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Criteria: 1	Curricular Aspects
Key Indicator- 1.2	Academic Flexibility
Metric No. 1.2.1	Number of Add on /Certificate/Value added programs offered and online MOOC programs like SWAYAM, NPTEL etc. where the students of the institution have benefitted during the last five years)

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The Shirpur Education Society's
H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur


Certificate Course on Herbarium Techniques

Total Duration: 30 Hours

Syllabus

Sr. No.	Content	Hours
1	Introduction to certificate course: Introduction, significance, outcomes	1 Hour
2	Conservation and preservation of plant biodiversity: Introduction, importance and techniques	3 Hours
3	Herbarium Preparation: Introduction, importance, general methodology	4 Hours
4	Collection of the plant specimen: Scientific technique, tools required for collection and preservation of plant material	4 Hours
5	Pressing and drying of the plant specimen: Pressing and drying technique	2 Hours
6	Protection techniques: Poisoning of specimens, chemicals used	2 Hours
7	Mounting and labelling of specimen: Mounting of specimen on herbarium sheet, labelling of herbarium sheet, importance of labelling, classification system	4 Hours
8	Storage of herbarium sheets: herbarium keeping and treatments	1 Hour
9	Demonstration of herbarium preparation	2 Hours
10	Practical training	6 Hours
11	Performance evaluation test	1 Hour




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Certificate Course on Herbarium Techniques

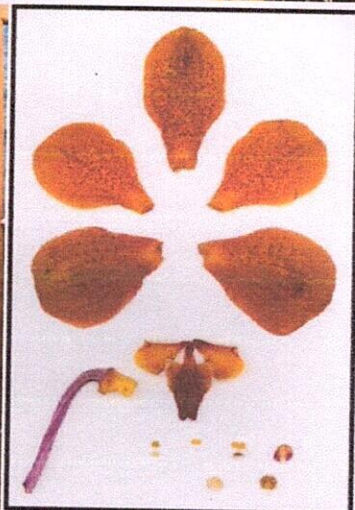
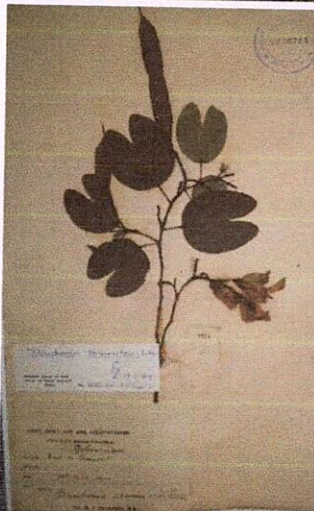
Day wise Schedule

Day	Content
1	Introduction of certificate course
2	Introduction to conservation and preservation of plant biodiversity
3	Importance of conservation and preservation of plant biodiversity
4	Techniques of conservation and preservation of plant biodiversity
5	Introduction to Herbarium, general methodology
6	Importance of herbarium preparation
7	General methodology used in herbarium preparation
8	General methodology used in herbarium preparation
9	Scientific techniques of plant specimen collection
10	Scientific techniques of plant specimen collection
11	Tools required for plant collection
12	Techniques and importance of preservation of plant material
13	Pressing of the plant specimen
14	Drying of the plant specimen
15	Protection techniques and importance
16	Chemicals used in protection
17	Mounting of specimen on herbarium sheet
18	Labelling of herbarium sheet
19	Importance of labelling of herbarium sheet
20	Classification systems used for labelling
21	Herbarium keeping and herbarium treatments
22	Demonstration of herbarium preparation
23	Demonstration of herbarium preparation
24	Practical training
25	Practical training
26	Practical training
27	Practical training
28	Practical training
29	Practical training
30	Performance evaluation test




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TRAINING COURSE ON HERBARIUM TECHNIQUES AND METHODOLOGY



ENVIS Centre on Plant Diversity
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1. INTRODUCTION TO HERBARIUM

A herbarium (plural herbaria) is a storehouse of dried plant specimens collected from far and wide, mounted on appropriate sheets, arranged according to some known system of classification and kept in pigeonholes of steel or wooden cup-boards and are generally associated with botanic gardens and educational or research organizations. The word 'Herbarium' was derived from *Herbar* means plant specimens and *arium* means an artificial place.

Tournefort (1700) used the term *Herbarium* as an equivalent to *Hortus siccus* and Linnaeus also used this term. It was mainly through Linnaean's influence the word *Herbarium* superseded the former term *Hortus siccus*, in Latin literally meaning dry garden.

Lawrence (1951) defines it, as "the arrangement of specimens in the sequence of an accepted classification and the specimens are available for reference or other scientific studies. "Herbarium" used in its original sense referred not to a collection of plants, but to a book about medicinal plants. According to Fosberg and Sachet (1965), a modern herbarium is "a great filing system for information about plants, both primarily in the form of actual specimens and secondary in the form of published information, pictures and recorded notes".

HISTORY OF HERBARIUM

- Luca Ghini (1556) is the sole initiator of the art of herbarium making, who started collecting, drying and pasting them over paper.
- Gherardas Cibo, student of Ghini began collecting plants and preserving them from 1582 and continued till his death.
- In those days, the herbarium sheets were bound into volumes and just like books these herbaria volumes were also arranged vertically as in Libraries.
- However, in 18th Century, Linnaeus started a new method in which he mounted his specimens on single sheets and started storing them flat horizontally, which is followed by almost all the museums and herbaria in the world.

OBJECTIVES OF HERBARIUM

- To provide facilities for determination of any material including new taxa.
- To enable preparation of new monographs and floras.
- To preserve specimens of historic importance.
- To assemble data for working out ranges and ecological distribution.



- To bring together in a relatively permanent form of specimens for comparative morphological or phylogenetic studies and
- To provide material for specific research as in plant anatomy, palynology and ethnobotany and also for molecular research.

HERBARIUM SHEET

The general size of the mounting board or herbarium sheet is 42 x 28 cm. The label with the size of 12 x 8 cm is generally pasted on the bottom right hand corner of the mounting board. The specimen is pasted as far as possible in the middle, field number at middle of left margin and accession number and/or barcode at right top of the herbarium sheet.

ROLE OF HERBARIUM IN TEACHING AND RESEARCH

Teaching: The herbarium serves as an aid in teaching botany to degree and post-graduate students. It is difficult for any student to identify local plants without the help of a proper herbarium. Many specimens, which the teacher would like to show to his students, may not be available fresh at the time of giving the course. In such situations, available specimens in the herbarium serve the purpose.

Research: Herbarium, which was considered to be the concern and tool of an “orthodox taxonomist” is totally unanimously believed to be an essential requirement for biosystematic research. For biosystematic studies (including population studies) the worker needs material of his taxon from far and wide. As it is not conveniently possible always to visit different areas of occurrence of the taxon, one has to largely fall back on resources of the herbaria.

For ethnobotanical researches, the herbaria have proved to be very valuable source of information. Many native uses of plants recorded on the herbarium sheets have never gone into published literature and therefore have never been subjected to scientific scrutiny. Herbaria also provide a meeting place for discussions and exchange of ideas among scientists from far and wide.

TYPES OF HERBARIA

Herbarium ranges from small personal collections, mostly of a few hundred specimens to large collections of colleges, universities, private foundations and government agencies.

There are different types of herbaria and they are being used for various activities and generally the following types of herbaria are categorised.

- ❖ International herbaria (e.g. Royal Botanic Gardens, Kew)
- ❖ National herbaria (e.g. Central National Herbarium, Howrah)



- ❖ Regional herbaria (e.g. Andaman and Nicobar Regional Centre, BSI, Port Blair)
- ❖ University herbaria (e.g. Calcutta University Herbarium, Kolkata)
- ❖ Medicinal plant herbaria (e.g. Central Institute of Medicinal and Aromatic Plants, Lucknow)
- ❖ Economically important plant herbaria (e.g. Industrial section Indian Museum, Kolkata)
- ❖ Local herbaria (e.g. Malabar Botanical Herbarium, Calicut)
- ❖ Agricultural herbaria (e.g. Tamil Nadu Agricultural University Herbarium, Coimbatore)

The contents or holdings in a herbarium vary according to the interest of the organization or institution. The labels and notes on the sheets also slightly vary accordingly a) the herbaria of organizations like Botanical Survey of India contain all collections from any explored area. b) The herbaria of the institution interested in drugs and medicines include plant specimens of known medicinal value or plants that are reported or supposed to have medicinal properties. c) The Herbaria of the universities and colleges generally contain specimens only for teaching and research. d) Weeds of cultivated fields form the contents of the herbaria of Agricultural colleges and universities.

ACRONYM

An acronym (from Greek *acro-* in the sense of *extreme* or *tip* and *onyma* or *name*) in a strict sense is an abbreviation of several words in such a way that the abbreviation itself forms a pronounceable word. But for herbarium, the acronym is an abbreviated form to denote a particular herbarium and it is assigned by the Index Herbariorum (IH), in which each institution is assigned a permanent unique identifier in the form of a one to eight letter code, a practice that dates from the founding of IH in 1935. For example, Central National Herbarium, (Calcutta) Howrah – **CAL**, Madras Herbarium, Coimbatore – **MH**, Royal Botanic Gardens, Kew – **K**, Natural History Museum, London – **BM**.

FUNCTIONS OF HERBARIUM

Herbarium is a conservatory of material and data. The specimens in the herbarium carry valuable data on their labels. Large herbaria have collections from far and wide, and thus, provide at one place, basic material for study of flora and vegetation of different places or regions. The material in the herbarium remains a permanent record of flora of these regions and in certain cases, where catastrophes or other factors have totally destroyed the vegetation



the collections in the herbarium provide evidence of what once existed there. Thus herbaria serve as invaluable conservatory of flora of different parts of this earth. Properly collected plants bear labels with abundant data on habit, habitat, local names, native uses of the plant, abundance or frequency of the species, associated plants etc. Such notes on labels once incorporated on sheets in the herbaria continue to provide data for botanical, ethnobotanical and phytogeographical studies for all times to come. Thus herbaria also serve the valuable function of data banks on plants.

An active herbarium continues to receive fresh material either through the collections of its own staff or through gifts, exchanges, etc. The collections and the data on collection are never static or closed resource; they continue to increase and expand in contents and value. Therefore, the herbarium basically a conservatory of material and data is a "living organism" which continues to grow.

IMPORTANT HERBARIA OF THE WORLD

There are approximately 3,000 herbaria in the world today, as per the data published by the *Index Herbariorum*. Collectively the world's herbaria contain an estimated 350,000,000 specimens that document the earth's vegetation for the past 400 years. A list of the largest herbaria of the world with approximate number of specimens in each is given below.


LOCATION	ACRONYM(S)	NO. OF SPECIMENS
Museum National d'Historie Naturaele, Paris	P	8,000,000
Newyork Botanical Garden, New York, USA	NY	7,800,000
V.L. Komarov Botanical Institute Leningrade, Russia	LE	7,200,000
Royal Botanical Gardens, Kew	K	7,000,000
The National Herbarium Nederland (NHN), The Netherlands	L, U, WAG	7,000,000
Missouri Botanical Garden, St. Louis, USA	MO	6,600,000
Conservatorie et Jardin Botaniques de la Ville de Geneve, Geneva, Switzerland	G	6,000,000
Harvard University Herbaria, Cambridge, USA	A, AMES, ECON, FH, GH	6,000,000
Natural History Museum, London	BM	5,200,000



MAJOR HERBARIA IN INDIA

1. The Central National Herbarium (CAL) located at Howrah, established in 1795 and comprises about 2,000,000 (2 million) specimens. This is the first herbarium in the country and one of the most important Asian Herbaria.
2. Forest Research Institute, Dehra Dun contains 350,000 specimens (DD)
3. The National Botanic Gardens, Lucknow contains 260,000 specimens (LWG)
4. Blatter Herbarium, St. Xavier's college, Fort Bombay contains 200,000 specimens. (BLAT)
5. Botanical Survey of India has herbaria attached to their regional centres and units in different parts of India.

