



OFFICE OF THE DIRECTOR/PRINCIPAL
GOVERNMENT COLLEGE OF PHARMACY, ROHRU
TEHSIL ROHRU, DISTT. SHIMLA-171207, HIMACHAL PRADESH
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Govt. College of Pharmacy, Rohru

District Shimla, Himachal Pradesh

DVV Clarification

Supporting Documents for 1.3.2.1

(1.3.2.1. Number of students undertaking project work/ field work/ internships)

Kindly provide

1. List of students undertaking the field projects / internship program-wise in the last completed academic year along with the details of title, place of work etc.
2. Internship completion certificate / project work completion certificate from the organization where internship / project was completed along with the duration
3. Report of the field work/ sample photographs of the field work / permission letter only for field work from the competent authority


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No. 43

Date: 21-2-2022

Office order

All the students of B.Pharmacy 8th Semester (4th year, **2018-2022**) are hereby informed that the project topics of students accommodated are enlist here. Each Project will be supervised by project in charge, and evaluated via written reports and presentation.

Further information and resources about project supervision can be obtained from the respective supervisor.

S.No.	Roll No.	Name	Project Title	Supervisor
1	18BPD0201	Aanchal Chandel	Post translational modification in Alzheimer's disease	Dr. Vivek Sharma
2	18BPD0202	Aishwarya Thakur	Investigational role of insulin in Parkinson's disease	Dr. Vivek Sharma
3	18BPD0203	Ankit Kumar	A Valuable insight into a recent update on pyrazole biomolecules as a potential therapeutic agent for the treatment of Alzheimer's disease	Dr. Harish Kumar
4	18BPD0204	Ankita Kumari	Molecular insight to sonic hedgehog signaling during Alzheimer's disorder : a potential target for therapeutic intervention	Dr. Vineet Mehta
5	18BPD0205	Ankita	Synthesis, characterization and molecular docking of aryl thiourea and aryl thiazolidine-4ones for anti-diabetic property	Dr. Kushal Kumar
6	18BPD0206	Aparna Chauhan	Formulation and evaluation of floating tablets of chloramphenicol	Mr. Raneev Thakur
7	18BPD0207	Deepika Thakur	Hyperglycemia as a risk factor in stroke	Dr. Vivek Sharma
8	18BPD0208	Deepanshu Verma	Preparation of some ecofriendly products from prickly pear	Mr. Vikrant Arya
9	18BPD0209	Diksha	Formulate and evaluate the micro emulsion based hydro gel for topical delivery	Mr. Raneev Thakur
10	18BPD0210	Diksha Thakur	Sulfanilamide and its derivative	Dr. Kushal Kumar
11	18BPD0211	Harsh Gautam	Molecular Docking: Study of herbal intervention in the management of covid-19 associated complication: in silico approach	Ms Priyanka Nagu
12	18BPD0212	Ishan Sharma	Covid-19: social and educational aspects	Dr. Vivek Sharma
13	18BPD0213	Karan Singh	A Novel insight into antimicrobial perspective of pyrazole derivatives	Dr. Harish Kumar
14	18BPD0214	Kailash Chand	A Valuable insight into a recent update on pyrazole biomolecules as a potential therapeutic agent for the treatment of Alzheimer's disease	Dr. Harish Kumar
15	18BPD0215	Kajal Rani	Molecular Docking: Study of herbal intervention in the management of covid-19 associated complication: in silico approach and in vitro approach	Ms Priyanka Nagu
16	18BPD0216	Kajal Sharma	Altered glucose homeostasis in the central nervous system during Alzheimer's disease. A potential target for the therapeutic intervention using herbal molecules: in silico in vitro approach	Dr. Vineet Mehta
17	18BPD0217	Komal Dogra	Formulate and evaluate the micro emulsion based hydro gel for topical delivery	Mr. Raneev Thakur
18	18BPD0218	Kritika Bhardwaj	Molecular insight to sonic hedgehog signaling during Alzheimer's disorder : a potential target for therapeutic intervention	Dr. Vineet Mehta
19	18BPD0219	Prince Koundal	Antibacterial and its derivative	Dr. Kushal Kumar
20	18BPD0220	Priya Sood	Pharmacognostical studies on yellow Himalayan raspberry	Mr. Vikrant Arya
21	18BPD0221	Pradyuman Verma	Covid-19: social and educational aspects	Dr. Vivek Sharma
22	18BPD0222	Puneet Sharma	Preparation of some ecofriendly products from prickly pear	Mr. Vikrant Arya

23	18BPD0223	Rajat Vashist	Preparation of some ecofriendly products from prickly pear	Mr. Vikrant Arya
24	18BPD0224	Ritika Devi	Pharmacognostical studies on yellow Himalayan raspberry	Mr. Vikrant Arya
25	18BPD0225	Samriti	Molecular Docking: Study of herbal intervention in the management of covid-19 associated complication: in silico approach and in vitro approach	Ms Priyanka Nagu
26	18BPD0226	Sanjana Thakur	Pharmacognostical studies on yellow Himalayan raspberry	Mr. Vikrant Arya
27	18BPD0227	Shagun Rangra	Preparation of some ecofriendly products from prickly pear	Mr. Vikrant Arya
28	18BPD0228	Sheetal Dasta	A Novel insight into antimicrobial perspective of pyrazole derivatives	Dr. Harish Kumar
29	18BPD0229	Sheena	Altered glucose homeostasis in the central nervous system during Alzheimer's disease. A potential target for the therapeutic intervention using herbal molecules: in silico in vitro approach	Dr. Vineet Mehta
30	18BPD0230	Siddharth	A Valuable insight into a recent update on pyrazole biomolecules as a potential therapeutic agent for the treatment of Alzheimer's disease	Dr. Harish Kumar
31	18BPD0231	Shikha Goswami	Formulation and evaluation of floating tablets of chloramphenicol	Mr. Raneev Thakur
32	18BPD0232	Shubham Kumar	Synthesis, characterization and molecular docking of aryl thiourea and aryl thiazolidine-4ones for anti-diabetic property	Dr. Kushal Kumar
33	18BPD0233	Sudhanshu Paul	Altered glucose homeostasis in the central nervous system during Alzheimer's disease. A potential target for the therapeutic intervention using herbal molecules: in silico in vitro approach	Dr. Vineet Mehta
34	18BPD0235	Swati Dogra	Synthesis and molecular docking studies of benzimidazole derivatives as antiulcer agents	DR. Kushal Kumar
35	18BPD0236	Tanya	A Novel insight into antimicrobial perspective of pyrazole derivatives	Dr. Harish Kumar
36	18BPD0237	Varsha Sharma	Synthesis and molecular docking studies of benzimidazole derivatives as antiulcer agents	DR. Kushal Kumar
37	1916142001	Bharti	Formulation, optimization and evaluation of caffeine gel beads	Mr. Raneev Thakur
38	1916142002	Chandni Thakur	Hyperglycemia as a risk factor in stroke	Dr. Vivek Sharma
39	1916142003	Monika Tanta	Formulation, optimization and evaluation of caffeine gel beads	Mr. Raneev Thakur
40	1916142004	Neha	To prepare and evaluate phytosomes of acacia catechu extract	Ms Priyanka Nagu
41	1916142005	Parul Thakur	To prepare and evaluate phytosomes of acacia catechu extract	Ms Priyanka Nagu
42	1916142006	Pooja Thakur	To prepare and evaluate phytosomes of acacia catechu extract	Ms Priyanka Nagu
43	1916142007	Shivani	Altered glucose homeostasis in the central nervous system during Alzheimer's disease. A potential target for the therapeutic intervention using herbal molecules: in silico in vitro approach	Dr. Vineet Mehta

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Dated:- 21-2-22

Endst. No. GCPR/Trg. Msc/22- 194

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PHARMACOGNOSTICAL STUDIES ON YELLOW HIMALAYAN RASPBERRY

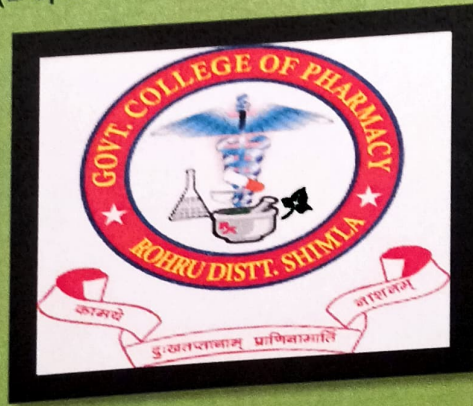
*A Project Report
Submitted in partial fulfillment of the requirements for
the award of degree of*
BACHELOR'S OF PHARMACY (ALLOPATHY)

BY

Priya Sood

(Registration Number: 18BPD0220)
UNDER THE GUIDANCE OF

Sh. VIKRANT ARYA
Assistant Professor Pharmacognosy
(Department of Pharmacognosy)



GOVERNMENT COLLEGE OF PHARMACY ROHRU,

District: Shimla, H.P. 171207

(2022)

Priya Sood
Signature of the Student

Rameer Thakur
Signature of the Guide
Rameer Thakur

ACKNOWLEDGEMENT

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to Mr. Vikrant Arya, Assistant Professor, Govt. College of Pharmacy, Rohru (GCP , Rohru) for his guidance and constant supervision as well as for providing necessary information regarding the project and also for their support in completing the project.

I would like to express my gratitude towards my parents and laboratory staff of GCP, Rohru for their kind co-operation and encouragement which help me in completion of this project.

I would like to express my special gratitude and thanks to Dr. Vivek Sharma, Director/Principal, GCP , Rohru for giving me such attention and time .

My thanks and appreciations also go to my fellow friends in developing the project and people who have willingly helped me out with their abilities.

CERTIFICATE

This is to certify that **Priya Sood** submitted a project report on **Pharmacognostical Studies on Yellow Himalayan Raspberry** in partial fulfilment of the requirement for the degree of **Bachelor of Pharmacy [Allo.]** to **Govt. College of Pharmacy , Rohru** with his / her true observations . He /She has prepared this report under my supervision and his / her report is satisfactory.

