1 month stable	1 month stable.
[illegible]	[illegible]bility	Good	Good
[illegible]	[illegible]ical test.		
[illegible]	[illegible] tannins, [illegible]ic comp.	tannins & phenolic comp present	Tannins and phenolic comp present
[illegible]	[illegible]a test	flavonols, flavonoids pres[ent]	flavonoids is Absent
[illegible]	[illegible]	Gallic acid & ellagic acid present	Gallic acid & ellagic acid present.



Teacher's Signature

B. Pharm. students compete in a Formulation and Development activity wherein they formulate an innovative product.

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COMPETITION: FORMULATION DEVELOPMENT-2018-19
PARTICIPANT: Safiya Amin Shaikh
Class: 1st Yr B.Pharm

Product: ALOE VERA GEL

Sl.No	Ingredients	Qty	Category
1.	Aloe Vera gel	7gm	Antiseptic
2.	Cucumber extract	2.5gm	Cooling Agent
3.	HPMC	0.5gm	Gelling Agent
4.	Water	q.s to 10gms	

Procedure:

1. Remove fresh gel from Aloe Vera
2. Grind the cucumber after peeling into a fine paste
3. Weigh HPMC and add to enough qty of water and keep aside for gelling.
4. Mix the cucumber extract into the Aloe Vera gel and mix well by levigation.
5. Add the paste into the HPMC gel and mix well with a glass rod. Avoid entrapment of air bubbles by vigorous mixing.
6. Transfer the gel into a neatly labelled wide mouthed container .

Uses: Skin Moisturizer, used to alleviate skin irritation.

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Alard College of Pharmacy

COMPETITION: FORMULATION DEVELOPMENT-2018-19

PARTICIPANT: Nikalji Priti, Anuja, Kopnar Rahul, Gaikwad Anil

Class: 1st Yr B.Pharm

Product: Pomegranate Cough Syrup and Pomegranate Scrubber

Pomegranate Cough Syrup			
Sl.No	Ingredients	Qty/10ml	Category
1.	Pomegranate Seeds juice	30ml	Expectorant
2.	Honey	18	Sweetening agent
3.	Ginger juice	6 ml	Expectorant
4.	Water	q.s to 60ml	vehicle
Pomegranate Scrubber			
Sl.No	Ingredients	Qty/10ml	Category
1.	Pomegranate Peel Dried and ground to a fine powder	1gm	Scrub
2.	Rose water	q.s to 2ml	Perfume and Coolant

Procedure: Pomegranate Cough Syrup

1. Take 5-6 pomegranate and peel them to collect seeds.
2. Crush the seeds in a grinder and filter the extract through a muslin cloth and collect the juice.
3. Take enough ginger and crush it to extract its juice.
4. Measure 30ml pomegranate juice into a beaker, add 6ml of ginger juice and 18ml of honey to it and mix well.
5. Transfer it to a measuring cylinder and make up volume to 60 ml.
6. Transfer to a neatly labelled container.

Procedure: Pomegranate Cough Syrup

1. Take peel of a pomegranate and sun-dry it
2. Fine grind the dried peel and collect the powder.
3. Mix the powder with rose water to get a paste like consistency.
4. Transfer it to a wide mouthed bottle and label it.

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COMPETITION: FORMULATION DEVELOPMENT-2018-19
PARTICIPANT: Pooja Thakur, Jyoti Saini
Class: 3rdYrB.Pharm
Product: Anti-Larval Herbal tablets

Sr. No.	Ingredients	Qty	Category
1.	Tobacco	2.5gm	Larvicidal
2.	Ginger	2.5gm	Bactericide
3.	Sodium Bicarbonate	2gm	Effervescent effect
4.	Citric Acid	3gm	Pesticide
5.	Starch	0.3gm	Binder
6.	Magnesium Stearate	0.3gm	lubricant

Procedure:

1. Weigh all the powders accurately.
2. Pass through the sieve. No. 80.
3. Triturate them separately.
4. Mix it to form a uniform mixture.
5. Compress into tablets.
6. Transfer the tablets into a neatly labeled wide mouthed container.

Uses: Herbal Control of Mosquito larvae.