No.	CENTRES/ UNITS	LOCATION	DATE OF INITIATION	ACRONYM	NO. OF SPECIMENS
1.	Central National Herbarium	Howrah	1795	CAL	2,000,000
2.	Industrial Section Indian Museum	Kolkata	1887	BSIS	20,000
3.	Southern circle	Coimbatore	1955	MH	2,80,000
4.	Western circle	Pune	1955	BSI	1,75,000
5.	Eastern circle	Shillong	1956	ASSAM	2,60,000
6.	Northern circle	Dehra Dun	1956	BSD	1,10,000
7.	Central circle	Allahabad	1962	BSA	65,000
8.	Andaman and Nicobar circle	Port Blair	1972	PBL	25,000
9.	Arid zone circle	Jodhpur	1972	BSJO	25,000
10.	Arunachal Pradesh circle	Itanagar	1977	ARUN	15,000
11.	Sikkim Himalayan circle	Gangtok	1979	BSHC	35,000
12.	Deccan circle	Hyderabad	2005	BSID	10,000


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2. COLLECTION

FIELD EQUIPMENTS

Following items are very essential during plant collection trips:

Altimeter,	Identity cards,	Ropes,
Axe,	Ink,	Rubber,
Binoculars,	Kerosene,	Scale,
Camera,	Khurpi,	Seal and Rubber Stamp,
Candles,	Knife,	Service stamps,
Clothes,	Letter-heads,	Shoulder bags,
Contingency vouchers,	Matchbox,	Soap,
Cutter,	Medicines,	Specimen tubes,
Drying / Blotting sheets,	Old newspapers,	Stove,
Field book,	Pencils,	Straps,
Field shoes,	Petromax,	Tents,
First Aid Box,	Pocket lens,	Torch with batteries,
Global Positioning System (GPS),	Polythene bags,	Tree Pruner,
Ice axe,	Presses,	Utensils,
	Raincoat,	Vasculum

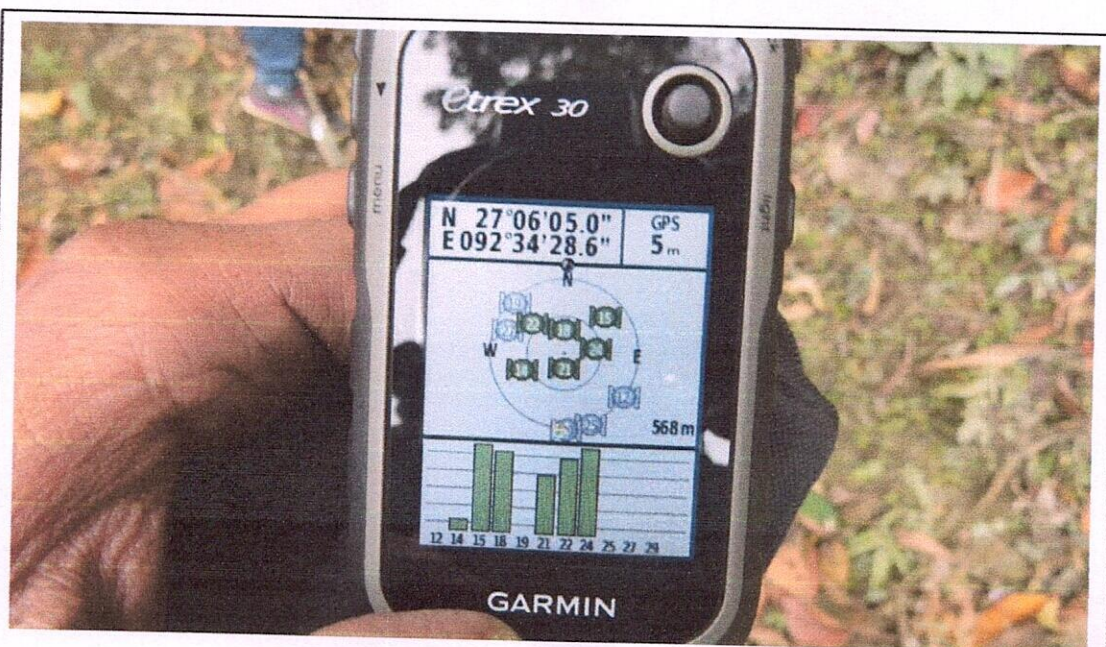


Fig. 1: Global Positioning System (GPS) instrument


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KINDS OF FIELD WORK

Depending upon the purpose of plant collections fieldwork can be broadly classified into three types. 1. *Collection trip*: It is of short duration usually of only one day to nearby place. 2. *Exploration*: It is done for preparing detailed floristic accounts and for study of economic plants of some region and. 3. *Expedition*: It is undertaken to remote and difficult areas and are usually of several months duration.

COLLECTION

There are three ways of collecting the plant specimens in the field.

1. If the trip is for one day, one can carry the plant press and newspapers or blotters. The specimens are pressed then and there in the field.
2. The second method is to keep the collected specimens in metal can called *Vasculum*. Wet newspapers must be placed inside the *Vasculum* to keep the specimens cool. The plants kept in the *Vasculum* must be transferred to newspaper that day itself or the *Vasculum* along with the plants may be kept in a cool place overnight.
3. Now-a-days polythene bags are available and they are of varying sizes. The collected plants are placed inside and the mouth is tied tightly. This is easy to carry and there will be no serious loss of the plant material kept inside. The plants can be pressed after reaching the headquarters.

WHAT TO COLLECT?

What plants shall be collected depends on the purpose of study. If the object of study is the preparation of flora of a region, collection should be exhaustive and samples of all plants of that area should be collected. Collections should contain at least flowers or fruits or preferably both.

In case of grasses and other herbs the whole plant including the underground part should be collected. The size of the herbarium sheet on which the specimens will finally be mounted is approximately 28 x 42 cm and this limits the size of the collected plants or twigs.

Due to various considerations, at least four specimens of each plant are collected; this is done particularly to facilitate distribution and exchange. Of the four specimens, two will be mounted and kept in the herbarium and the rest will be kept as duplicates.

The numbers given to collections are very important record. All the four specimens of the same plant are given the same field number. The number must be attached to the specimen in the field itself and this number will always go with the specimens even if there is a possibility



of change of name at a later date. Collection number refers to even the most valuable specimens like type specimens. A type is an element on which the description associated with the original publication of a name was based.

A very important part of the plant collection work is the recording of field notes. Detailed notes should be entered in the field note-book at the time of collection in the field itself. Generally, the following details should be recorded in the field notebook.

a) Date b) Vernacular name c) Locality d) Habitat e) Description f) Collector's name, etc.

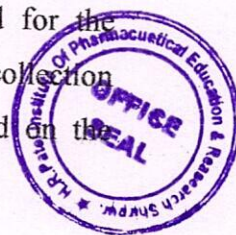
This is the most important part of the plant collection trip and one must remember that the specimen we are going to collect in the field will be used by some persons on a later date. So the following points are to be borne in mind.

1. Do not collect scraps of plants.
2. If the specimen is herbaceous whole plant including the underground parts must be collected or if it is woody, a twig that can easily fit into the herbarium sheet can be collected. It must be 35-40 cm long.
3. Very rare specimens like orchids, insectivorous plants and endangered specimens must be collected sparingly.
4. Collection should be made of the material in all stages of development. If necessary, 2 or 3 trips to the same spot must be made to collect different stages of the specimen.
5. Sometimes bulbous specimens must be collected for planting in the experimental garden.
6. All the areas of the locality must be visited and then only the collection will be complete.

Collection of certain groups like succulents, aquatic plants, aroids large bamboos, and very tall trees require special methods and precautions. Succulent plants like Cacti, *Euphorbia* and members of Crassulaceae present unusual difficulties in making herbarium specimens. Their thick succulent tissues take very long time to dry and so they require special attention. Hence, either the tissues should be killed by dipping in boiling water or excess of tissues removed by hollowing out the thick organs. Treating with alcohol or strong Formalin can also kill the tissue.

While recording the characters of succulents, especially the spiny succulents, details of shape, size and the arrangement of spines and joints should be noted.

Some plants like *Lemna* and *Wolffia* are microscopic and cannot be processed for the herbarium in the usual way. These plants should be collected in mass with the collection number, notes etc., sun dried and put in a packet and the whole packet pasted on the



mounting board. These can also be preserved in any of the liquid preservatives used for embryological or anatomical studies. The common liquid preservative is:

Ethyl alcohol 95%	50 cc
Glacial acetic acid	5 cc
Formaldehyde 40%	5 cc
Water	40 cc

The collection number and place, date etc. should be written on a slip in lead pencil or Indian ink and put inside the jar or pasted on it.

Ferns should be collected with their basal portion, because the shape of rhizome and hairs and scales on rhizome are important taxonomic characters. Fronds without sori are of little value. Slender aquatic plants, after collection is placed in a tray containing water and is spread out. Then a wire press or sieve plate with which paper or muslin cloth is inserted below the specimen and taken out; the paper or cloth is lifted slowly with both hands and placed between the dryers. Some aquatic lithophytes like the members of Podostemaceae cannot be detached from the rocky substratum and a portion of the rock needs to be broken apart for collecting them. The rock with the plant has to be either dried or preserved in liquid medium.

FIELD NOTE BOOK (FIELD DIARY)

While preparing herbarium specimens close attention should be given to recording all necessary data concerned with the plants, which may not be present or detected after drying

The following points to be noted during plant collection in field notebook:

1. Colouration of foliage and floral parts.
2. Corolla venation.
3. Anther colouration before and after dehiscence.
4. Viscidity of parts.
5. Pollinating agencies.
6. Texture of foliage and perianth parts.
7. Colour and nature of fleshy matured fruit.
8. Habitat.
9. Exact location; use proximate object near the site.
10. Waxed pattern of shoot and root system.
11. Insecticides and repellents.
12. Branching pattern of shoot and root system.
13. Type of soil, moisture content, slope and light conditions.



The notes in the field note must be taken in pencil, if ink is used, it may get smudged when drenched. As far as possible all the points to be noted at the spot itself as postponing or planning to write these notes in the base camp in the evening will lead to confusion or some points might be forgotten.

BOTANICAL SURVEY OF INDIA

Flora of State.....

Serial Date.....

Name.....

Family.....

Local Name.....

Habit..... Height..... Fl..... Fr.....

Locality..... Alt.....

Soil.....

Vegetation type.....

Associated plants.....

Distribution..... Abundance.....

Uses.....

Significant notes.....
.....
.....
.....
.....

Photograph..... Collector.....

Identified by.....