I hereby forward his/her report.

Supervisor : Mr. Vikrant Arya [M.Pharm]

Designation : Assistant Professor

Govt. College of Pharmacy, Rohru

DECLARATION

I hereby declare that the information given in the report is a bonafide and genuine project report prepared out by my under the guidance and suggestions received from my supervisor **Mr. Vikrant Arya , Assistant Professor , Govt. College of Pharmacy, Rohru .**

Date: 04-7-22

Priya Sood

Roll No.: 18BPD0220

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1. INTRODUCTION:

Rubus ellipticus belonging to family Rosaceae is commonly known as Yellow Himalayan Raspberry and it is mostly found in forest edges and numerous forests exist over wide area of mountains and lowlands of India and Sri Lanka. The genus *Rubus* is very diverse, includes over 750 species in 12 subgenera and is found on all continents except Antarctica (1)

Name: Yellow Himalayan Raspberry

Scientific Name: *Rubus ellipticus*

Origin: South Asia

TAXONOMICAL CLASSIFICATION

Kingdom	<i>Plantae</i>
Order	<i>Rosales</i>
Family	<i>Rosaceae</i>
Genus	<i>Rubus</i>
Species	<i>R.ellipticus</i>

The golden Himalayan raspberry's origin is in the temperate Himalayas region, and is native to India, Pakistan, Nepal and China. It is often found in Pine forests of the region. It is found as a weed in open grassland and rarely in forests of Himalayan states of India example Himachal and Uttarakhand. When grown in warmer region, this species can flower and fruit all year round. The Stems only produce leaves and do not flower in their first year of growth, forming flowering branches in second year and then dying after fruiting. Flowers bloom during February to March. Fruits ripe during May to June. The plant is harvested from the wild for local use as a food and a medicine. The fruit is also sold in local markets in the Himalayas. It has higher photosynthetic rate, has higher nitrogen fixation rate and therefore a higher photosynthetic nitrogen use efficiency.

1.2. DESCRIPTION⁽¹¹⁻²⁰⁾:

Yellow Himalayan Raspberry is a weekly climbing, evergreen shrub producing a bunch of thin, heavily armed, upright, biennial stems from a woody rootstock. The plant usually grows upto 4.5 meters, or about 12 feet long. The stems only produce leaves, and do not flower, in their first year of growth, forming flowering branches in their second year and then dying after fruiting.

The plant can rapidly form tall, dense thickets. Branchlets are purplish brown or brownish, curved prickles and dense, purplish brown bristles or glandular hair. The plant is normally found growing in slopes, roadsides, in open canopy forests, the deep shade of rainforests.

Leaves are trifoliate, elliptic, or ovate and toothed with long bristles. Thick leaves are about 3-4 inches long and 2-3 inches wide. Underside of the leaves is lighter than the upper surface and is covered with hair. Flowers are small, short, white and have five petals and grow in clusters, and blooms in the Himalayas between the months of February and April. Flowers have both male and female sex part and are normally pollinated by insects.

Fruit is golden yellow as they mature. It is sweet to taste.

Rubus ellipticus, yellow Himalayan raspberry, is a serious invasive plant in Hawaii, posing a great threat to local ecosystems. It was listed as one of the 100 World's worst invasive alien species by IUCN. Mechanical and herbicidal control has been performed on a limited scale, but large scale eradication is not feasible, because of the extensiveness and rugged terrain of the infested area. The plant is native to the Himalayan region in Asia, including China, Bhutan, India, Laos, Myanmar, Nepal, Pakistan, Philippines, Sikkim, Sri Lanka, Thailand and Vietnam. *Rubus* is one of the largest genera in Rosaceae, consisting about 700 species worldwide. According to Gu et al (1996), 201 species grow in China. They are distributed in 27 Provinces, but around 70% of these species occur in southwestern China. *Rubus ellipticus* is distributed in Guangxi, Guizhou, Sichuan, Tibet, and Yunnan. It is a small deciduous shrubby plant about 1-2 m in height. The plant is perennial, reproducing by both vegetative means and seeds. It blooms from March to April and fruits from April through May. The plant grows along hillsides, roadsides or thickets in valleys, sparse forest, and broad-leaf forest at altitudes of 300-2000 m. Twigs and leaves are used medicinally, and fruits are eaten.

1.3. PHARMACEUTICAL APPLICATIONS

- Bark: Antidiuretic.
- Its juice can be used to treat cough, fever, sore throat.
- The plant can also be used to make bluish-purple dyes

- Bark from this plant used for medical reasons in Tibetan villages, mainly as a renal tonic and antidiuretics.
- It is extensively used for treating menstrual disorders.
- Leaf juice when applied is beneficial for skin disorders.
- Paste prepared from leaves makes skin bright and glowing.
- Its fruits are used to treat indigestion.
- Golden Himalayan Raspberry has also been studied for potential antioxidants in its fruits.

Yellow Himalayan Raspberry has antioxidant properties and antimicrobial ones. It was also shown to have antiinflammatory properties when tested on rats in the lab. Ten new triterpenoid saponins have been found and research is continuing in this plant. Additionally, some of the constituents show promising characteristics in terms of functionality. Although fruits of *R. ellipticus* are shown to be highly nutritious, delicious, and rich in vitamins and sugars, their antioxidant and anti proliferative potentials remain under explored.

Traditional use of *Rubus ellipticus*: This fruit offers excellent opportunities of cultivation as a hedge or fence plant. There is practically no cost of cultivation involved except the cost of picking. This fruit can give some extra income to the farmers without any investment. The fruit has laxative properties, and is used in traditional medicine in Tibet for a number of purposes. The whole plant has astringent properties and has been used to reduce fevers, especially typhoid. The inner bark of the Yellow Himalayan Raspberry is used as a kidney tonic and an anti-diuretic. The juice extracted from the root has also been used for fevers, gastric problems (including infant colic when the young shoots are used too), diarrhoea and dysentery and the root paste, applied to wounds promotes healing. The fruit juice is also used to bring down the temperature of a fever and for colic, and is good for sore throats and colds too. The inner bark is said to help when the senses are weakening and when people have seminal or vaginal discharge. In summer it is used to promote sweating as a diaphoretic, and as a diuretic, and as the fruit is fibrous it aids the digestive processes. Due to useful medicinal properties of *Rubus* species, it has been used in folk medicine. Roots and young shoots of *R. ellipticus* are used for colic pain. The inner bark of the *R. ellipticus* plant is valued as a medicinal herb in traditional Tibetan medicine, including its use as a renal tonic and anti-diuretic. Its fruits are edible and can also be used to produce a purplish blue dye. The juice of *R. ellipticus*, which has an

attractive colour and rich flavour, can be preserved as such and can also be used for squash making. A very good jam can also be prepared from this fruit. Traditionally it is used for gastralgia, wound healing, dysentery, antifertility, antimicrobial, analgesic, epilepsy, diabetes mellitus and ulcer. Different part of the plant have been claimed to be useful in ailments like diabetes, diarrhoea, gastralgia, dysentery, epilepsy and as wound healing agent, anti-fertility agent, antimicrobial, analgesic and as renal tonic. As it is one of the important ethno medicinal plants of Manipur. The Naga tribe of Manipur uses the root bark of the *R. ellipticus* for curing fever since ancient times. They dwell in the hilly terrains and totally depend on nature for their livelihood. For curing various ailments they use the medicinal plants from the wild since ages. *R. ellipticus* is one among the shortlisted plants used as antipyretics. The decoction of root bark is recommended twice a day for curing fever by the Nagas. The root bark is also used in diarrhea, dysentery, as abortifacient, emmenagogue and in fractured bones. *R. ellipticus* root paste is used as poultice for the treatment of bone fracture, applied on forehead during severe headache; fruit is edible. Ripe fruits are laxative and are used in the case of constipation, paste of young fruits are taken in case of gastritis, diarrhea and dysentery. The root juice drunk against urinary tract infection and its fruits are edible and were listed in the top ten wild edible medicinal plants in Tanahun District of Western Nepal. *R. ellipticus* is used for curing different ailments by the Lepcha tribe of Dzongu valley in North Sikkim, India. The young shoot is chewed raw to relieve sudden stomach pain. Root decoction given to the children to get rid of stomach warm.

2. EXPERIMENTAL SECTION:

The morphological, microscopic, physicochemical and chromatographic studies would serve as a standard reference for identification, authentication and distinguishing the plants from its adulterants. Different plant parts were collected in the month of August from adjoining areas of Rohru region, Himachal Pradesh, India. It was stored in a well closed container free from environmental climatic changes or any other contamination till usage for the further studies.

Pharmacognostic standardisation The specimen was processed to the pharmacognostic standardisation.