Category: Larvicidal

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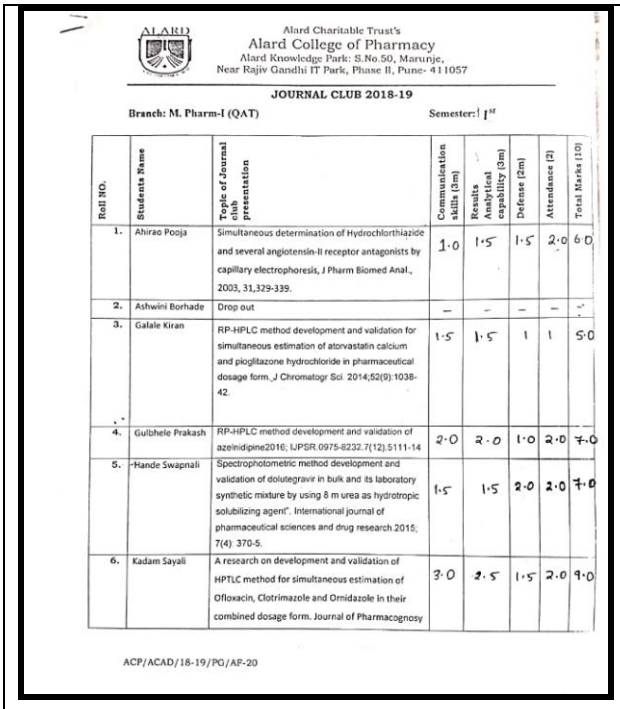
Journal Club: Students critically analyze the data presented in the published research articles.



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JOURNAL CLUB 2018-19

Branch: M. Pharm-I (QAT) **Semester: I [st]**

Roll NO.	Students Name	Topic of Journal club presentation	Communication skills (3m)	Results Analytical capability (3m)	Defense (2m)	Attendance (2)	Total Marks (10)
1.	Ahirao Pooja	Simultaneous determination of Hydrochlorthiazide and several angiotensin-II receptor antagonists by capillary electrophoresis, J Pharm Biomed Anal., 2003, 31,329-339.	1.0	1.5	1.5	2.0	6.0
2.	Ashwini Borhade	Drop out	–	–	–	–	–
3.	Galale Kiran	RP-HPLC method development and validation for simultaneous estimation of atorvastatin calcium and pioglitazone hydrochloride in pharmaceutical dosage form. J Chromatogr Sci. 2014;52(9):1038-42.	1.5	1.5	1	1	5.0
4.	Gulbhele Prakash	RP-HPLC method development and validation of azelnidipine2016; IJPSR.0975-8232.7(12).5111-14	2.0	2.0	1.0	2.0	7.0
5.	Hande Swapnali	Spectrophotometric method development and validation of dolutegravir in bulk and its laboratory synthetic mixture by using ß m urea as hydrotropic solubilizing agent". International journal of pharmaceutical sciences and drug research 2015; 7(4): 370-5.	1.5	1.5	2.0	2.0	7.0
6.	Kadam Sayali	A research on development and validation of HPTLC method for simultaneous estimation of Ofloxacin, Clotrimazole and Ornidazole in their combined dosage form. Journal of Pharmacognosy	3.0	2.5	1.5	2.0	9.0

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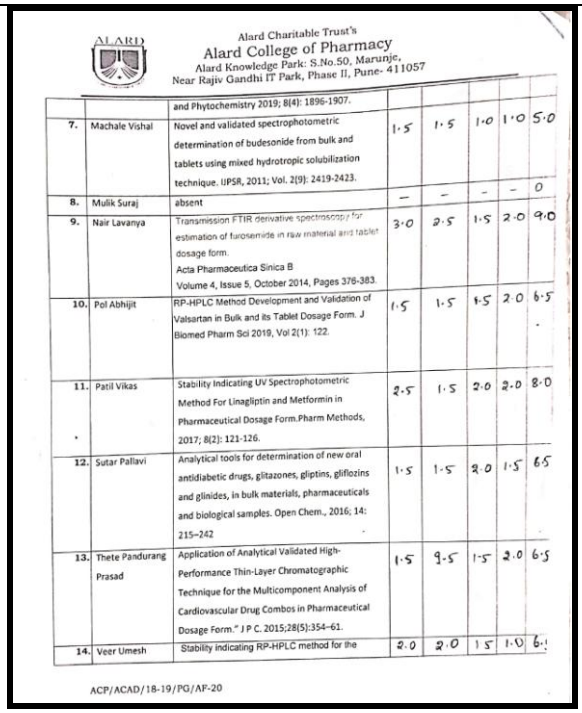