Fig. 2: Sample of a page of field-book, used in Botanical Survey of India



3. PROCESSING OF SPECIMENS

The processing of specimens includes a. Poisoning, b. Pressing, c. Drying, d. Mounting, e. Stitching, f. Labelling, g. Identification / Determination of plants, h. Incorporation and i. Arrangement. These are discussed in detail below.

a. Poisoning

The specimens are poisoned either immediately in the camp or after reaching the headquarters. If possible, such as in the case of one-day trips, it is advisable to poison the plants immediately after collection; poisoning kills the plant and thereby the formation of abscission layer is prevented. The poisoning is generally done by dipping the whole plant in a saturated solution of mercuric chloride in ethyl alcohol. The solution is poured in a tray and the specimen is dipped in it with the help of forceps. **Dipping fingers in the solution should**



Fig. 3: Poisoning chemicals

be avoided and rubber gloves should be used while poisoning. All parts of the plant are dipped in the solution and left there for 15-20 seconds, depending up on the thickness of the plants. Mercuric chloride is a deadly poisonous chemical and its effect on human beings is cumulative. Lauryl pentachlorophenate (LPCP) is used in some herbaria as substitute for mercuric chloride and it is reported to be very effective and comparatively safer in handling.

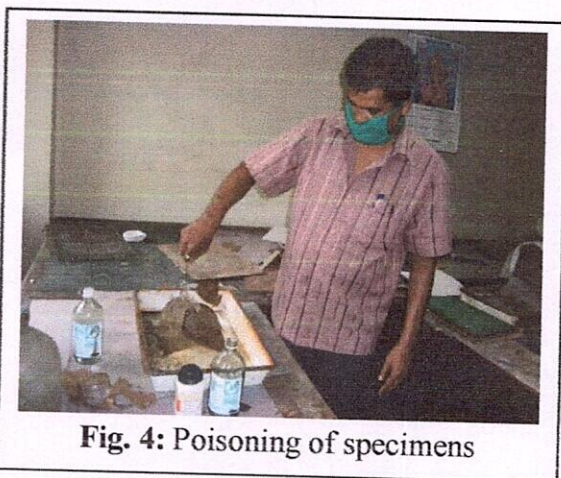


Fig. 4: Poisoning of specimens

Recently another method has often been adopted for collecting and poisoning plants during explorations and expeditions involving longer durations. This is called as Formalin method. This method is highly suitable for tropical countries. The collections are spread out in ordinary old newspapers and bundled up. Each bundle is then placed in a large polythene bag. 70% ethyl alcohol with 5 cc of

10% Formalin mixtures is poured over the bundles, so that the bundles just get soaked thoroughly without however having excess of Formalin in the bags. The bags are then made airtight. No further change of folders is necessary till reaching the headquarters.



reaching the headquarters, the specimens are spread out for pressing and drying as usual. This method is advantageous in many ways.

1. It saves the labour and time in daily changing and pressing and drying of blotters during the tour.
2. As it saves from carrying large amounts of blotters and presses, reduces the luggage. The old newspapers can be purchased as and when required in any place.
3. Since the tissues of the plants are killed instantaneously by the Formalin fumes, the formation of abscission layer is prevented, thereby preventing detachment of leaves, flowers, fruits and other plant parts.

b. Pressing

Pressing as far as possible must be carried out in the field itself. It is the process of placing specimens between the absorbents under heavy pressure. Herbaceous specimens should be washed to remove mud from roots. All plant parts such as leaves and flowers etc. are spread out neatly. This needs considerable patience. Some leaves are placed facing up and others facing down to show the characters on both surfaces. This is especially important in case of ferns with sori on the ad axial side. In case of gamopetalous flowers, if possible, one flower should be split open longitudinally and pressed

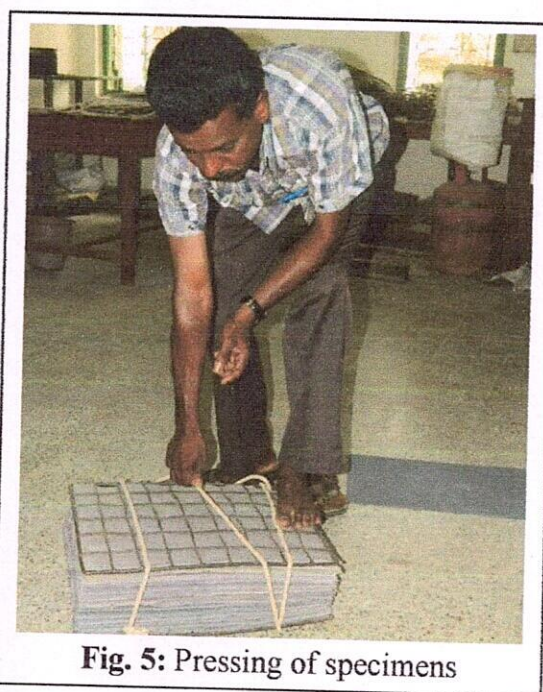


Fig. 5: Pressing of specimens

with corolla spread out to show Androecium and Gynoecium. If the specimens are longer than the size of mounting sheet, they can be folded like "V" or "N" or "M" or "W". After gluing and stitching the parts easily stay in position. If there are too many leaves or branches, a few are removed so that there is a little over lapping as possible and all parts are easily visible.

While pressing the specimens should be placed in such a way that there is almost uniform thickness of the bundle in the middle and on sides. This will provide uniform pressure in the press. The main object of pressing is to flatten and dry the specimen. This is done by keeping the straps light and by changing the blotters every day for 6-10 days depending on weather. The plants gradually lose their moisture and finally become completely dry. The used and moist blotters are dried and used again.

Pressing succulents and aquatic plants is not so easy. Succulent plants may be dipped in boiling water and pressed. But this will completely alter the shape of the specimen and details may be modified. The best method is to split the succulent part and remove the fleshy inner contents. Salt may be added to cut surfaces for quick drying. For pressing aquatic plants take a big tray and pour water in it. Place a glass plate or tin sheet inside the water i.e. at the bottom of the tray and put a white paper over the plate. The size of the paper must be slightly bigger than the size of the specimen. Now transfer the aquatic plants to the tray and carefully spread the leaves, branches, etc. The lay of the specimen cannot be altered afterwards. Then carefully lift the glass plate with the paper. The specimen now will sit on the white sheet. Aquatic plants have mucilage with them and so there is no need to apply gum or paste for pasting. The plant will automatically get pasted to the white paper. Place the paper with the plant over newspaper and usually thin cloth piece is spread over the plant. Then place another newspaper over it. This is the way of pressing and pasting algae or aquatic plants. While pressing always place one specimen in each sheet. Don't always place the specimen in the center. This will make the pile uneven. In the bundle of the papers, corrugated boards must be put at regular intervals. This will enhance aeration and hasten drying. This is called *Ventilator*. The sequence of placing plants in a press is ventilator, drier, specimen in specimen paper, drier and ventilator. The press level must be even and so packing may be given wherever necessary. Then apply ropes or straps to tighten the press. Put weight over the board. The drying must be gradual.



Fig. 6A. The wrong method of pressing plants

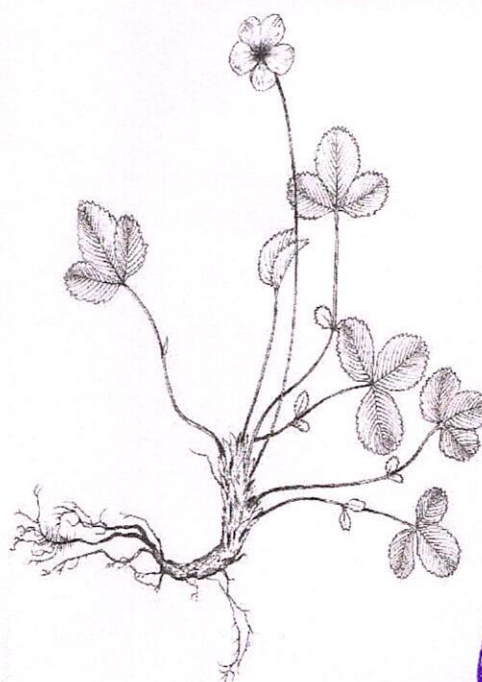


Fig. 6B. The right method of pressing plants



c. Drying

Plants should be placed in the press and be tightened. The faster the drying, greater will be the quality of the dried specimen (Fig.4). The fungal and bacterial attack will be very less or nil. If the drying is quicker, the plant parts will not lose much of their colour. Some students will immerse the plant in Copper Sulphate solution before pressing. This will make the plant appear green even after drying. Plants must be sweated in the field press for 12-24 hrs. Then open the field press and transfer the material to fresh blotters. In the course of 48 hours, the plants must be changed at least 3 times. This will hasten the drying and prevent the withering of plant parts. The wet & used blotters must be sun dried and must be made use for future drying. The sheets must be completely dry and free from mould. If sheets are found to infect, they must be discarded immediately. For one week, there must be daily changes of the sheets. The plants must be carefully transferred.

In temperate places or during rainy season, artificial drying is essential. If artificial heat is used there must be maximum airflow. Double-faced corrugated boards or aluminium ventilators are the best. The specimen should not be dried in an oven. A collapsible drying frame is used in field and camp stove or Hurricane lamp placed below it (Fig.4). In the laboratory "dry box" can be employed. The lower chamber will be having electric heater. The upper chamber will be used for placing the field press with specimens. This is extremely successful and saves labour and time. The quality of dried specimens will be great. There is a very quick method of drying. The plant is placed in between the driers and they are placed over a cloth bundle. Then apply a hot electric iron over the paper. This will hasten the drying. But this is not a proper method because the plant specimens turn brittle and break.

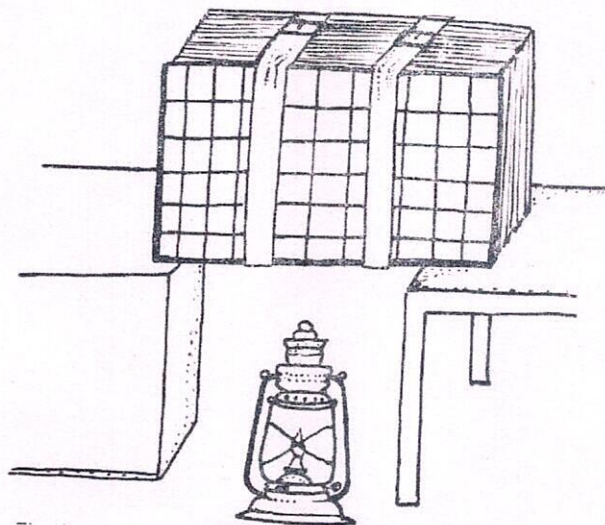


Fig. 7. Drying specimens or blotters on heat of Kerosene lamp

Disadvantages of heating & non-heating processes

No.	WITHOUT HEAT	ARTIFICIAL HEAT
1.	3 or 4 weeks are needed for complete drying.	The glaucescence or waxy bloom of the specimen will be lost.
2.	Blotters must be changed and so large quantity of newspaper is needed.	Very quickly plant becomes brittle.
3.	The wet blotters must be dried for recycling	The natural colour of the plant is lost.
4.	The labour and time expenditure is high.	The corrugated sheets used for the ventilation leave ridge markings on the plant parts.
5.	Fungal and insect attack will be there. Insect larvae present inside the flower may continue eating the floral parts.	-

d. Mounting

After the specimen is pressed, dried and poisoned, it is affixed along with a label on a mounting sheet. The mounting sheets are made from heavy long-lasting white card sheet in uniform size of 28 x 42 cm. The aim of mounting is that the specimens should be neatly and uniformly spread and fixed on the sheet and all parts of the plant should be easily visible for study.

The common technique now in use in our country is pasting specimens to sheet with glue. The common animal glue used for bookbinding are available in market as flakes or pieces is employed. The glue paste is prepared by adding flakes of glue to boiling water, gradually and in small quantities till it makes a thin syrupy paste. To give this glue some insect repellent properly, small quantity of Mercuric Chloride, Thymol crystals or Copper Sulphate (Blue vitriol) is added. The glue or paste is coated on a glass plate or tin plate. The specimen is placed over the paste and tapped gently with forceps. Then with the help of forceps carefully transfer the plant to the mounting sheet in the proper place. Now a day's fevicol also used instead of animal glue flakes.