2.1. MORPHOLOGICAL STUDIES:



Collection of sample from college Herbal garden

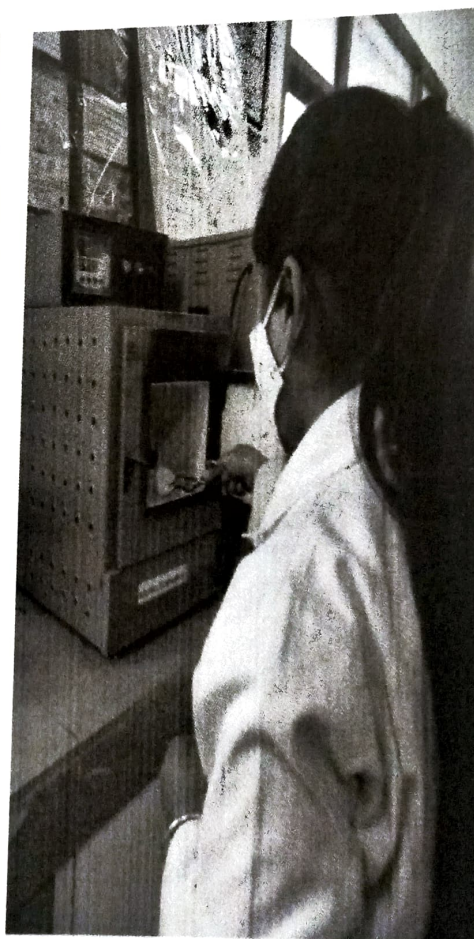
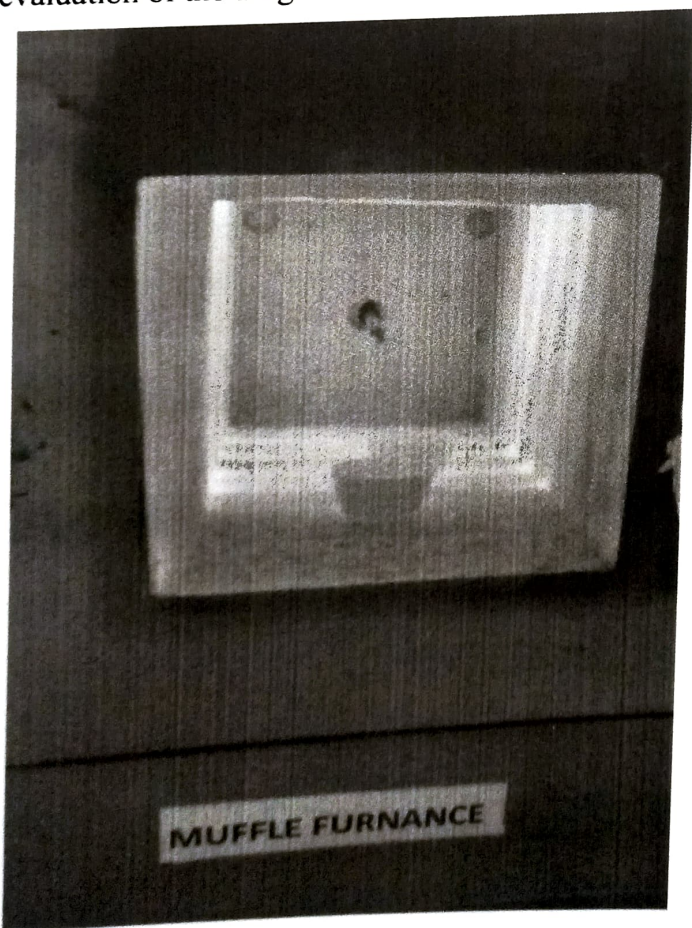
The plant was subjected to macroscopic studies which comprised of organoleptic characteristics viz. color, odour, appearance, taste, smell, shape, touch, texture, fracture, etc. of the drug. These parameters are considered as quite useful in quality control of the crude drug.

2.2. PHYSICOCHEMICAL STUDIES:

Foreign matter: Drug containing appreciable quantities of potent foreign matter, animal excreta, insects or mould may produce critical impact on the health. Therefore, the parameter must not be neglected. In case of whole drug a weighing quantity sample (100-500g) is spread in a thin layer on paper. It is examined at x6 magnification and foreign matter is picked out and weighed and its percentage to be recorded.

Ash value:

Determination of ash values: The ash values are useful to determine the purity and quality of the crude drug. Ash contains inorganic radicals like phosphate, carbonates and silicates of sodium, potassium, magnesium, calcium etc., sometime inorganically variables like calcium oxalates, silica, carbonate content of the crude drug affects 'total ash value'. Hence, determination of ash values is also considered as important parameters in pharmacognostic evaluation of the drug.



Ash value determination

PROCEDURE:

- 2gm of dried powdered drug was weighed in a crucible.
- The drug was incinerated by gradually increasing the temperature using the muffle furnace, unit free from carbonaceous materials.
- The ash obtained was white or greyish white in colour.
- The crucible was cooled and weighed.
- The percentage of total ash reference to the air dried drug sample was calculated.(5)

LOSS ON DRYING (LOD):

It is an expression for moisture content.

Moisture content = $\frac{\text{Loss in weight}}{\text{Initial weight of drug}} \times 100$

Moisture content: The drug containing excessive water beyond the normal limit, in conjunction with a suitable temperature will lead to the activation of enzymes and may lead to growth of various microorganisms viz. moulds, insects and mites. In the present report, loss on drying method was taken in determining the moisture content.

PROCEDURE:

- Weighed accurately the empty watch glass.
- 2 gm of coarsely powdered drug (Rubus) was placed on watch glass and weighed.
- It was dried in oven at temperature of 105 degree celsius for 3 hours.
- Powder was dried .
- Loss in weight was calculated of air dried sample.(5)

Determination of fluorescence character: The powder material was treated separately with different reagents and exposed to short and long-wave ultraviolet light (254nm, 366nm) in studying their fluorescence behaviour.

2.3 MICROSCOPIC STUDIES:

Plant material was used for observation of various microscopic features. The powdered drug was separately treated with phloroglucinol, hydrochloric acid, glycerine and iodine solution in determining the presence of lignified cells, calcium oxalate crystals and starch grains. Stomata are minute pores which occur in epidermis of plants. Each stoma remains surrounded by two kidney or bean shaped epidermal cells, the Guard cells.



Sample preparation for microscopy

2.4. EXTRACTION:

It is the process for the isolation of the active ingredients from drug material.

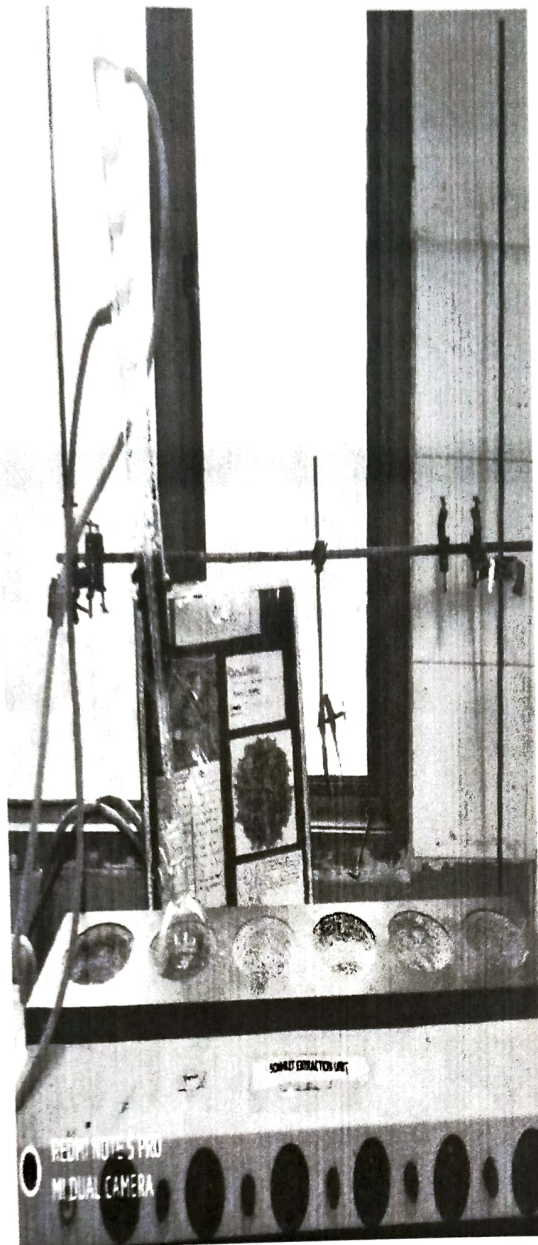
EXTRACT:

It is the preparation of crude drugs which contain all the constituents which are soluble in the solvent .

APPARATUS USED: Soxhlet apparatus.

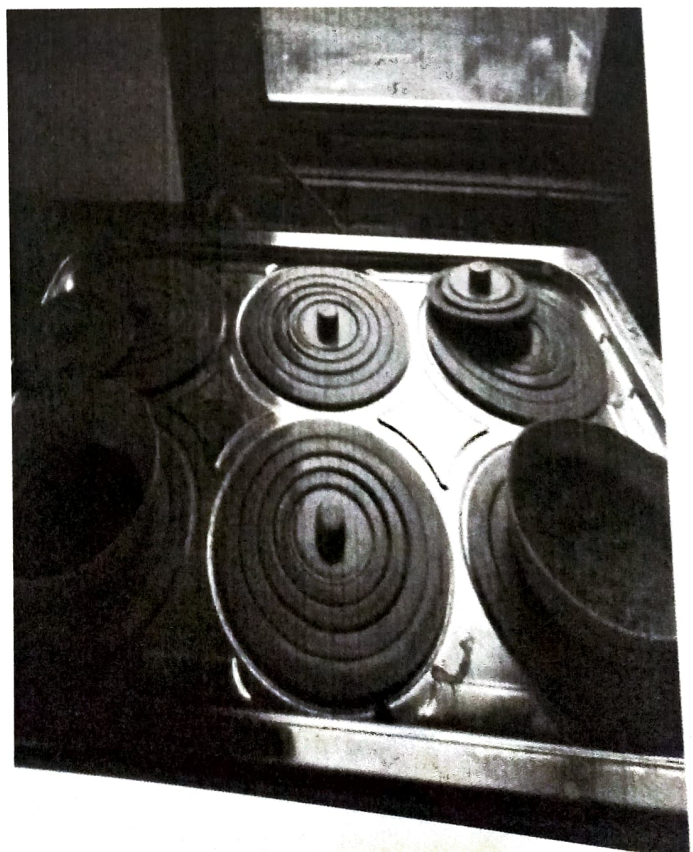
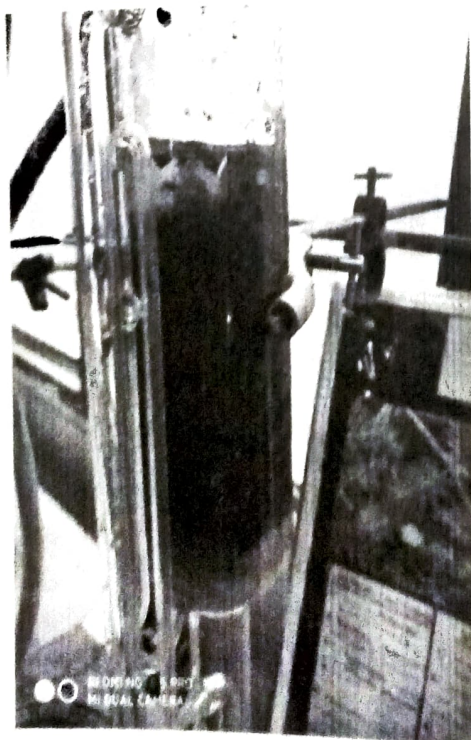
SOLVENTS: n- hexane, chloroform , ethanol , water.