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		and Phytochemistry 2019; 8(4): 1896-1907.					
7.	Machale Vishal	Novel and validated spectrophotometric determination of budesonide from bulk and tablets using mixed hydrotropic solubilization technique. IJPSR, 2011; Vol. 2(9): 2419-2423.	1.5	1.5	1.0	1.0	5.0
8.	Mulik Suraj	absent	–	–	–	–	0
9.	Nair Lavanya	Transmission FTIR derivative spectroscopy for estimation of furosemide in raw material and tablet dosage form. Acta Pharmaceutica Sinica B Volume 4, Issue 5, October 2014, Pages 376-383.	3.0	2.5	1.5	2.0	9.0
10.	Pol Abhijit	RP-HPLC Method Development and Validation of Valsartan in Bulk and its Tablet Dosage Form. J Biomed Pharm Sci 2019, Vol 2(1): 122.	1.5	1.5	1.5	2.0	6.5
11.	Patil Vikas	Stability Indicating UV Spectrophotometric Method For Linagliptin and Metformin in Pharmaceutical Dosage Form.Pharm Methods, 2017; 8(2): 121-126.	2.5	1.5	2.0	2.0	8.0
12.	Sutar Pallavi	Analytical tools for determination of new oral antidiabetic drugs, glitazones, gliptins, gliflozins and glinides, in bulk materials, pharmaceuticals and biological samples. Open Chem., 2016; 14: 215–242	1.5	1.5	2.0	1.5	6.5
13.	Thete Pandurang Prasad	Application of Analytical Validated High-Performance Thin-Layer Chromatographic Technique for the Multicomponent Analysis of Cardiovascular Drug Combos in Pharmaceutical Dosage Form." J P C. 2015;28(5):354–61.	1.5	9.5	1.5	2.0	6.5
14.	Veer Umesh	Stability indicating RP-HPLC method for the	2.0	2.0	1.5	1.0	6.5

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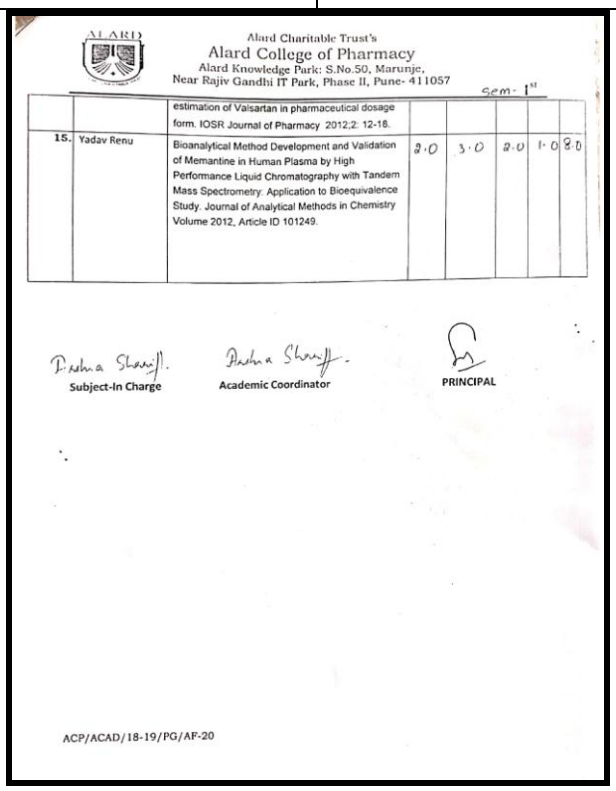

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Sem- I [st]

		estimation of Valsartan in pharmaceutical dosage form. IOSR Journal of Pharmacy 2012;2: 12-18.					
15.	Yadav Renu	Bioanalytical Method Development and Validation of Memantine in Human Plasma by High Performance Liquid Chromatography with Tandem Mass Spectrometry: Application to Bioequivalence Study. Journal of Analytical Methods in Chemistry Volume 2012, Article ID 101249.	2.0	3.0	2.0	1.0	8.0

Subject-In Charge Academic Coordinator PRINCIPAL

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SEMINAR ON RECENT TRENDS

Alard Charitable Trust's
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Sr.No 50, Near Rajiv Gandhi Infotech Park,
Marunji, Pune 411057

ATTENDANCE OF SEMINARS

ACADEMIC YEAR 2018-19 SEMESTER: 3RD Sem

Date of Seminar:...29...Sep. 2018 Department:....QAT.....

SEMINAR ON RECENT TRENDS

Roll No.	Name of Student	Topic	Signature of Student
1.	Bombe Amit	IPQC (In-Process Quality Control)	
2.	Chaure Pravin	SUPAC (Scale Up Post Approval Changes)	
3.	Devkate Ganesh	BACPAC (Bulk Active Chemical Post Approval Changes)	
4.	Ghatol Govind	SNDA (Supplemental New Drug Application)	
5.	Golait Archana	Developing Specification (ICH Q6, Q3)	
6.	Kote Omkar	Product Registration Guidelines(CDSCO and USFDA)	
7.	Kumbhar Ankita	Layout of Pilot Plant Scale up Study	
8.	Mulani Fateh Ali	Documentation in technology Transfer: development report	
9.	Pawde Jagannath	Documentation and plan of Technology transfer and Exhibit	
10.	Sakhare Sandeep	Common Technical Documentation (CTD) and e-CTD to be submitted to regulators.	
11.	Tandale Sandeep	Quality Audit Plan and Reports	
12.	Toranmal Shubham	CPCSEA guidelines	
13.	Wagh Vishal	Statistics in Method Development and Validation: its representation	

Name and Signature of Evaluators:

1...Dr. Arshia Shariff...