The mounting sheets with specimens glued on them are kept in press for one day for proper sticking and drying.

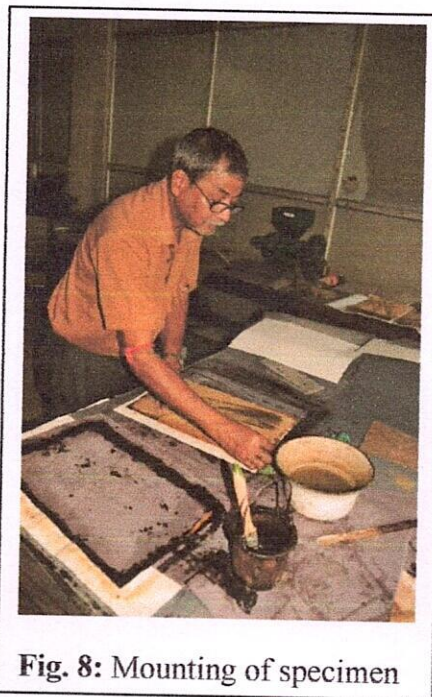


Fig. 8: Mounting of specimen

e. Stitching

The stitching should be small and independent and thread should not be carried from one stitch to another on the lower side of the mounting sheet. On each side of the stem/ twig a hole is made and a thread is inserted. A knot is put at the back and thread is cut after each knot.

Strapping: In this process, the specimen is not glued to the sheet, but only loosely strapped to the sheet by means of ordinary thread stitches or by some other device such as gummed cloth or paper tapes or by liquid plastic method. There are quick drying liquid plastics available in market. This is an expensive procedure.

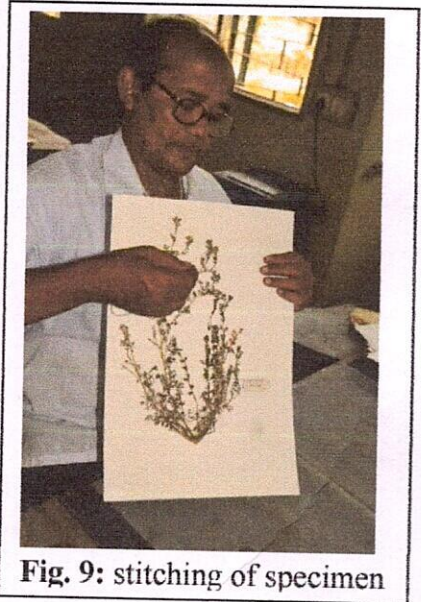


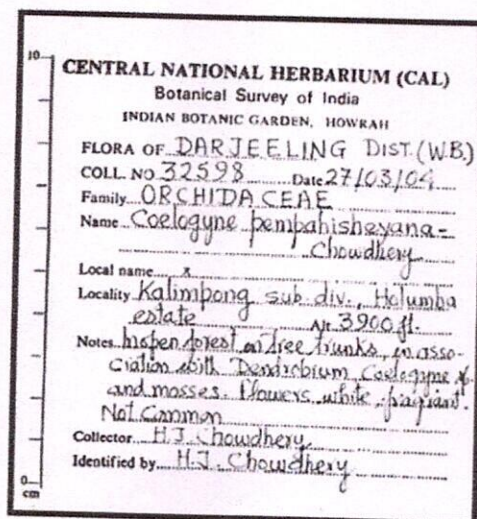
Fig. 9: stitching of specimen

f. Labelling

After the mounting of specimens on the herbarium sheets, the pasting of herbarium labels is done on the sheets. The size and design of herbarium labels slightly vary according to need. Size is about 8 x 12 cm. In general, the label should contain the following data. 1. Name of the family, 2. Name of the genus and species, 3. Locality of collection, 4. Date of collection, 5. Habitat, 6. Collector's name and field number and 7. Vernacular name and local uses.

Herbarium label is fixed on the bottom right hand corner about 1 cm away from edges of the mounting sheet. It should be fixed with paste or glue.

After gluing the specimens and pasting the labels, the data on the labels should be entered clearly with some permanent ink or preferably typed before pasting. Labels are records expected to last for long and should not fade out. A specimen without any label, even if it is neatly and properly mounted, is of little value.

A rectangular label with a scale on the left side (0 to 10 cm). The text on the label is as follows:

CENTRAL NATIONAL HERBARIUM (CAL)
Botanical Survey of India
INDIAN BOTANIC GARDEN, HOWRAH
FLORA OF DARJEELING DIST. (WB)
COLL. NO. 32598 Date 27/03/04
Family ORCHIDACEAE
Name Coelogyne pempahishayana -
Chowdhery
Local name
Locality Kalimpong sub div., Helumba
estate At 3900 ft.
Notes In open forest on tree trunks, in asso-
ciation with Dendrobium, Coelogyne &
and mosses. Flowers white fragrant.
Not common
Collector H.J. Chowdhery
Identified by H.J. Chowdhery

Fig. 10: Model of Label used by Botanical Survey of India



g. Identification / determination of plants

Usually, identification is considered to be the process through which a specimen whose name is not known is recognized by its characters, to be similar to some known plant and accordingly given a name. But it is now felt that since no two individuals plants are exactly identical, this process should not be called identification but determination. That is why, the annotation slips are called and marked "Determinavit" slips. However, the word identification is now so universally employed that it clearly signifies the entire process.

For the purpose of identification, the scientific method is to first study the characters of the plant, check them with the flora of the region, work through the family, genus and species keys and compare with full description and illustration. Thereafter it is to be carefully compared with earlier identified plants of the species or variety, as the case may be.

h. Incorporation

When the specimens are ready (mounted, labeled and identified), they are stamped with a distinctive mark of the herbarium or institution. The stamping is usually done on the top right hand corner of the sheet. This stamp carries the name of the institution, a serial number called the herbarium accession number and sometimes the date of accession. The sheets are listed in the accession register and now the sheets are ready for filing in the herbarium.

The mounted, identified and accessioned herbarium sheets are sorted out family, genus and species wise.

All the sheets of the same species are filed in lighter covers called the "species cover or folders"; and all the species (with species covers or folders) belonging to one genus are placed in one more folder of heavy paper called the genus cover.

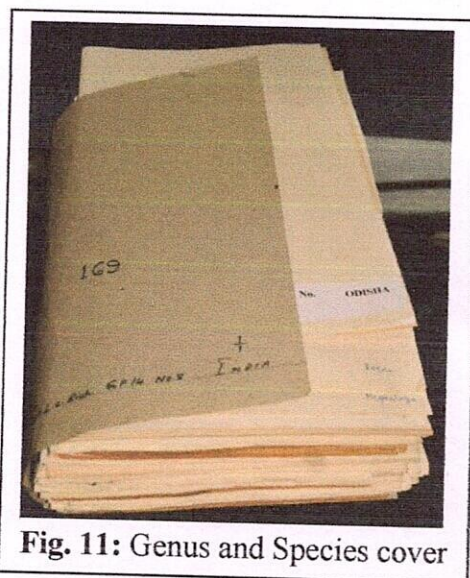


Fig. 11: Genus and Species cover

i. Arrangement of specimens

The specimens are usually arranged in the herbarium according to some recognized system of classification. In many Indian herbaria the order and numbering of families and genera is according to Bentham & Hooker's *Genera Plantarum*. In few European herbaria the families are arranged according to the recent classification, APG III (Angiosperm Phylogeny Group).

The herbarium sheets are to be arranged in wooden or steel Almirahs with pigeonhole



compartments. The pigeonhole, where bundles of a new family start, is marked by a fixed label or by hinged cardboard separator. The name of the family is printed or written on this in bold letters.

The size of the species cover is usually 32 x 48 cm and that of Genus cover is 40 x 60 cm. Materials are added to the herbarium through one or more of the following means: -

- a) Through actual collection by the herbarium staff.
- b) By procuring collections of others through purchase, gift or exchange.
- c) Sometimes it is agreed that material received for routine identification or expert opinion of specialists in the herbarium will be retained for incorporation.



Fig. 12: Sheets kept in pigeonhole

In the herbarium the most important collection is the type collection. The type specimens such as holotype and isotypes are usually kept separately in safe custody. This is to avoid unnecessary handling.

j. Lending

The specimens received on loan (for study or identification) are the property of other institutions or individuals and need great care. Soon after receipt, they should be counted and checked with the accompanying list. All the specimens received for study must be returned duly annotated by the botanist who examined them and within the period agreed upon.

4. MAINTENANCE

Collector takes lot of trouble in preparing good herbarium sheets. In some cases herbarium sheets alone act as representative of the plant, because all the plants may be missing in that locality. This is the case with the copy specimens recorded by Fyson. So to protect the sheets from fungal and insect pests is an important step. Insects like tobacco or herbarium beetle (*Lasioderma sericorne*) or drugstore beetle (*Stegolium paniceum*) and silver fish are common enemies. They complete their life cycle with the dried specimens. The life cycle period is 70 to 90 days. Unattended herbarium get lose because of these insects. The insecticide kills the insects either by contact or by being eaten. Contact insecticides used in herbaria are Cyanide gas, Paradichloro benzene (PDB), Carbon dioxide or DDT. Digestive poisons are the salts of Mercury and Arsenic. Mercuric chloride is the insecticide.

Care must be taken when new herbarium specimens and collection is brought in. One must check up whether the specimens have been poisoned properly. If a non-poisoned, infected specimen enters the herbarium it may become the source of further infection. The incoming specimens are kept in deep freezer for overnight and taken in. This is possible only with very big herbaria, where incoming specimens are of large quantity and manual poisoning is not possible.

1. **FUMIGATION:** This is done for killing pests in mounted as well as unmounted duplicate specimens. This process involves any one of the volatile poisonous liquids like methyl bromide, carbon disulphide or carbon tetrachloride. These are placed in small saucers or petridishes in each herbarium case and the case kept closed for about a week. Methyl bromide is used in herbarium of New York Botanical Garden. Sometimes Paradichlorobenzene is placed in all or many of the pigeonholes.
2. **HEATING** is another method of insect killing. Some herbaria use electric heater instead of fumigation. This requires special insulated herbarium cases with an electric heating element at the bottom. The specimens are placed inside the chamber at 44°C and left there for few hours.
3. **CHEMICAL TREATMENT** is another method of insect control. There are two ways of poison action. One is permanently poisoning the specimen and the second is making the material unpalatable. The method of application is either dipping the material in the insecticide before pasting or spraying the chemical after pasting. Mercuric Chloride ($Hg Cl_2$) and ethyl alcohol is the best mixture, but it is deadly poisonous and should be handled carefully. Further if it is handled by barren hands, the hand may get blackened. Moreover metal forceps and trays should not be used. They get corroded.
4. **HANDLING OF SPECIMENS:** Sheets with specimens are intended to use by students, scholars and scientists. These specimens must be preserved as long as possible and this depends upon the handling of these sheets. Some of these points are to be borne in mind.
 - Keep the sheets always flat.
 - Don't shuffle or leaf through a folder like a book or pack of cards.
 - Plant materials are brittle and they can break and get damaged, if handling is improper.
 - Store the sheets in shelves and don't crowd the shelf.