Determination of extractive values: Extractive values give an idea about the nature of the chemical phyto-constituents present in the crude drug. The extraction of any crude drug with a particular solvent yields a solution containing different phyto-constituents. The composition of these phyto-constituents in that particular solvent depends upon the nature of the drug and solvent used. The use of a specific solvent can be the means of providing information on the quality of a particular drug sample.



EXTRACTION PROCEDURE:

1. Accurately weighed the dried crude drug material.
2. Powdered drug was loaded into the main chamber of the Soxhlet extractor .
3. Soxhlet extractor was placed onto a flask containing the extraction solvent.
4. The Soxhlet was then equipped with a condenser .
5. The solvent was heated to reflux.
6. When the Soxhlet chamber was almost full , the chamber was automatically emptied by a siphon side arm , with the solvent running backdown to the distillation flask .
7. This cycle repeated 2-3 times.
8. Collected the extract in the china dish after extraction.(6)



2.5. PHYTOCHEMICAL SCREENING:

Qualitative phytochemical analysis: Various types of phytoconstituents viz. Alkaloids, glycosides, saponins, steroids, flavonoids, tannins, proteins and amino acids etc. may be present in the plant. Therefore, Qualitative phytochemical analyses of all the extracts were being carried out by employing standard methods

Different phytochemical tests were performed-(7)

➤ **Detection of Alkaloids :** Wagner's test

-Extract were dissolved in dilute HCl and filtered . The filtrate were treated with Wagner's reagent (iodine in potassium iodide). Formation of reddish brown ppt. indicates the presence of alkaloids.

➤ **Detection of Phenols :** FeCl₃ test

Crude extract was mixed with 2ml of 2% solution of FeCl₃ . A blue green or black colouration indicates the presence of phenols.

➤ **Detection of Carbohydrates:** Molisch's test

-The filtrate was treated with 2 drops of alcoholic alpha naphthol solution . Formation of violet ring indicates the presence of carbohydrates.

➤ **Detection of Glycosides:** Bontrager's test

Extract were treated with Ferric chloride solution and immersed in boiling water for about 5 minute . The mixture was cooled and extracted with benzene .The benzene layer was separated and treated with ammonia solution.

Formation of Rose pink colour in the ammonical layer indicates the presence of glycosides.

➤ **Detection of Saponins :** Foam test

-2ml of the extract + 6ml of water was added in test tube . The mixture was shaken vigorously and observed for the formation of foam confirms the presence of saponins.

➤ **Detection of Flavonoids :** Alkaline reagent test

-Crude extract was mixed with 2ml of 2% solution of NaOH. An intense yellow colour was formed which turned colourless on addition of few drops of diluted acid indicates the presence of flavonoids.

➤ **Detection of Tannins : FeCl₃ test**

-Crude extract was mixed with 2ml of 2% FeCl₃ solution . A black colouration indicates the presence of tannins.

➤ **Detection of Proteins : Ninhydrin test**

-Crude extract was boiled with 2ml of 0.2% solution of ninhydrin , the appearance of violet colour indicates the presence of amino acids and proteins.

2.6. TLC STUDIES:

It is a method of separation of mixture of components into individual components by using finely divided adsorbent solid spread over glass plate (Stationary phase) and liquid as Mobile phase. Thin layer chromatography: After concentration and drying of each extract in vacuum desiccator, identification of phytoconstituents was carried out by thin layer chromatography using different detecting reagents. The test extract was dissolved by using appropriate solvent in a concentration of 1 mg/mL and subjected for spotting.

Principle: Adsorption Chromatography

- Normal Phase Chromatography:
- Stationary Phase: Silica Gel G
- Mobile Phase: n-hexane, CHCl₃

Procedure:

- The precoated plate was taken and loaded the sample solution by capillary tubes on slides.
- Poured the mobile phase in chromatographic chamber and allowed saturating for 30 minutes.
- Kept the slides in a chamber in such a way that it may touched the surface of the solvent.
- Covered the chamber and allowed the solvent to rise 3/4th part of lid.
- Removed off the plate and drew a solvent front.
- Kept the solvent in the saturated iodine chamber and dried for 10 minutes.
- Visualized the spots under UV-Chamber.(8)

3. RESULTS:

Results of all above mentioned physio-chemical parameters for pharmacognostic studies have been provided and discussed.

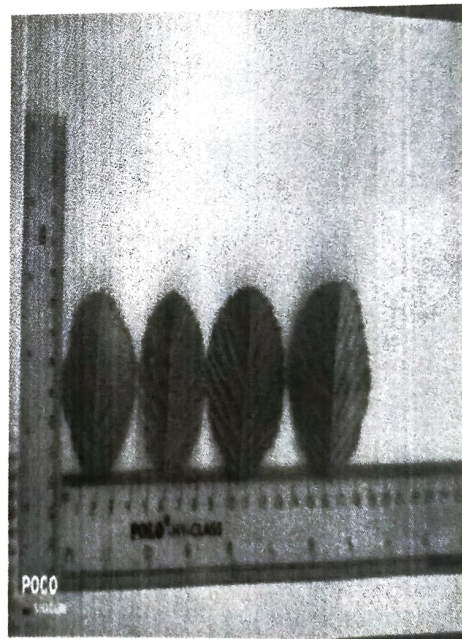
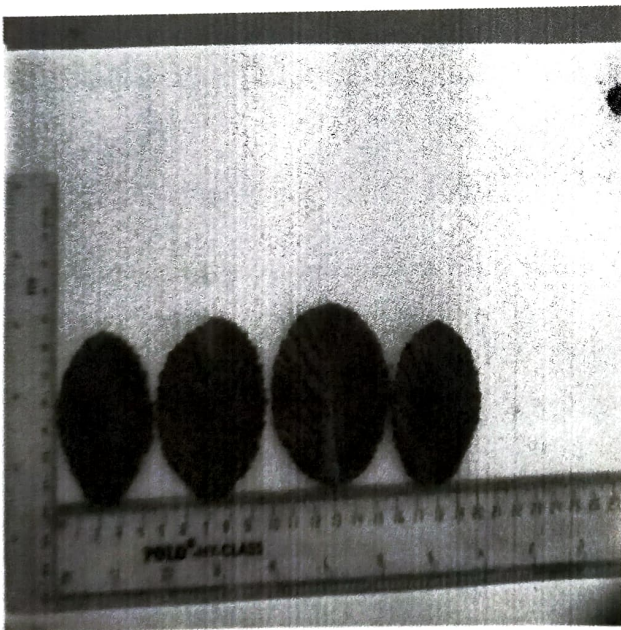
3.1. Morphology-

Leaf colour: Green

Fruit colour: Golden yellow

Leaf shape : Trifoliate , elliptic or obovate

Leaf size: 5-10cm long

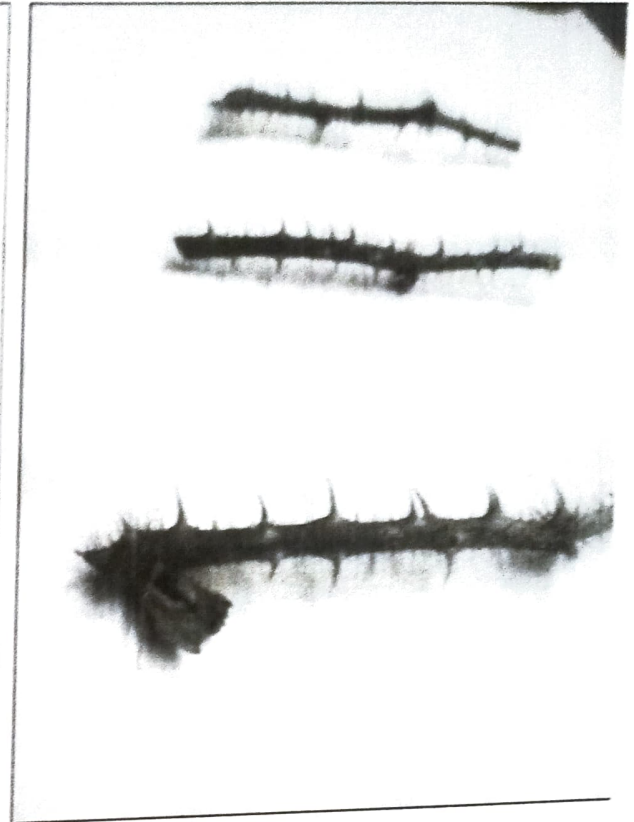
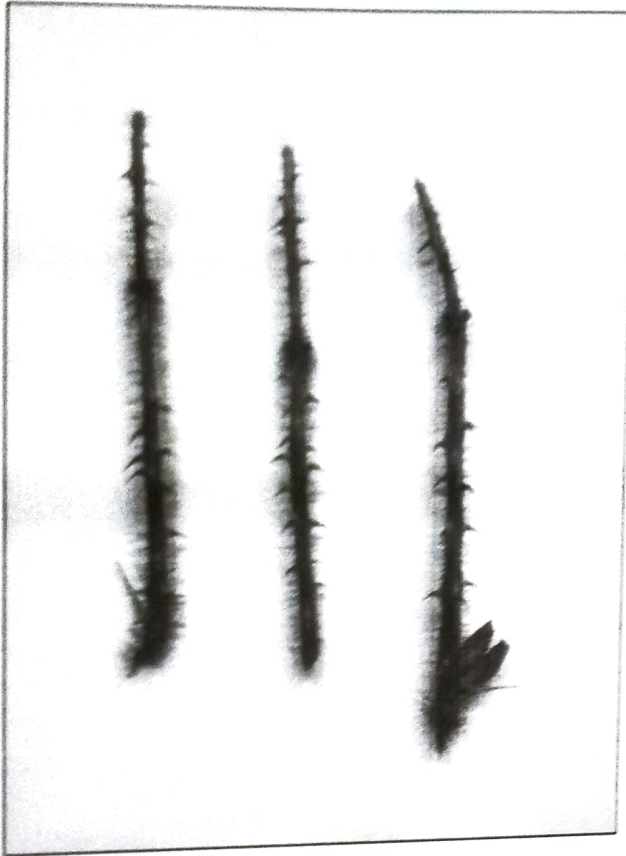