2...Ms. Nikita Kale.....

Name and Signature of Chief Examination Officer:

.....

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Marunje, Pune - 411 057.

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INDUSTRIAL VISITS TO RESEARCH LABS

Central Instrumentation Facility Lab, (SPPU), Chemistry Department: 2018-19

Alard College of Pharmacy, Pune organized CIF lab Visit for T.Y.B Pharm students on 11/10/2018 at 1:00 PM. This facility is widely used by undergraduate and post graduate students, research scholars and faculty members. The Central Instrumentation Facility (CIF) at the University has a range of instruments which include: NMR Spectrophotometer (Nuclear Magnetic Resonance), LC-MS (Liquid Chromatography- Mass Spectroscopy), GC-MS (Gas Chromatography- Mass Spectroscopy), FT-IR (Fourier Transform- Infra Red Spectroscopy), X-Ray Diffractometer.

Following Faculty of CIF has given information and demonstration of instruments-

Sr.No	Instruments	Make of Instruments	Faculty, CIF
1	GC -MS	Shimadzu	Mr. D.S.Shishupal
2	LC-MS	Water	Mr. Basavraj
3	FT-IR	Shimadzu	Mr. Basavraj
4	XRD	Bruker	Mr.Amit Patil
5	NMR	Bruker	Mrs. Sheetal Zakhade

Faculty of ACP and CIF took the initiative in organizing the educational visit and also accompanied the students along with. It was an interactive forum for exchange of new knowledge and opportunities for stimulating young minds. The students showed their interests and actively participated in the Lab visit.

CENTRAL INSTRUMENTATION LAB VISIT

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TRAINING WORKSHOPS ON HANDLING OF SOPHISTICATED INSTRUMENTS AND EQUIPMENTS LIKE HPLC, IR, UV, TABLET COMPRESSION AND COATING MACHINES,

The training session covers different aspects like role of analytical method, principle and applications of HPLC. The training programme begins with basics of chromatography and covers all the practical aspects of HPLC including sample preparation, method development and method validation. Following topics will be covered in this training.

- Introduction to chromatography
- Principles of liquid chromatography and HPLC components and their functions
- Applications of HPLC
- System Suitability studies
- Experimental Work: Sample preparation, Method of analysis,
  Sample analysis, Quantification,
  Method validation & recovery studies.

Workshop on HPLC

The training session covers different aspects like instrumentation of FTIR and software handling. The session covers

- Introduction of FTIR
- Principal and Instrumentation of FTIR
- Application of FTIR
- Experiment work of FTIR- Sample preparation in FTIR

The IR spectra obtained shall be interpreted to identify the functional group present in sample. The regions of IR Spectra like finger print region, double bond region, triple bond region, hydrogen bonding region, Fermi resonance, and overtone bands shall be explained to the students. In addition, The operation of spectramanager user interface for measurement, evaluation and report generation shall be studies.

Workshop on FTIR

The training session covers different aspects like instrumentation of UV and software handling. The session covers

- Introduction of UV
- Principal and Instrumentation of UV
- Application of UV
- Experiment work of UV- Sample preparation in UV

Training delivers a solid understanding of how to best operate and maintain UV/VIS spectrophotometer, ensuring your analysis is performed efficiently and effectively.

Workshop on UV-Spectrophotometer

The training provides real-time experience of handling manufacturing of Tablet Dosage Forms in a Pilot Plant and its maintenance.

Demonstration on Tablet Compression and Coating Machine

TRAINING ON ANIMAL HANDLING, CARE AND USE IN PHARMACOLOGICAL EXPERIMENTS

The students' are provided with awareness and confidence regarding animal use in the pharmacology laboratory and develop practical skills and also learn how to plan and perform ethical animal experiments.

Demonstration of Animal Handling

INDUSTRIAL VISITS

Industrial visit to Nulife, Pune and Encube Ethicals, Goa were conducted to give students a real-time experience of pharmaceutical manufacturing facilty. Encube Ethicals unit in Goa was a fully automated manufacturing facility specializing in manufacture of only Topical Dosage Forms.