- Use the folders namely species folders and genus folders carefully and keep the specimens inside when they are not in use.
- Don't put books or heavy articles over the herbarium sheets.
- If the parts of the specimens get detached, store them in small envelope and attach it to the sheet.
- During transport don't tie the bundle of sheets tightly. This may damage the specimen.
- Some students and scholars may try to examine the specimens or dissect the floral parts. They should not be allowed to touch the main material. The reserve materials kept in the small envelope may be used.
- For examination and dissection, dried material must be kept in boiling water and then softening agents must be added. The composition is
 - 1.6 m (75%) aqueous "Aerosol OT"
 - 73.4 ml distilled water.
 - 25 ml methyl alcohol.
- The materials must be placed in a watch glass and the solution is added to it, which makes dissect the specimens easier.
- The herbarium sheet must be placed below long armed dissection microscope during examination. Do not bend the sheet.
- Never write any comments or notes on the sheet. Don't make any corrections without the permission of the in charge.
- Place the sheets back in the shelf only after getting permission from the in charge.
- Dummy folders: As a result of change in nomenclature / taxonomic revision or removal of sheets for repairing or for sending on loan, a dummy folder with necessary notes will make it easy. When anybody tries to trace the sheet, the whereabouts of the sheet can be made out from the notes.

For example in *Ionidium* write see *Hybanthus*.

Generally, the *Hybanthus* genus is known by its old name *Ionidium*. If anyone search for the specimens of *Ionidium* will not be able to locate because of nomenclatural change. So if the note in a sheet "see *Hybanthus*" in the dummy folder, leads the researcher to *Hybanthus*.



– V. SAMPATH KUMAR
 Scientist 'D'
 Central National Herbarium
 Botanical Survey of India, Howrah – 711 103

The Shirpur Education Society's


H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur

Notice

25/02/2023

All the students of S. Y. B. Pharm are hereby informed that institute has framed and going to start a Certificate Course on Herbarium Techniques for 30 days duration from 15 March 2023 to 13 April 2023. So, interested students should enroll their names toward the coordinator of the course before 6 March 2023.

Time: 9.45 to 10.45 am


Dr. R. E. Mutha
Coordinator




Dr. S. B. Bari
PRINCIPAL
H.R Patel Institute of Pharmaceutical
Education & Research
Shirpur Dist.Dhule(M.S) 425 405



President :
Shri Amrishbhai R. Patel
M.L.A.

Principal :
Dr. S. B. Bari
M.Pharm. Ph.D., D.I.M.F.J.C.

Report of Certificate Course on Herbarium Techniques

Duration of Course: 30 days (15 March 2023 to 13 April 2023) 30 Hours

Name of the coordinator: Dr. R. E. Mutha


Name of resource persons: Dr. R. E. Mutha, Mr. C. J. Bhavsar, Mr. V. S. Bagul

Scope of the course: To introduce and emphasize the importance of conservation and preservation of plant biodiversity. With this, make the students skilled to prepare and preserve the herbarium of the plant specimen.

No of participants: 114

Summary of the event:

Certificate Course on Herbarium Techniques was conducted from 15 March 2023 to 13 April 2023 on the syllabus as per need of current scenario and environmental situation. A total of 66 students of the S. Y. B. Pharm had attended the course and gained the knowledge and required skill relevant to herbarium and herbarium preparation. Along with this, students gained awareness and importance of conservation and preservation of plant biodiversity. At the end of the course, an assessment test was conducted to know the status of knowledge gained by the students. Finally, certificates of the course were distributed to the students.


Dr. R. E. Mutha
Coordinator




Dr. S. B. Bari
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Shirpur Dist. Dhule (M.S) 425 405

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President :
Shri Amrishbhai R. Patel
M.L.A.

Principal :
Dr. S. B. Bari
M.Pharm. Ph.D., D.I.M.F.J.C.

Date: 07/01/2023

Notice

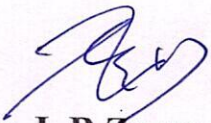
Dear First Year M.Pharm Students, We are pleased to inform you that the IQAC at H R Patel Institute of Pharmaceutical Education and Research is organizing an Add-on Certificate Course on "Transition from Graduate Student to Post-Graduate Scholars". The course aims to provide you with essential knowledge and skills that will facilitate a smooth transition from your Bachelor's degree to the Master's program. The schedule of the program is enclosed with this notice. Kindly note that the attendance to this program is mandatory.

Course Details: "Transition from Graduate Student to Post-Graduate Scholars".

Duration: 11th January to 18th January 2023.

Time: 11.00 am to 5.30 pm

Venue: M.Pharm Classroom / Laboratory


Dr. L R Zawar
P. G. Incharge

H. R. Patel Institute of Pharmaceutical
Education and Research, Shirpur




Dr. S B Bari
PRINCIPAL
H.R. Patel Institute of Pharmaceutical
Education & Research
Shirpur Dist. Dhule (M.S) 425 405



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M.L.A.

Principal :
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M.Pharm. Ph.D., D.I.M.F.J.C.

H R Patel Institute of Pharmaceutical Education & Research

Organized, Add on Certificate Course

“Transition from Graduate Student to Post-Graduate Scholars”

11th January 2023 – 18th January 2023

“Transition from Graduate Student to Post-Graduate Scholars”

Day 1: Wednesday, 11th January 2023

Session	Time	Topic	Speaker
1	11.00 am to 2.00 pm	Inauguration & Adress by Chief Guest	Dr. S B Bari Dr. P O Patil Dr. L R Zawar Dr. G B Patil
2	2.30 pm – 4.30 pm	The Master of Pharmacy: Course Regulation	Dr. L R Zawar
3	4.30 pm – 5.30 pm	Visit to HRPIPER Laboratories	Dr. L R Zawar

Day 2: Thursday, 12th January 2023

4	11.00 am to 5.30 pm	Introduction to Laboratory Glassware's	Mr. M S Shaikh
5		Practical's involving Laboratory Glassware's	Mr. S N Jain

Day 3: Friday, 13th January 2023

6	11.00 am to 5.30 pm	Introduction to UV Spectroscopy	Dr. N R Shirsath
7		Calibration Curve & Assay using UV	Mr. R S Tade

Day 4: Saturday, 14th January 2023

8	11.00 am to 5.30 pm	Introduction to HPLC	Dr. Z G Khan
9		Demonstration & Practical using HPLC	Mr. P B Patil

Day 5: Monday, 16th January 2023

10	11.00 am to 5.30 pm	Introduction to Natural Products as Leads	Dr. R E Mutha
11		Practical on Natural Product Extraction	Mr. C J Bhavsar

Day 6: Tuesday, 17th January 2023

Pharmaceutics

12	11.00 am to 5.30 pm	Formulation Development of Oral Solid Dosage Form (Tablet & Capsule)	Dr. V K Chatap
13		Practical for Evaluation of Oral Solid Dosage Form	Dr. V K Chatap

Quality Assurance

12	11.00 am to 5.30 pm	Validation, Verification & Qualification of Pharmaceutical Equipment's	Dr. G B Patil
13			

H. R. Patel Institute of Pharmaceutical Education and Research

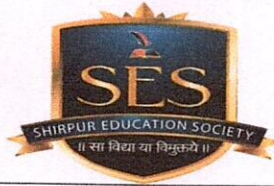
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Pharmaceutical Chemistry			
12	11.00 am to 5.30 pm	Recrystallization & Distillation in Pharmaceutical Chemistry	Dr. P O Patil
13			
Day 7: Wednesday, 18th January 2023			
Pharmaceutics			
14	11.00 am to 5.30 pm	Introduction to Dissolution Testing & factors affecting Dissolution of Drug/product	Dr. L R Zawar
15		Experiment on Dissolution Testing using USP Apparatus	
Quality Assurance			
14	11.00 am to 5.30 pm	Qualification of Tablet Compression Machine	Mr. M R Mahajan
15			Mr. D M Patil
Pharmaceutical Chemistry			
14	11.00 am to 5.30 pm	Green Synthesis & Introduction to Chromatography	Mr. N P Pawar
15			Ms. A S Pathan

Dr. L R Zawar
P. G. Incharge
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Activity report
Submitted to
The Principal,

H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur

Name of Activity	"Transition from Graduate Student to Post-Graduate Scholars".
Organizer	IQAC of H R Patel Institute of Pharmaceutical Education and Research
Venue	M.Pharm Classroom and Laboratories
Name of Speaker	Detailed Schedule along with list of speakers is enclosed
Date of activity	11 th January to 18 th January 2023.
Objectives	The primary objective of the workshop was to bridge the gap between the Bachelor of Pharmacy (B.Pharm) and Master of Pharmacy (M.Pharm) programs. The workshop consisted of theory sessions as well as hands-on training activities, offering a comprehensive learning experience to the participants.
In charge	Dr. Laxmikant Ramvallabh Zawar
Number of Participant	44
Brief Report on activity	The workshop encompassed a wide range of topics and practical sessions, enabling the participants to gain a deeper understanding of the M.Pharm curriculum and its practical applications. They had the opportunity to visit HRPIPER Laboratories, observing pharmaceutical processes and industry practices. The workshop included sessions on laboratory glassware, focusing on usage, handling, and maintenance, followed by hands-on practical exercises. UV spectroscopy was introduced, emphasizing its applications in pharmaceutical analysis, along with constructing calibration curves and performing assays. High-Performance Liquid Chromatography (HPLC) was introduced as a vital analytical technique, demonstrated through practical sessions. The role of natural products in drug discovery and their extraction techniques were discussed and practiced. Formulation development of oral solid dosage forms, evaluation techniques, and equipment qualification were covered. Principles and applications of recrystallization, distillation, dissolution testing, and qualification of tablet compression machines were explained and demonstrated. The workshop concluded with an introduction to green synthesis techniques and chromatography principles and applications.
Photograph Of activity	



H. R. Patel Institute of Pharmaceutical Education and Research

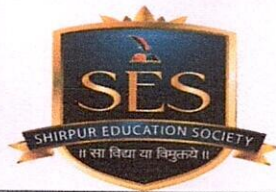
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Outcome	"Transitional Training: From B. Pharm to M. Pharm" successfully bridged the gap between B.Pharm and M.Pharm programs by providing theoretical knowledge and practical training sessions. Participants gained valuable insights, practical skills, and a deeper understanding of the transition from undergraduate to postgraduate studies. The workshop equipped them with the necessary tools to excel in their M.Pharm program and make meaningful contributions to the pharmaceutical industry. The workshop's success reflects [Your University/Institution Name]'s commitment to providing comprehensive and holistic education to its students.
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Dr. L R Zawar




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Notice

Date: 15.11.2022

All the staff members, Final and Third Year Pharmacy students are hereby informed that we are organizing a certificate course on "Preparation for Competitive Examination " which has been scheduled from 17.11.2022 daily 2 hours. The schedule of lectures and faculty name is attached here. You all are hereby requested to attend the same.