Morphology of stem-

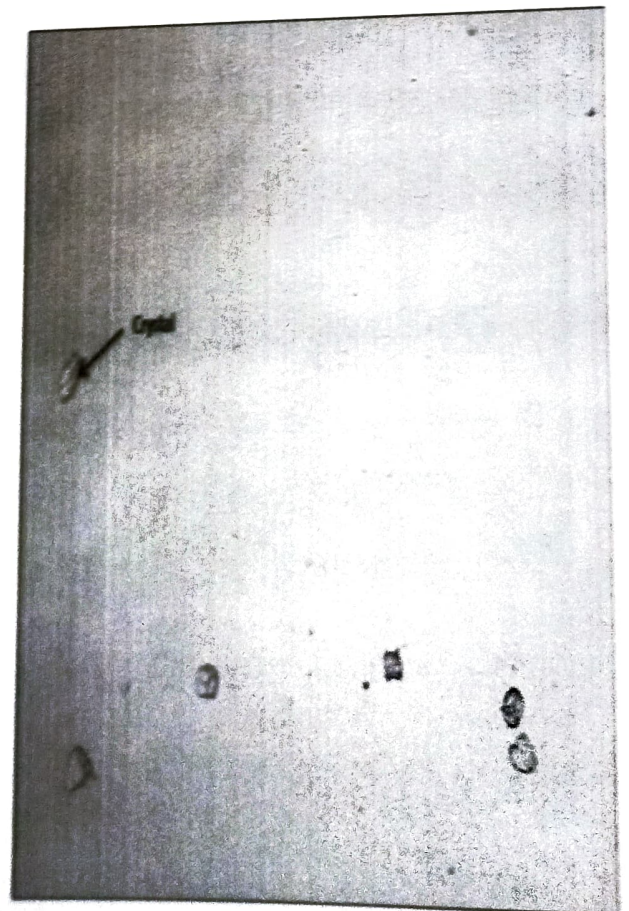
Stem colour – Green

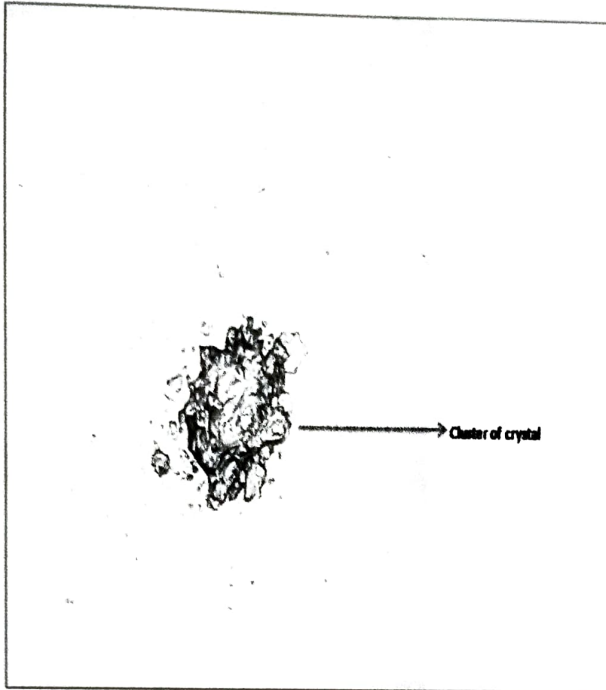
Stem size-4.5 m(long)

Stem covered with red bristles



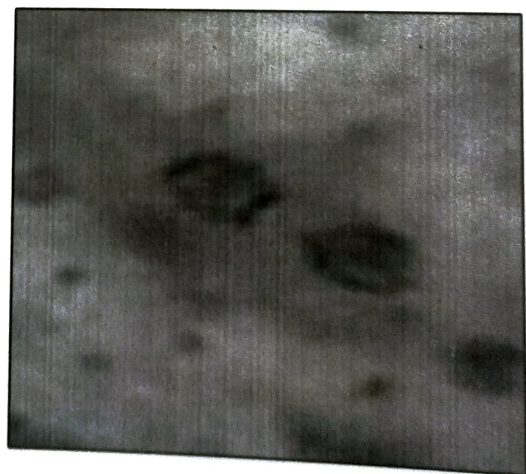
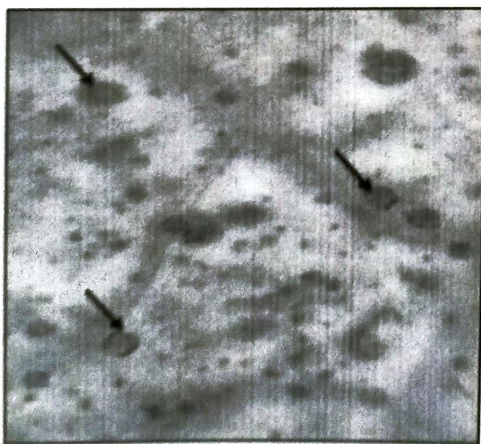
3.2. Microscopy — Powder