Mr. Z. G. Khan
Coordinator



Dr. S. B. Bari
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H.R. Patel Institute of Pharmaceutical
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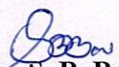
Schedule of course on "Preparation for Competitive Examination" w.e.f. 17/11/2022

Schedule

Sr. no.	Name of staff	Subject	Date	Hrs
1.	Prof S K Patil	Pharmacology	17/11/2022	2
2.	Prof P O Patil	Biochemistry	18/11/2022	2
3.	Prof R E Mutha	Pharmacognosy	19/11/2022	2
4.	Prof V K Chatap	Pharmaceutics	21/11/2022	2
5.	Prof L R Zawar	Physical Pharmacy	22/11/2022	2
6.	Prof G B Patil	Physical chemistry	26/11/2022	2
7.	Prof N R Shirsath	Pharmaceutical Engineering	28/11/2022	2
8.	Prof P B Patil	Pharmaceutical Analysis	30/11/2022	2
9.	Prof M S Shaikh	Medicinal Chemistry	3/12/2022	2
10.	Prof C J Bhavsar	Biotechnology	5/12/2022	2
11.	Prof Z G Khan	Organic Chemistry	10/12/2022	2
12.	Prof P S Bafna	Pathophysiology	12/12/2022	2
13.	Prof R E Mutha	Microbiology	17/12/2022	2
14.	Prof N P Pawar	Pharmaceutical Inorganic Chemistry	19/12/2022	2
15.	Prof V K Chatap	Biopharmaceutics And Pharmacokinetics	23/12/2022	2
16.	Prof C J Bhavsar	Pharmaceutical Jurisprudence	24/12/2022	2
17.	Prof L R Zawar	Dispensing & Hospital Pharmacy	26/12/2022	2
18.	Prof M R Mahajan	Pharmaceutical Inorganic Chemistry	30/12/2022	2


Mr. Z. G. Khan
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Dr. S. B. Bari
M.Pharm. Ph.D., D.I.M.F.J.C.

Report on a course on "Preparation for Competitive Examination" (AY. 2022-23)

Duration of Course: 17.11.2022 to 30.12.2022 (36 hrs)

Topic of Course: course on "Preparation for Competitive Examination"

Name of Course Coordinator: Mr Z. G. Khan

Syllabus: Syllabus given by NTA FOR National level exam for Pharmacy (Graduate Aptitude Test for Pharmacy).

Scope of Course: The scope of a course on "Preparation for Competitive Examinations like GPAT (Graduate Pharmacy Aptitude Test)" is to provide aspiring pharmacy students with comprehensive guidance and resources to excel in this specific competitive exam. GPAT is a national-level entrance exam conducted in India for admission to postgraduate pharmacy programs and is highly competitive.

The course aims to cover all the essential subjects and topics that are part of the GPAT syllabus, including pharmaceutical sciences, pharmaceutical chemistry, pharmacology, pharmaceuticals, pharmacognosy, and other related areas. It focuses on strengthening the students' understanding of key concepts, theories, principles, and their practical applications in the field of pharmacy.

No. of participants: 220

Summary of the event:

A short-term course on "Preparation for Competitive Examination" for the students was conducted from 17.11.2022 to 30.12.2022 on the syllabus created as per points mentioned by NTA. The Course was conducted with the guidance of Principal Sir. 220 students attended the course enthusiastically and gained the knowledge and skills required to crack national-level exams. Day-wise attendance was taken by respective teachers. After completion of the course, certificates were distributed to the attendees. This course will be helpful to students to get success in national level exams like GPAT and NIPER.

Mr. Z. G. Khan
Coordinator



Dr. S. B. Bari
PRINCIPAL
H.R. Patel Institute of Pharmaceutical
Education & Research
Shirpur Dist. Dhule (M.S) 425 405



President :
Shri Amrishbhai R. Patel
M.L.A.

Principal :
Dr. S. B. Bari
M.Pharm. Ph.D., D.I.M.F.J.C.

दिनांक 13/01 /2023

सूचना

सर्व प्रथम वर्ष बी.फार्मसी,एम. फार्मसी च्या सर्व विद्यार्थीना कळविण्यात येते की आपल्या महाविद्यालयाने दिनांक 15 जानेवारी 2023 पासून योगावरील एक महिन्याचा प्रमाणपत्र अभ्यास सुरु करणार आहे.यात निरोगी जीवन शैली राखण्यासाठी विद्यार्थ्यांनी या अभ्यासात सहभागी व्हावे आहे.तरी 15 जानेवारी दि. 2023 ते 15 फेब्रुवारी 2023 पर्यंत सकाळी 7 वा. ते 8 वा. वेळेत उपस्थित रहावे.




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NBA accredited B. Pharm Programme

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Karwand Naka, Shirpur - 425405, Dist : Dhule (MS).

☎ (02563) 257599, ☎ 9423918023, 9850223277.

🌐 <http://www.hrnatelpharmacy.co.in> ✉ principal@hrnatelpharmacy.co.in registrar@hrnatelpharmacy.co.in



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Detailed Session Plan

CLASS: F. Y. B. Pharm F. Y. M. Pharm	Duration & Date: 15/01/2023 to 15/02/2023
Course: Certificate Course on Yoga	Time period of Course:30 Days

Sr.no	Name of Yoga Aasana	Action
	Meditation Compulsory Course	
1	10 Poses to Help You Warm Up for Yoga	
2	Standing in Tadanasa / Mountain Pose.	
3	Coming into Child's Pose, extend your arms out and walk them to the left slightly. Take your right hip and shoulder back. ...	First described what are the benefits of aasana' how it is done, and then performed Practically
4	fast-paced walking. jogging on the spot.	
5	Cardio Warm Ups. Cardio warm ups quickly raise your body temperature and get your blood flowing. Dynamic Movement. ...Static stretches.	
6	Sarvangasana	
7	Shalabha asana	
8	Surya Namaskar	
9	Trikona asana	
10	Vruksha asana	
11	Padmasana	
12	Vajrasana	
13	Pachimottanasana	
14	Halasana	
15	Shawasana	
16	Revision	
17	Revision	
18	Revision	




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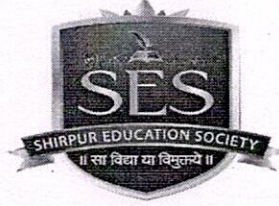
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INDEX

Sr.no.	Name of Yoga Aasana	Action
	Meditation Whole Course	
1	Surya-Namaskar	
2	Ardha - Maisyandra – asana	
3	Chakra asana	
4	Dhanura asana	
5	Ekapada asana	
6	Garuda- asana	
7	Gomokha asana	
8	Halasana	
9	Saral hasta bujangasana	
10	Hast pada asana	
11	Nawukasana	
12	Pawan mukta asana	
13	Wajra asana	
14	Shashank asana	
15	Tada asana	
16	Sirsha asana	
17	Dhanura asana	
18	Viparit shayan asana	
19	Viparit karani	
20	Sarawanga asana	
21	Ushtra asana	
22	Shawasana	
23	Shalbha asana	
24	Virasana	

First described what are the benefit of asana how it is done and then performed practically.




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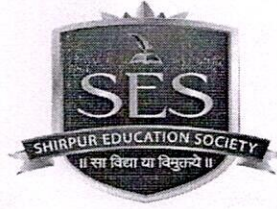
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Activity Report of Yoga Course

Name of Course; Certificate Course on Yoga

Duration: 15 January 2023 to 15 February 2023

Time: 7 am. to 8 am.

Resource Person:

Mr. Yogesh Thakur

Yoga teacher

No. of Student's Participated: 141

H.R.P.I.P.E.R. Shirpur had organized 30 Days "Certificate Course on Yoga" in the duration of 15 January 2023 to 15 February 2023 the resource person of the programme was **Mr. Yogesh Thakur Yoga teacher** who guided students about how yoga helps in improving our mental as well as physical well-being and how can keep our self-calm and thoughtful with the help of yoga and meditation.

Objective of the Course:

1. To make students more confident.
2. Make awareness about how yoga can help you to tackle hurdles in day-to-day life.
3. To make them realise how yoga can help in maintain physical and mental health.
4. To make them strong enough for handling stressed condition.

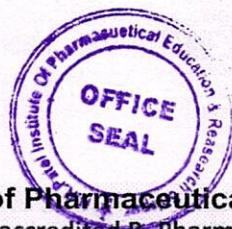
Outcome of Program:

Students felt more energetic after the sessions.

They looked more confident after programme.

They realised that yoga can help in maintaining healthy life style.

They studied sometime new rather than academic course and positive energy was seen in them after each session.




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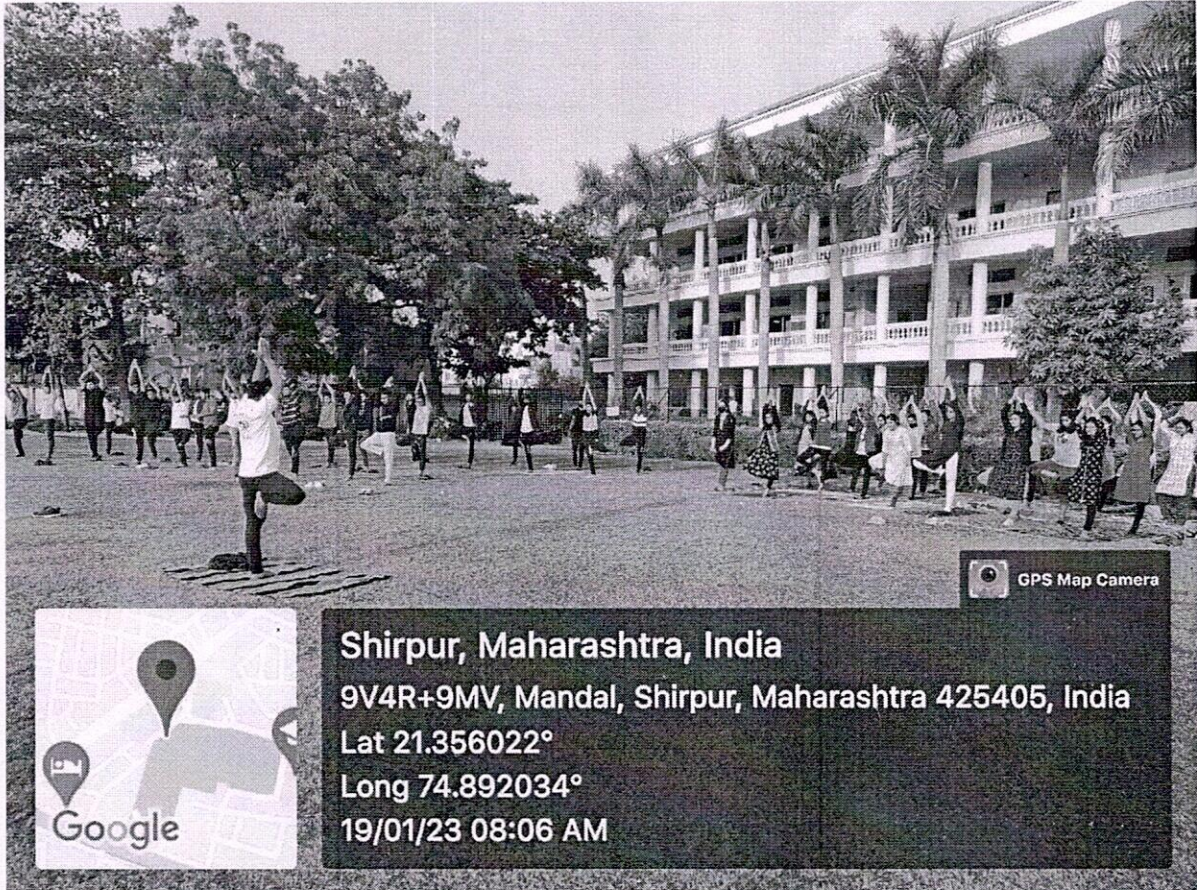
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Shirpur, Maharashtra, India

9V4R+9MV, Mandal, Shirpur, Maharashtra 425405, India

Lat 21.356022°

Long 74.892034°

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Shirpur Education Society's

H. R. Patel Institute of Pharmacy, Shirpur

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NBA accredited B. Pharm course (2019-2022) An ISO 9001:2008 Certified,
NIRF Ranked institute Approved by: AICTE, PCI, Govt of Maharashtra., DTE, KBC NMU Jalgaon

FIVE DAYS SKILL DEVELOPMENT PROGRAMME



Lifeskills Training

Training Partners

Rubicon Skill Development Pvt. Ltd

DR. S. B. BARI
Convenor / Principal

DR. V. K. CHATAP
Co-Convenor / TPO

Mr. S. K. Patil

Mr. V. S. Bagul

Mr. D. M. Patil

Program Coordinators

HRPIPER TRAINING AND PLACEMENT CELL



BARCLAYS



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Life Skills Training

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Co-Convener / Principal
HRIOP

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Co-Convener / TPO

Mr. S. K. Patil

Mr. V. S. Bagul | **Mr. D. M. Patil**
Program Coordinators

TRAINING AND PLACEMENT CELL

MEMORANDUM OF UNDERSTANDING (MOU)

Between

H.R. Patel Institute of Pharmaceutical Educaiton and Research Shirpur

&

Rubicon Skill Development Pvt. Ltd.