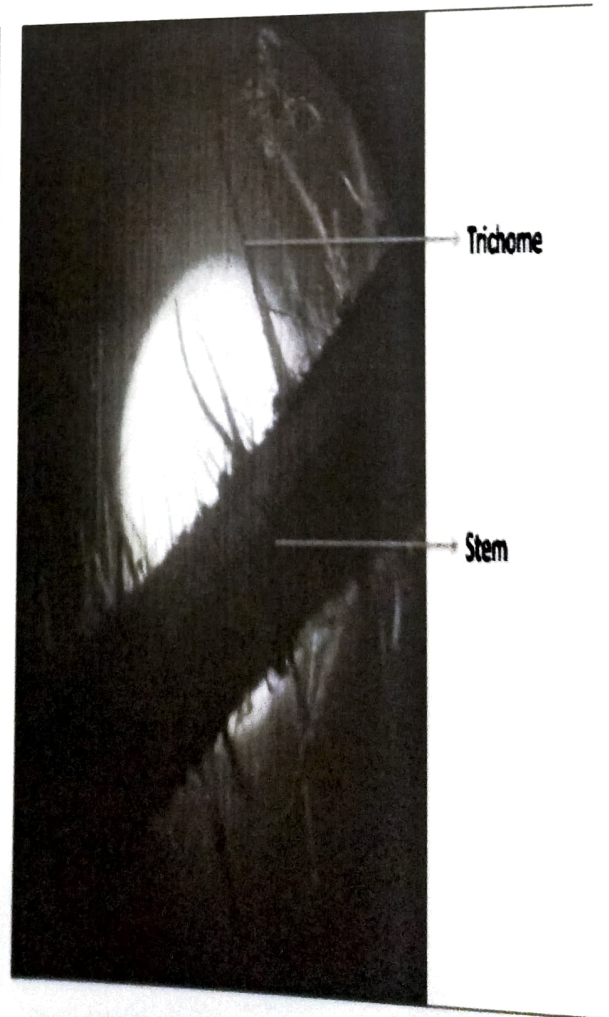
Microscopy of Stomata -

Paracytic [Rubiaceous or parallel celled type] stomata



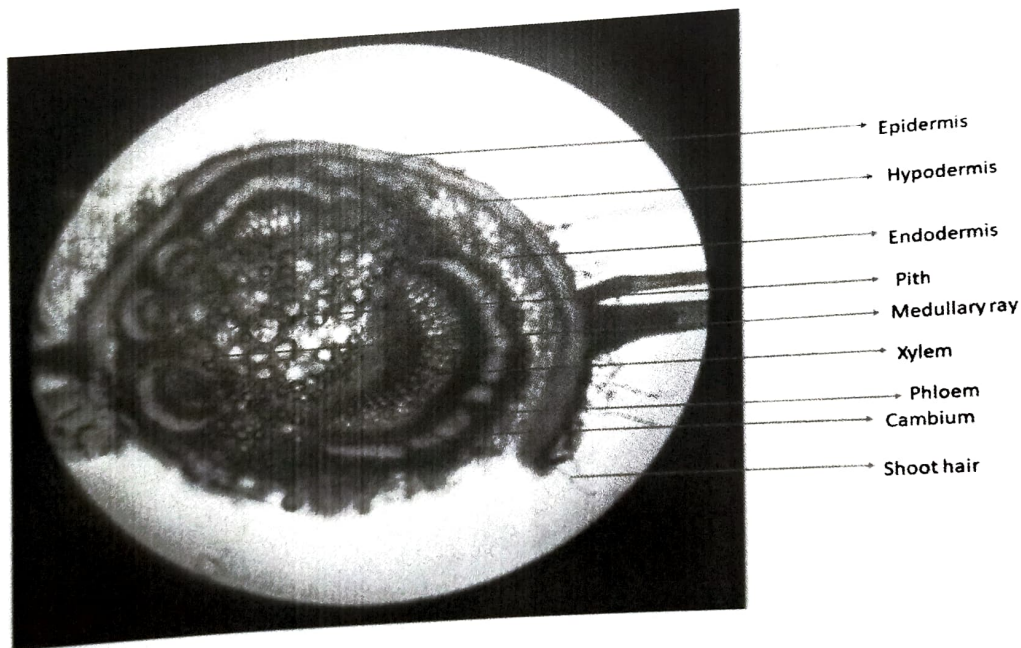


Microscopy of Trichomes



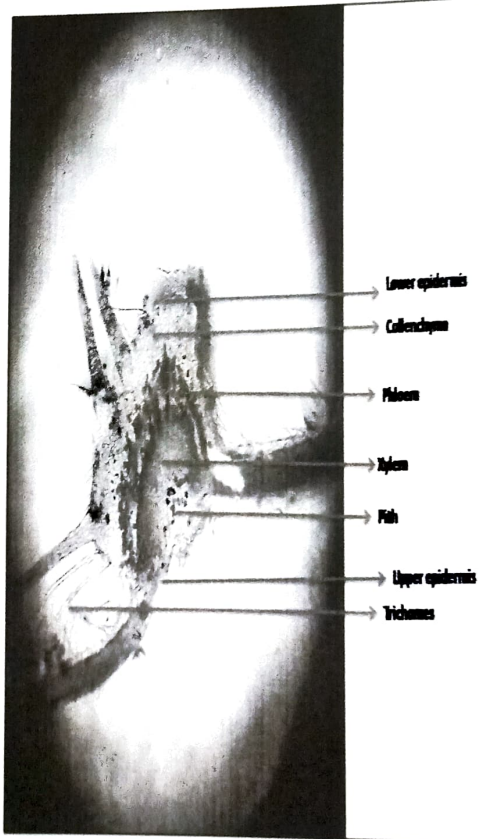
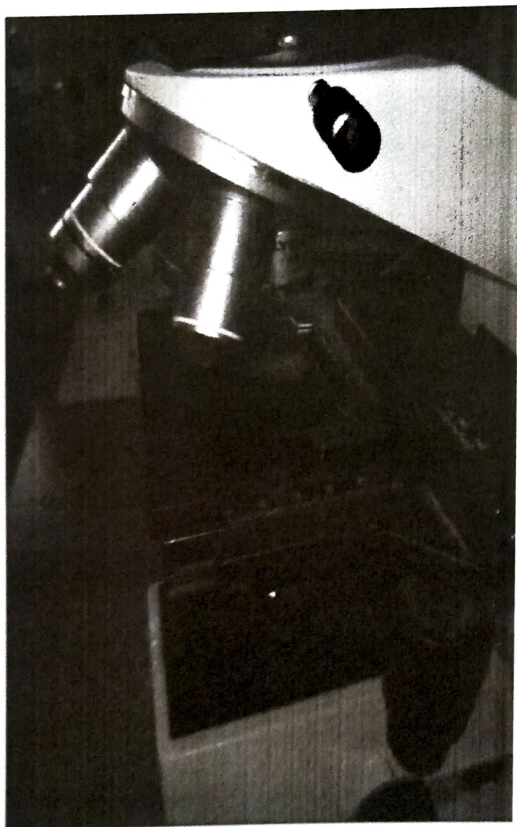
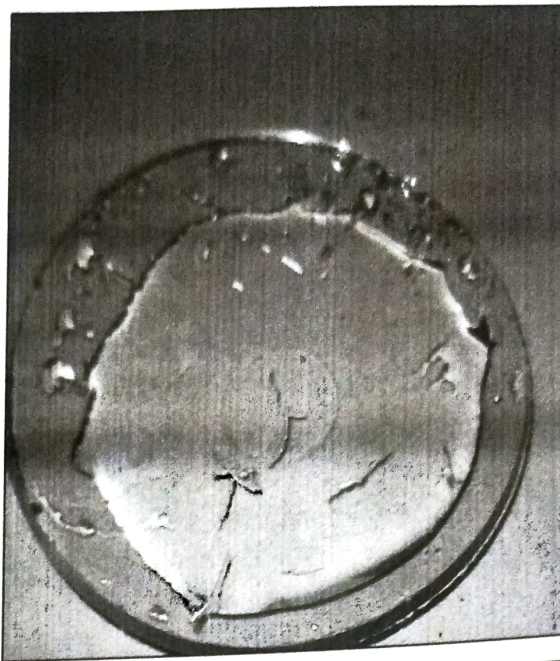
- Trichomes (hair) are fine outgrowth or appendages on plants , algae , lichens and certain protists.
- SIZE: 20-120 microns.
- TYPE: Non glandular trichomes.
- Non – glandular trichomes are the type of trichome that lack the glandular heads .
- They have a thin apex .
- Unicellular or multicellular.
- Branched or unbranched

Microscopy of Stem-



T.S of Stem

Microscopy of Leaf



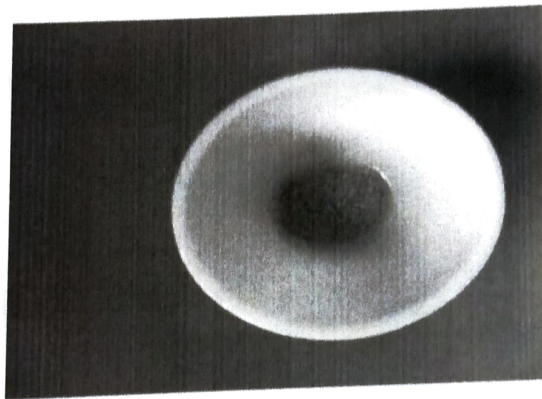
3.3. PHYSICOCHEMICAL ANALYSIS-

Ash value

No. of crucible	Wt. of empty crucible	Wt. of drug taken in each crucible	Wt. of crucible + ash (after incineration)	Wt. of ash	Average mean
1.	16.70 gm	2gm	16.72 gm	0.02 gm	$0.02+0.04/2$ $=0.03$ gm
2.	15.34 gm	2 gm	15.38 gm	0.04 gm	

--2 gm of crude drug gives 0.03 gm of ash

100 gm of crude drug gives = $0.03 / 2 * 100 = 1.5 \%$



Ash

LOD

Wt. of empty watch glass	Empty watch glass+ drug	Wt. of watch glass after drying (3hrs)	Wt. of drug after drying	Loss of wt. of drug after drying
20.43 gm	$20.43 + 2 = 22.43$ gm	22.23 gm	$22.23 - 20.43 = 1.80$ gm	$2.00 - 1.80 = 0.2$ gm

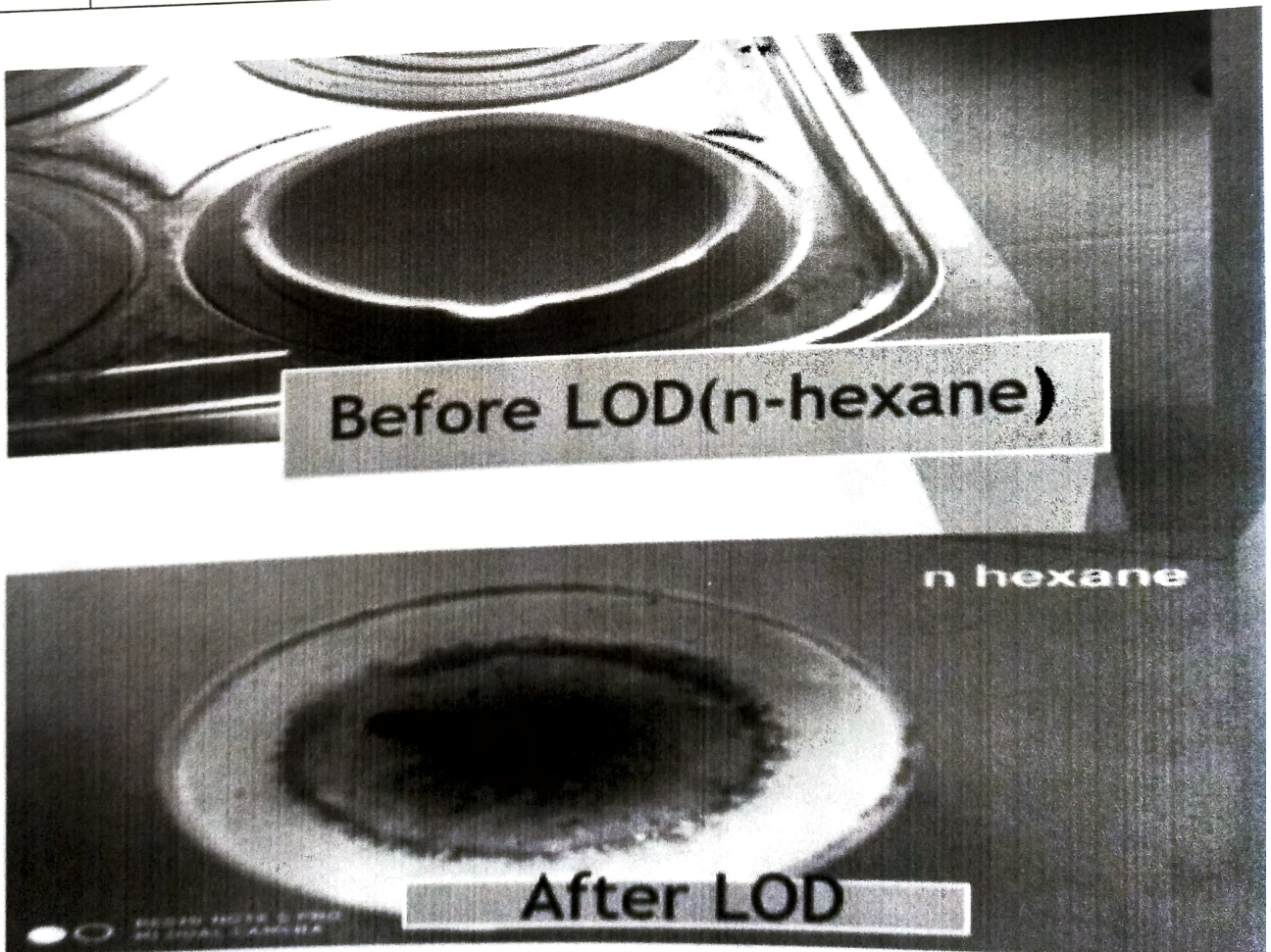
% Moisture content = $\text{Loss in weight} / \text{Initial weight of drug} * 100$

$$= 0.2 / 2 * 100$$

$$= 10 \% \text{ w/w}$$

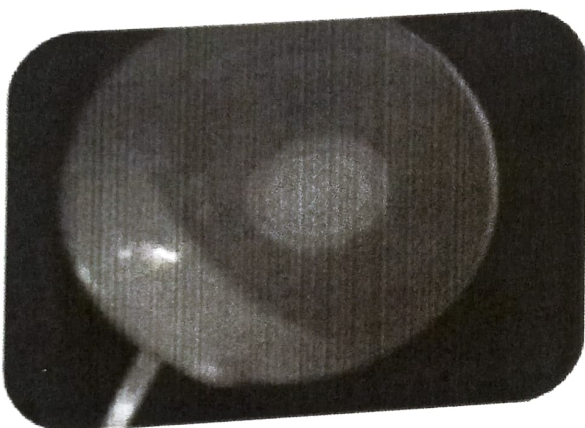
Loss On Drying :

Wt. of drug (A)	Wt. of empty china dish before drying (B)	Wt. of china dish + drug	Wt. of china dish after drying (C)	Wt. of extract obtained (C-B) = (D)	Extraction (%) D/A*100
33.27gm	79.53gm	112.80gm	97.01gm	17.48gm	52.53%
33gm	82.27gm	123.8gm	99.1gm	<u>16.83 gm</u>	51%
31.06 gm	79.27 gm	120.9 gm	95.05 gm	15.7gm	50.80%
30.05 gm	81.58 gm	136 gm	98.8 gm	17.22gm	57%



Fluorescence analysis:

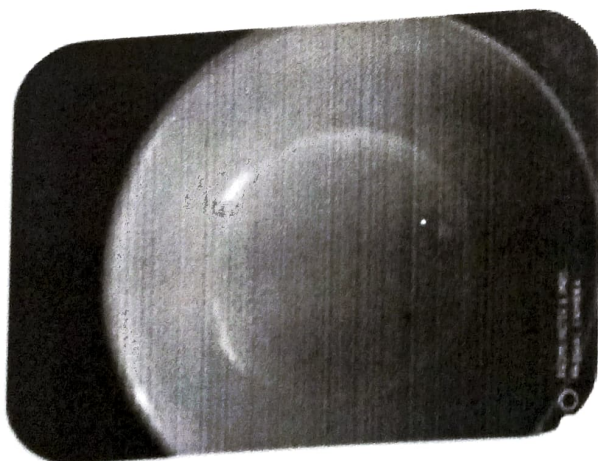
Fluorescence analysis: Fluorescence study is an essential parameter for first line standardization of crude drug. A scientist Stokes stated that 'in fluorescence the fluorescent light is always of greater wavelength than the exciting light'. Light rich in short wavelengths is very active in producing fluorescence and for this reason ultraviolet light produces fluorescence in many substances which do not visibly fluoresce in daylight



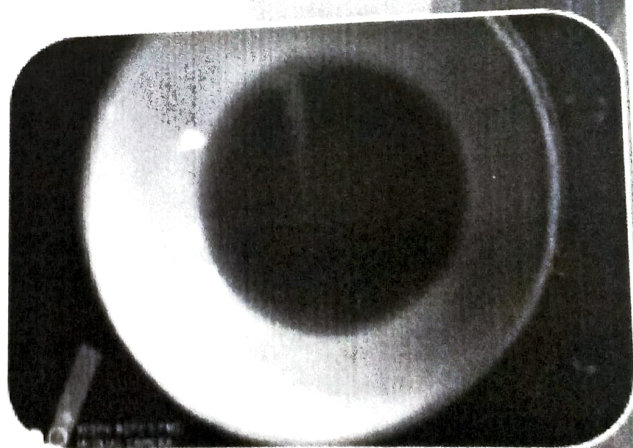
n-hexane gives pink colour under UV chamber



Chloroform gives light pink colouration.



Methanol gives orange colour

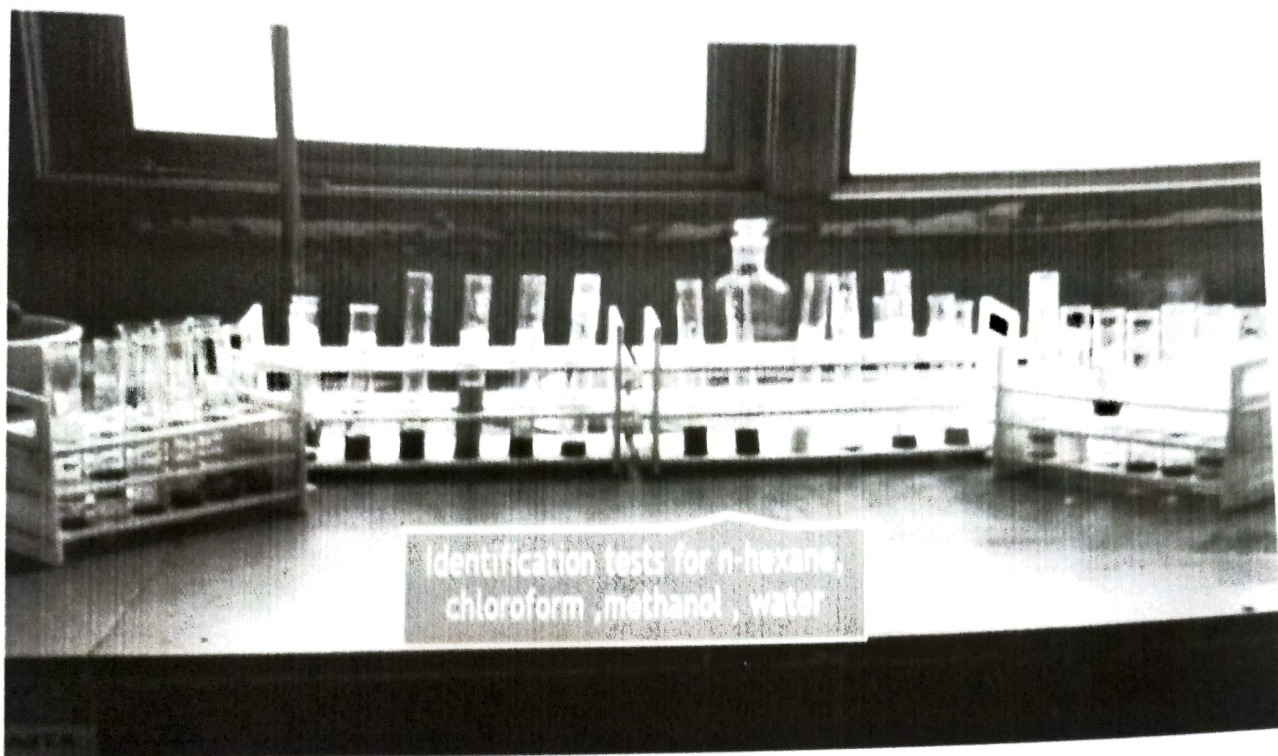


Water gives purple colour

3.4. PRELIMINARY PHYTOCHEMICAL SCREENING:

Various types of phytoconstituents viz. Alkaloids, glycosides, saponins, steroids, flavonoids, tannins, proteins and amino acids etc. may be present in the plant. Therefore, Qualitative phytochemical analyses of all the extracts were being carried out by employing standard methods.

TEST	n- hexane	Chloroform	Ethanol	Water
Alkaloid	+ve	+ve	-ve	-ve
Tannins	-ve	-ve	+ve	+ve
Carbohydrates	+ve	-ve	+ve	+ve
Phenols	-ve	-ve	+ve	+ve
Saponins	-ve	+ve	-ve	-ve
Glycosides	-ve	- ve	+ve	+ve
Flavonoids	+ve	+ve	-ve	-ve
Proteins	+ve	+ve	+ve	+ve



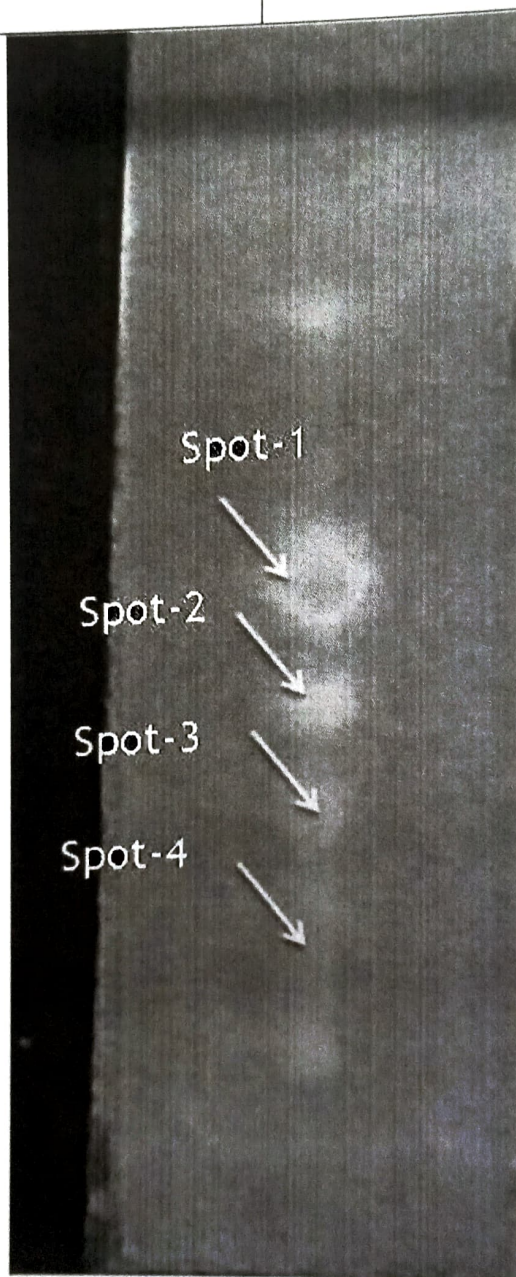
3.5. TLC STUDIES:

After concentration and drying of each extract in vacuum desiccator, identification of phytoconstituents was carried out by thin layer chromatography using different detecting reagents.