For Training students under Rubicon's LifeSkills Program

This Memorandum of Understanding is made at Pune on day of 26-Dec-2022

BETWEEN

here in after referred to as "**H.R. Patel Institute of Pharmaceutical Educaiton and Research Dhule**"
(Which term shall so far as the context admits be deemed to mean and include its successors and assignees) of the First Part,

AND

Rubicon Skill Development Private Limited a Company incorporated and registered under the Companies Act, 2013, having its Corporate office at 9th Floor, Tower 1, Fountainhead, Nagar Road, Vimannagar, Pune - 411014, Maharashtra, hereinafter referred to as "**Rubicon**" (which term shall so far as the context admits be deemed to mean and include its successors, administrators, executors and assignees) of the Second Part.

1. Introduction

THE COLLEGE has decided to partner with RUBICON for the conduct of LifeSkills Program (hereinafter referred to as "Training Program") at THE COLLEGE.

2. THE COLLEGE Responsibilities:

2.1. Shall nominate one person with adequate accountability and responsibility to coordinate the Training Program. He / She would act as the single point of contact for the proposed Training Program.



- 2.2. Shall make available the infrastructure (including IT infrastructure, applications and connectivity) required to conduct the Training Program.
- 2.3. Shall provide all the support services and facilities to **RUBICON** during the conduct of the said Training Program. Adequate power backup through UPS and DG supplies during the training sessions
- 2.4. Shall coordinate with **RUBICON** and facilitate conduct of all the assessments including the assessment to be conducted by the external agency (if any) identified by **RUBICON**, as per schedule communicated by **RUBICON**.
- 2.5. Provide lodging, wherever available, as per the standards of **RUBICON** for faculty conducting the Training Programme for the total duration of the Training Program plus two days (one day prior and one day after closure).The lodging so planned to be provided should be with independent room (with attached toilet), regular water supply, clean, with access to boarding facilities, should have well lit approach and surroundings, have adequate safety & protection and peaceful environment.
- 2.6. Shall share the details of students in a prescribed format to ensure that there is no duplication of student data.
- 2.7. This is a multi-year program to create social impact. The college shall share few details to assess the impact of the program. For e.g. Placement details of trained students will be required to assess the impact of the program from one year to another year.

3. **RUBICON Responsibilities:**

- 3.1. Will provide necessary training as per Training Program requirements and curriculum for delivery as per Annexure I to this MOU
- 3.2. Will provide suitable faculties for the training exclusive for classroom training/Virtual training
- 3.3. Will conduct assessment of its own and also arrange external assessment as required.



4. Other Terms & Conditions:

The following are other terms and conditions of engagement:

4.1. **Batch Size:** The batch size would need to be a min of 35 students and max of 50 students or as mutually agreed.

4.2. Each student would be made available for the Training Program for specified number of hours per day for the duration of the Training Program

4.3. **Pre-assessment & Selection:** RUBICON may carry out pre-assessment of the students who have applied for the course and shortlist the select candidates to undergo the Training Program. The final decision on selection of candidates eligible to take the Training Program shall be with RUBICON.

4.4. Training Program schedule:

4.4.1. Training Program scheduled commencement date is

4.5. Commercials:

4.5.1. Training Fees: The training Fees is as follows,

Since this is a CSR funded Program there is no fee payable by THE COLLEGE for this Training Program

4.5.2. Payment Terms
Not Applicable

4.6. Certification:

Students who are successful in the assessment conducted by RUBICON shall be awarded a certificate post completion of the training program.

4.7. Term of engagement:

This MoU is valid from the date the MOU is made for a period of 3 (Three) years, however both parties agree that based on mutual agreement, the terms may be extended. Both parties also agree that terms may be renegotiated.

4.8. Limitations and Warranties :



Both parties agree that it would be their endeavour to prevent any liability arising out of default or non-compliance of the MoU terms by the other party.

4.9. Termination:

- 4.9.1. Both parties can terminate the MoU with a prior written thirty (30) day notice on default of terms of non-adherence to any condition or responsibilities by the other party as outlined in this MoU in case such default is not rectified within such 30 days.
- 4.9.2. Each party shall be at liberty to terminate this MOU with a written notice period of 3 (three) months to the other party without any compensation and seeking legal redress.
- 4.9.3. Both parties also agree that it would be their professional endeavour that despite any termination of the MOU, progress would continue, without any prejudice to the ongoing Training Program, which would be without any hindrance and would be progressed for completion.

5. General Terms:

- 5.1. Both the parties may receive information proprietary to other party (the Confidential Information) in the course of performance of their obligations under this MOU. Confidential Information is not meant to include any information which (a) is publicly available (b) is rightfully received by the parties from third parties without accompanying secrecy obligations; (c) is already in either party's possession and was lawfully received from sources other than the parties or (d) is independently developed by the parties. The two bodies understand and acknowledge that the Confidential Information is valuable and confidential and agrees that it will at all times be kept in trust to be disclosed only to such persons as have a "need to know" the same for the effective implementation of this MOU and that it will only be used by the parties for the benefit of others.
- 5.2. Both the parties understand and agree that all written or other tangible data and documentation developed or procured by the other party in performing its obligations under this MOU, whether in printed or electronic form, belongs to other party and that other party will have all rights, titles and interests therein.
- 5.3. Both parties shall not use the name and brand of other party in any advertisement or make any public announcement without the prior written approval of the other. However RUBICON will



have the right to use the testimonials/stories/case studies of students/College/University who have been the part of the Training Program for promoting the Connect with Work Program.

6. Jurisdiction:

In the event of any litigation, the court of jurisdiction shall be Pune.

7. Indemnification

Both parties agree to indemnify each other and hold the other party harmless from and against any claim, loss, liability, or expense, including, but not limited to, damages, patent, and trademark infringement, costs and attorneys' fees, arising out of or in connection with any acts or omissions of their agents or employees, as related to the terms of this MoU.

Any claim, compensation, case initiated by any student against RUBICON/CSR DONOR in relation to the Training Program due to any acts or omissions of THE COLLEGE, RUBICON shall be defended and contested by THE COLLEGE at their sole expenses and cost keeping RUBICON/CSR DONOR indemnified from the same.

8. Limitation of Liability:

Except for the indemnification obligations, both parties agree that the liability would be limited to the amount of actual transactions between the two parties

9. Notices:

Any notices under this MOU will be sent by certified or registered mail, return receipt requested, to the respective address of Parties as contained in this MOU. Such notice will be effective upon its mailing as specified.

10. Intellectual Property Rights

10.1. RUBICON explicitly warrants that it owns all the intellectual properties related to content in all formats, the technology framework and all other related objects and the THE COLLEGE has no rights to use the content and mode of delivery for any other purpose.



10.2. Each party hereby undertakes to inform the other party of any violation of Intellectual Property Rights or its unlawful use, under prevalent laws of India Further, each of the party herein, agrees to co-operate with the other to the extent possible in the process of investigating such cases of any violation of Intellectual Property Rights or its unlawful use and taking legal action against the said infringement.

10.3. Upon expiration of this MoU, or two years period of time from the date of completion of the courses, whichever is later, each party hereby agrees that it shall not make any claim on the Trade Name or the copyrights of the other, which belongs exclusively to the other party, nor shall either party use any trade name which is deceptively or confusingly similar to the trade name of the other.

11. Force Majeure:

11.1. Neither party to this MOU shall be liable for any failure or delay on its part in performing any of its obligations under this MOU, if such failure or delay shall be result of or arising out of Force Majeure conditions and, provided that the party claiming Force Majeure shall use its best efforts to avoid or remove such cause of non-performance and shall fulfil and continue performance hereunder with the utmost dispatch whenever and to the extent such cause or causes are removed.

11.2. Any extraordinary event, which cannot be controlled by the parties, shall for the purpose of this MOU be considered as a Force Majeure event. Such events include acts of God, acts or omissions of any Government or agency thereof, compliance with rules, regulations or order of any Government Authority. Provided however, if either party claims that existence of any of the aforesaid conditions is delaying or disabling the performance by said party of its obligations under this MOU, such party shall give immediate notice to the other party of the existence of such conditions whose existence are claimed to delay or disable the performance of obligations as aforesaid.

IN WITNESS WHEREOF, to show their assent, the duly authorized representative of the parties hereto have signed the MoU and set their seals as below:-



Party of the First Part

For H.R.Patel Institute of Pharmaceutical
Education & Research, Karwand Naka,
Shirpur.Tal- Shirpur, Dist- Dhule (M.S.)-425 405

Stamp of the Party

Signature of Authorised

Signatory :

Name of Authorised Signatory



Dr. S. B. Bari

PRINCIPAL


H.R.Patel Institute of Pharmaceutical
Education & Research
Shirpur Dist.Dhule(M.S) 425 405

Designation :

Witness

Signature of Witness

Signatory :



Name of Witness :

Dr. V. K. Chatap
Head

Designation :

Training And Placement Cell



Party of the Second Part

For Rubicon Skill Development Pvt. Ltd.

Stamp of the Party:

Signature of Authorised

Signatory :

Name of Authorised Signatory

Pravir Kumar

Designation

Chief Executive Officer

Witness

Signature of Witness

Name of the Witness

Dipika Patil

Designation

Assistant Manager – Institutional Business



BARCLAYS SPONSORED RUBICON SOFT SKILL DEVELOPMENT PROGRAM

Organized By

H. R. Patel Institute of Pharmaceutical Education and Research

and

H. R. Patel Institute of Pharmacy, Shirpur

Schedule of Training: 03rd to 7th Jan 2023

Venue: S. M. Patel Hall & HRPIPER College

New Hire Training/ Personality Development/ Employability Skills			
Sr. No.	Topic	Learning Objectives	Duration
1	Expectation setting	To learn Industry expectations from fresher's	1
2	Ice breaking	To know more about the trainer & candidates	1
3	Organizational Structure	To learn Organizational structure	2
4	SWOT Analysis	To identify their Strength/Weakness/Opportunities/ Threat	2
5	Corporate Jargons	To learn most commonly used words in corporates	1
6	Public Speaking	To eliminate stage fear+JAM (Just a Minute)	2+1=3
7	Presentation Skills	To articulate your thoughts through Power point presentation	2
8	E-mail Etiquette	To learn E-mail writing skills+Teamwork+CV Writing	1+1+1=3
9	Grooming	Dress to impress/ Proximity/ Personal hygiene/	2
10	Body language	To learn positive body language	2
11	Telephone Etiquette	To handle telephonic round of interview/ To learn call mechanics+Interpersonal Skills	2+1=3
12	Group Discussion	To access candidates' public speaking skills	2
13	Personal Interview	To perform well during interviews	6
Total			30 hrs.





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And

H. R. Patel Institute of Pharmacy, Shirpur

Schedule of Training: 03rd to 7th Jan 2023

Venue: S. M. Patel Hall & HRPIPER College

Local Organizing Committee

Sr. No.	Name of committee	Members	Responsibility
1.	Head, Training and Placement Cell	Dr. V. K. Chatap	Guidance and administrative support
2.	Program Coordinator	Mr. S. K Patil, Mr. D .M Patil & Mr. V. S. Bagul	Organization and framing of activities Co-ordination of every activity
3.	Anchoring Inauguration and Welcome	Mr. M. R. Mahajan & Ms. R. T. Dhole	Anchoring of inauguration and welcome of Guest
4.	Auditorium & Stage	Mr. M. S. Shaikh, Ms A. Y. Pathan, Mr. R. B. Bhaviskar, Mr. Y. G. Marathe, Mr. R. P. Patil	Stage requirements for inauguration, with coordination with others committee.
5.	Printing & Publicity/ News	Mr. P. B. Patil & Mr. N. R. Shirsath	Publicity, printing banners and display
6.	Auditorium sound & LCD system	Mr. M. C. Mali	LCD and sound system & coordination's
7.	Registration Hard Copy	Mr. Z. K. Khatik, Mr. N. P. Pawar, Mr. P. R. Wani, Mr. R. T. Mahajan, Mr. A. D. Pawara, Mr. N. Thakare.	Registration of Candidates and distribution of personal form
8.	Schedule of Training: 03 rd to 7 th Jan 2023 at HRPIPER college	Mr. D. M. Patil, Mr. V. S. Bagul, Mr. Z. K Khatik, Mr. V. K. Patil, Mr. K. A. Wagh, Mr. A. S. Mahale, Mr. A. P. Pawara Mr. M. K. Pawara,	Arrangement of Training personals and smooth conduction of Schedule for students
9.	Photography	Mr. Y. B. Thakur & Mr. H. P. Pawar	All events photos
10.	Feedback of event	Mr. K. B. Patil & Ms. H. T. Jadhav	Online feedback collection
11.	Flex Printing & sticking	Mr. K. S. Dhangar, Mr. S. G. Bhil	Printing of Flex and arrangement of Frame and stick Flex
12.	Finance	Mrs. M. A. Jadiye & Mr. G. U. More	

Note: Bold letters members are in-charge of respective committees for smooth conduction of training schedule.

Dr. V. K. Chatap
Head, Training and Placement Cell
Training And Placement Cell



Dr. P. B. Ninave
Principal
H. R. Patel Institute of Pharmacy Shirpur

Dr. S. B. Bari
Principal
H.R. Patel Institute of Pharmaceutical Education & Research Shirpur Dist. Dhule (M.S) 425 406



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2.	Program Coordinator	Mr. S. K Patil, Mr. D .M Patil & Mr. V. S. Bagul	Organization and framing of activities Co-ordination of every activity
3.	Anchoring Inauguration and Welcome	Mr. M. R. Mahajan & Ms. R. T. Dhole	Anchoring of inauguration and welcome of Guest
4.	Auditorium & Stage	Mr. S. M. Maniyar, Ms A. Y. Pathan, Mr. R. B. Bhaviskar, Mr. Y. G. Marathe, Mr. R. P. Patil	Stage requirements for inauguration, with coordination with others committee.
5.	Printing & Publicity/ News	Mr. P. B. Patil & Mr. N. R. Shirsath	Publicity, printing banners and display
6.	Auditorium sound & LCD system	Mr. M. C. Mali	LCD and sound system & coordination's
7.	Registration Hard Copy	Mr. Z. K. Khatik, Mr. N. P. Pawar, Mr. K. S. Dhangar, Mr. R. T. Mahajan, Mr. A. D. Pawara, Mr. N. Thakare.	Registration of Candidates and distribution of personal form
8.	Schedule of Training: 03 rd to 7 th Jan 2023 at HRPIPER college	Mr. D. M. Patil, Mr. V. S. Bagul, Mr. Z. K Khatik, Mr. V. K. Patil, Mr. K. A. Wagh, Mr. A. S. Mahale, Mr. P. R. Wani, Mr. S. G. Bhil, Mr. A. P. Pawara Mr. M. K. Pawara	Arrangement of Training personals and smooth conduction of Schedule for students
9.	Photography	Mr. Y. B. Thakur & Mr. H. P. Pawar	All events photos
10.	Feedback of event	Mr. K. B. Patil & Ms. H. T. Jadhav	Online feedback collection
11.	Finance	Mrs. M. A. Jadiye & Mr. G. U. More	

Note: Bold letters members are in-charge of respective committees for smooth conduction of training schedule.

Dr. V. K. Chatap

Head, Training and Placement Cell

Head

Training And Placement Cell



Dr. P. B. Ninave

Principal

Dr. S. B. Bari

Principal

PRINCIPAL

H.R Patel Institute of Pharmaceutical Education & Research
Shirpur Dist.Dhule(M.S) 425 405

Final Training Program Schedule

2 messages

Priya Bagul <priyab@rubiconngo.org>

Sat, Dec 17, 2022 at 10:23 AM

To: "Dr. Vivekanand Chatap" <hrpiperplacement@gmail.com>

Cc: Shraddha Jadhav <shraddhaj@rubiconngo.org>

Hello Sir,

As per the discussion,

Please Ask students to be ready 15 min before the time with the setup,

Please ensure that the attendance remains the same for all the 5 days i.e. from
3-Jan-2022 to 7-Jan-2022 (30 hours)

Dates of training:- 3-Jan-2022 to 7-Jan-2022

Timing of Training: 10.00 AM to 05:00 PM(4 Batches)

Holiday:- No Holiday

Note- 1) Ask students to follow all the instructions given in what's app group given by
Co-coordinator and trainer also.

2) Need to create a whats app group as per Registration data.

3) Please ensure every registered student should attend the session.

4) We will provide the certificates as per the attendance & Registrations.

Acknowledge the same.

--

Thanks and regards

Priya Atul Bagul

Specialist Institutional Business

Rubicon Skill Development Pvt. Ltd.

Mob. No- 8149368229

Dr. Vivekanand Chatap <hrpiperplacement@gmail.com>

Thu, Dec 22, 2022 at 4:51 PM

To: Priya Bagul <priyab@rubiconngo.org>

Hi dear sir/madam

Our students will follow the instruction given by trainer and also our faculty members will also present during skill
development program

With Best Regards

Dr. Vivekanand Kisan Chatap

Associate Professor

Department of Pharmaceutics

H.R.Patel Institute of Pharmaceutical Education & Research, Karwand Naka,

Shirpur.Tal- Shirpur, Dist- Dhule (M.S.)-425 405

Mobile no-09403145731/09579917420, <http://hrpatelpharmacy.co.in/>**Head-Training and Placement Cell**Recently organized pool campus drive for **Sun Pharmaceutical Industries Ltd Halol, Baroda Gujrat** on date from
17/5/2022 and selected 145 students**Program Co-ordinator,**

Inspire Internship Science Camp

Sponsored by Department of Science and Technology, Govt. of India



Dr. Vivekanand Chatap <hrpiperplacement@gmail.com>

Questionnaires Regarding LifeSkills Training Program.

2 messages

Priya Bagul <priyab@rubiconngo.org>

Sat, Dec 17, 2022 at 10:21 AM

To: "Dr. Vivekanand Chatap" <hrpiperplacement@gmail.com>

Cc: Shraddha Jadhav <shraddhaj@rubiconngo.org>

Dear Sir,

Greetings from Rubicon.

As per our training program, we need confirmation from you regarding some points

- There will be no placement drive, and exam schedule during our training program period 3-Jan-2022 to 7-Jan-2022 (30 Hrs Session)

- Students are well aware of the timings and dates of training programs and they can join the training session on a given time without failures.

Please provide confirmation on the same as soon as possible.

—
Thanks and regards

Priya Atul Bagul
Specialist Institutional Business
Rubicon Skill Development Pvt. Ltd.
Mob. No- 8149368229

Dr. Vivekanand Chatap <hrpiperplacement@gmail.com>

Thu, Dec 22, 2022 at 4:47 PM

To: Priya Bagul <priyab@rubiconngo.org>

Hi dear sir/madam

Thanks you for providing opportunity to our students for the same

With Best Regards

Dr. Vivekanand Kisan Chatap

Associate Professor

Department of Pharmaceutics

H.R.Patel Institute of Pharmaceutical Education & Research, Karwand Naka,

Shirpur.Tal- Shirpur, Dist- Dhule (M.S.)-425 405

Mobile no-09403145731/09579917420, <http://hrpatelpharmacy.co.in/>

Head-Training and Placement Cell

Recently organized pool campus drive for **Sun Pharmaceutical Industries Ltd Halol, Baroda Gujrat on date from 17/5/2022 and selected 145 students**

Program Co-ordinator,

Inspire Internship Science Camp

Sponsored by Department of Science and Technology, Govt. of India

Organizing Secretary,

ASOJ PHARMVENTION AWARD

Sponsored by ASOJ SOFT CAPS PVT LTD, BARODA, GUJRAT, will be held every year at HRPIPER, Shirpur

<http://www.hrpatelpharmacy.co.in/pharmvention.php>

Ex-President,



President :
Shri Amrishbhai R. Patel
M.L.A.

Principal :
Dr. S. B. Bari
M.Pharm. Ph.D., D.I.M.F.J.C.

Activity report

Submitted to
The Principal,

H. R. Patel Institute of Pharmaceutical Education and Research, Shirpur

Name of Activity	Five Days Skill Development Programme
Organizer	HRPIPER Training & Placement Cell
Venue	HRPIPER, Shirpur
Name of Speaker With contact details	1. Syed Mustakim 2. Mohammad Yousuf 3. Mirza Arshad Baig 4. Shashank Sahay 5. Sagar Sable
Date of activity	03 rd to 07 th Jan 2023
Objectives	To provide opportunity for realizing one's potential through practical experience
In charge	Dr. V. K. Chatap, Mr. S.K. Patil, Mr. D. M. Patil & Mr. V. S. Bagul
Number of Participant	314
Brief Report on activity	Life skills are distinct as "a group of psychosocial competencies and interpersonal skills that help people make informed decisions, solve problems, think critically and creatively, communicate effectively, build healthy relationships, empathize with others, and cope with and manage their lives in a healthy and productive manner. Life skills may be directed toward personal actions or actions toward others, as well as toward actions to change the surrounding environment to make it conducive to health."
Photograph Of activity	

H. R. Patel Institute of Pharmaceutical Education and Research

NBA accredited B. Pharm Programme

'Serving Nation's Health'

Karwand Naka, Shirpur - 425405, Dist : Dhule (MS).

☎ (02563) 257599, ☎ 9423918023, 9850223277.

🌐 <http://www.hrpatelpharmacy.co.in> 📧 principal@hrpatelpharmacy.co.in, registrar@hrpatelpharmacy.co.in



President :
Shri Amrishbhai R. Patel
M.L.A.

Principal :
Dr. S. B. Bari
M.Pharm. Ph.D., D.I.M.F.J.C.

<p>Outcome</p>	<ul style="list-style-type: none"> ▪ Appreciate the intangible benefits of art in society. ▪ Question one's own beliefs and recognize personal bias. ▪ Understand the value of ethics in business leadership.

Dr. S.B. Bari
Dr. S.B. Bari

PRINCIPAL
H.R. Patel Institute of Pharmaceutical
Education & Research
Shirpur Dist. Dhule (M.S.)

Dr. V. K. Chatap
Dr. V. K. Chatap
Head

Training And Placement Cell



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