Rf value (Retention/Retardation factor: Distance travelled by solute /Distance travelled by solvent front

$R_f < 1$

<i>Name of extract: hexane</i>	<i>Rf Values concluded</i>
<i>Spot 1</i>	<i>0.8</i>
<i>Spot 2</i>	<i>0.6</i>
<i>Spot 3</i>	<i>0.4</i>
<i>Spot 4</i>	<i>0.3</i>



TLC Studies of hexane extract

4. CONCLUSION:

Rubus ellipticus is traditionally important medicinal plant. The pharmacognostic parameters which are being mentioned in this report could be useful in the identification and standardization of crude drug. The data produced in the present investigation is also helpful in the preparation of the yellow Himalayan raspberry monograph and inclusion in various pharmacopoeias. The plant contains phytoconstituents like steroids, saponins, flavonoids, tannins, carbohydrates. The TLC results of the n-hexane, chloroform, ethanol and aqueous extract showed that four or five different phytoconstituents were present in each extract of plant. More detailed study must be done for further isolation leading to pure compounds.

5. REFERENCES:

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12. *Journal of Pharmacognosy and Phytochemistry*, 2(2): 223-228. Saini, R., Dangwal, K., Singh, H. and Garg, V. (2012). Antioxidant and Antiproliferative activities of phenolics

**ALTERED GLUCOSE HOMEOSTASIS IN THE CENTRAL NERVOUS SYSTEM
DURING ALZHEIMER'S DISEASE. A potential target for therapeutic intervention using
herbal molecules: In silico, In vitro approach**

*A Project Report
Submitted in partial fulfilment of the requirements for
the award of degree of*
BACHELOR'S OF PHARMACY (ALLOPATHY)

BY

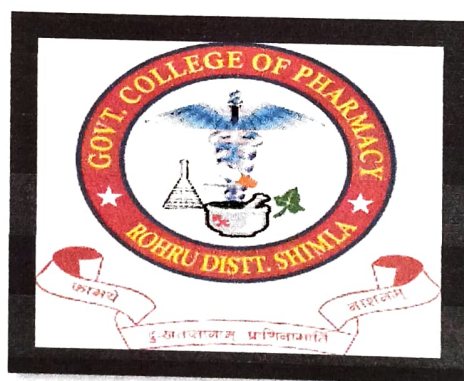
SUDHANSHU PAUL, SHEENA CHOLTA, KAJAL SHARMA, SHIVANI.

(Registration Number: 18BPD0233, 18BPD0229, 18BPD0216, 1916142007)

UNDER THE GUIDANCE OF

Dr. Vineet Mehta

Assistant Professor Pharmacology
(Department of Pharmacology)



GOVERNMENT COLLEGE OF PHARMACY ROHRU,

District: Shimla, H.P. 171207

(2022)

Sheena, Shivani, Sudh, Kajal
Signature of the Student

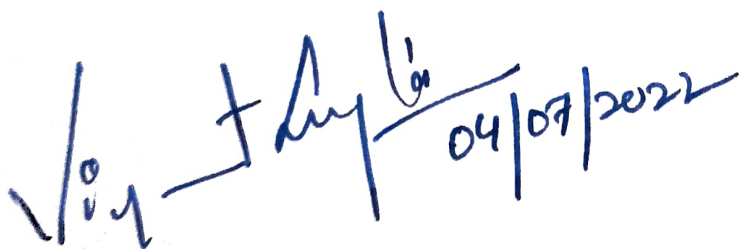
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SUPERVISOR'S CERTIFICATE

It is certified that this work entitled "ALTERED GLUCOSE HOMEOSTASIS IN THE CENTRAL NERVOUS SYSTEM DURING ALZHEIMER'S DISEASE : A POTENTIAL TARGET FOR THERAPEUTIC INTERVENTION" and "MOLECULAR DOCKING: INTRODUCTION AND PROCEDURE" is an original review work done by Mr. Sudhanshu Paul, Miss. Shivani , Miss. Kajal Sharma, Miss Sheena Cholta and under my supervision for the degree of Bachelor of Pharmacy to be awarded by Govt. College of Pharmacy, Rohru, Shimla, Himachal Pradesh, India, and that the candidate has put the attendance of more than 101 days with me.

To the best of my knowledge and belief this thesis

- Embodies the work of the candidate himself/ herself
- Has duly been completed
- Fulfils the requirement of the ordinance related to B. Pharmacy degree
- It is up to the standard in respect of both content and language for being referred to the examiner
- This thesis is for imparting basic understanding to the students and thereby is not plagiarism checked



Dr. Vineet Mehta

Assistant Professor (Pharmacology) Govt. College of Pharmacy, Rohru District Shimla, Himachal Pradesh 171207

**MOLECULAR DOCKING: STUDY OF HERBAL INTERVENTION IN
THE MANAGEMENT OF COVID 19 ASSOCIATED
COMPLICATIONS: IN SILICO APPROACH AND IN-VITRO
APPROACH**

**A
PROJECT REPORT
SUBMITTED TO THE
GOVERNMENT COLLEGE OF PHARMACY ROHRU
FOR THE DEGREE
OF
BACHELOR OF PHARMACY (ALLOPATHY)**



**BY
SAMRITI
(REGISTRATION NUMBER: - 18BPD0225)
UNDER GUIDANCE OF MS. PRIYANKA NAGU
&
DR. VINEET MEHTA**

SUPERVISOR'S CERTIFICATE

It is certified that this work entitled "MOLECULAR DOCKING: STUDY OF HERBAL INTERVENTION ON COVID 19 DISEASE MANAGEMENT AND COMPLICATIONS" is an original research work done by Miss. Samriti , Miss Kajal Rani , and Mr. Harsh Gautam under my supervision for the degree of Bachelors of Pharmacy to be awarded by Govt. College of Pharmacy, Rohru, Shimla, Himachal Pradesh, India, and that the candidate has put the attendance of more than 101 days with me.

To the best of my knowledge and belief this thesis

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Assistant Professor (Pharmaceutics)

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District Shimla, Himachal Pradesh 171207

**TO PREPARE AND EVALUATE PHYTOSOMES OF ACACIA
CATECHU EXTRACT**

*A Project Report under Practice School
Submitted in partial fulfillment of the requirements for
the award of degree of
BACHELOR'S OF PHARMACY(ALLOPATHY)*

BY

NEHA

(Registration No. 1916142004)

UNDER THE GUIDANCE OF

MISS.PRIYANKA NAGU

Assistant Professor Pharmaceutics

(Department of Pharmaceutics)



GOVERNMENT COLLEGE OF PHARMACY ROHRU,

District. Shimla, H.P.171207

(Jun. 2022)

Name & Signature of the Student

Name & Signature of the Guide

SUPERVISOR'S CERTIFICATE

This is to certify that this project report "**TO PREPARE AND EVALUATE PHYTOSOMES OF ACACIA CATECHU EXTRACT**" is the bonafide work of "**Miss Neha**" who carried out the project work under my supervision for the degree of **Bachelor of Pharmacy** to be awarded by **Govt. College of Pharmacy, Rohru, Shimla, Himachal Pradesh, India.**



Miss. PRIYANKA NAGU

**ORAL SUSTAINED DELIVERY OF PARACETAMOL FROM IN SITU-GELLING
OF AGAR AND SODIUM ALGINATE FORMULATION**

*A Project Report under Practice School
Submitted in partial fulfilment of the requirements for
the award of degree of*

BACHELOR'S OF PHARMACY(ALLOPATHY)

BY

MONIKA TANTA

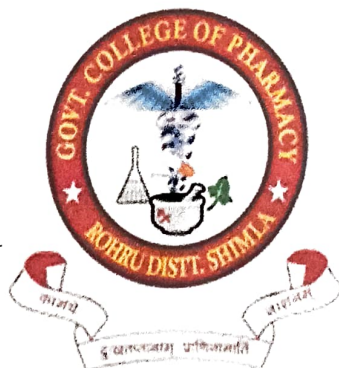
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UNDER THE GUIDANCE OF

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Assistant Professor Pharmaceutics

(Department of Pharmaceutics)



GOVERNMENT COLLEGE OF PHARMACY ROHRU,

District. Shimla, H.P.171207

(Feb. 2022)

Monika

Name & Signature of the Student

Raneev Thakur

Name & Signature of the Guide

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Raneev Thakur

PHARMACOGNOSTICAL STUDIES ON YELLOW HIMALAYAN RASPBERRY

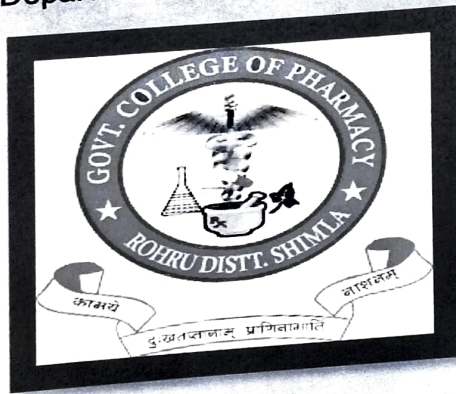
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Submitted in partial fulfillment of the requirements for
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BACHELOR'S OF PHARMACY (ALLOPATHY)*

BY

Priya Sood

(Registration Number: 18BPD0220)
UNDER THE GUIDANCE OF

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GOVERNMENT COLLEGE OF PHARMACY ROHRU,
District: Shimla, H.P. 171207
(2022)

Priya Sood
Signature of the Student

Raneer Thakur
Signature of the Guide
Raneer Thakur

CERTIFICATE

This is to certify that **Priya Sood** submitted a project report on **Pharmacognostical Studies on Yellow Himalayan Raspberry** in partial fulfilment of the requirement for the degree of **Bachelor of Pharmacy [Allo.]** to **Govt. College of Pharmacy, Rohru** with his / her true observations. He /She has prepared this report under my supervision and his / her report is satisfactory.

I hereby forward his/her report.

Supervisor : Mr. Vikrant Arya [M.Pharm]

Designation : Assistant Professor

Govt. College of Pharmacy, Rohru