To

The Principal,
Govt. College for Girls,
Ludhiana.

Subject: Permission for accompanying the Educational Tour

Respected Mam,

With due respect, we wish to bring to your kind notice that as per the Punjab University curriculum, the students of M.Sc. (Botany) have to submit a field report in their final semester. Along with the M.Sc. students, students of B.Sc. (Medical) are also interested in accompanying the tour. We have planned to take students on a one-day tour to Kasauli (H.P.) on 08-04-2024.

The following staff will accompany the students for the trip:

1. Dr. Tarunpreet Singh Thind
2. Dr. Rupinder Kaur
3. Dr. Avneet Kaur
4. Ms. Vidushi Gupta
5. Mr. Jasvir Singh (Lab Attendant)

Kindly permit us to accompany the educational tour.

Thanking You

Yours Sincerely,

Dr. Tarunpreet Singh Thind

Dr. Rupinder Kaur

Dr. Avneet Kaur

Ms. Vidushi Gupta

Mr. Jasvir Singh (Lab Attendant)

Ramanjit Bhatti
Head
PG Department of Botany

Government College for Girls

Rakh Bagh, Ludhiana, Punjab 141001

NAAC Accrediated 'A" Grade

Ref. No. 5676

Date. 06/04/2024

To

The Air Force Headquarters,
Kasauli.

Sub: Permission for Educational Visit

Sir,

PG Department of Botany is organizing evaluative educational field trip to Kasauli. You are requsted to allow our students and the following staff members of the college to visit Air Force Headquarters, Kasauli on 8th April, 2024.

1.	Dr. Tarunpreet Singh Thind	*Asst. Prof. in Botany*	*(In-Charge)*
2.	Dr. Rupinder Kaur	*Asst. Prof. in Botany*	
3.	Dr. Avneet Kaur	*Asst. Prof. in Botany*	
4.	Ms. Vidushi Gupta	*Project Assiatant*	
5.	Mr. Jasvir Singh	*Lab Attendant*	

There will be 50 students accompanying the trip. *The list of the students, accompanying the trip, is enclosed alongwith.*

Principal **Principal**
Govt. College for Girls
Ludhiana

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List of Students for visit to Kasauli

S. NO	NAMES	CLASS
1	ANIKA	MSC BOTANY 1
2	ANSHIKA	MSC BOTANY 1
3	ANUREET	MSC BOTANY 1
4	ASHMEET	MSC BOTANY 1
5	HARMANJOT	MSC BOTANY 1
6	HARSHLEEN	MSC BOTANY 1
7	HEMLATA	MSC BOTANY 1
8	SAMREET	MSC BOTANY 1
9	NEERAJ	MSC BOTANY 1
10	AANCHAL	MSC BOTANY 2
11	GURJIT	MSC BOTANY 2
12	HARJOT	MSC BOTANY 2
13	HARLEEN	MSC BOTANY 2
14	AMANDEEP	MSC BOTANY 2
15	GARIMA	MSC BOTANY 2
16	RISHITA	MSC BOTANY 2
17	NISHU	MSC BOTANY 2
18	PALWINDER	MSC BOTANY 2
19	JASHAN	MSC BOTANY 2
20	SHIVANI	MSC BOTANY 2
21	ANUSHIKA	MSC BOTANY 2
22	ADITI ANAND	BSC MED 1
23	ANMOLDEEP	BSC MED 1
24	ASMI SOOD	BSC MED 1
25	CHHAVI	BSC MED 1
26	DHANVI	BSC MED 1
27	GURSIMRAN	BSC MED 1
28	JAISLEEN	BSC MED 1
29	KOMAL	BSC MED 1
30	KOMALPREET	BSC MED 1
31	PALAK	BSC MED 1
32	PRIYA	BSC MED 1
33	RINKY	BSC MED 1
34	SHEELA	BSC MED 1
35	SHIVANI	BSC MED 1
36	SUKHMANJYOT	BSC MED 1
37	BHAVIKA	BSC MED 1
38	KANAM	BSC MED 2

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39	KISHIKA	BSC MED 2
40	VANEET	BSC MED 2
41	AMANDEEP KAUR	BSC MED 2
42	MUSKAN	BSC MED 2
43	SUMANDEEP	BSC MED 2
44	AMRITPAL KAUR	BSC MED 2
45	SUMANDEEP KAUR	BSC MED 2
46	JASLEEN KAUR	BSC MED 2
47	JASKIRAT KAUR	BSC MED 2
48	LAKHWINDER KAUR	BSC MED 2
49	SUPREET GROVER	BSC MED 2
50	ISHITA	BSC MED 1

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Field Trip to Kasauli & Adjoining Areas

Objectives:

The purpose of the field trip for the M.Sc. (Botany) students is to offer them the opportunity to engage in hands-on and interactive learning experiences that go beyond reading textbooks and listening to lectures. Field trip to Kasauli and adjoining areas was planned to enhance students understanding and knowledge of the flora of Kasauli by exposing them to real-world and also understanding applications of the subject of botany.

Outcomes:

1. Experiential learning: Field trip to Kasauli helped students to deepen their understanding of various concepts of Taxonomy and Embryology of angiosperms. They also studied various species of pteridophytes and gymnosperms in detail.

2. Application of knowledge: The trip allowed students to see how the theories and concepts of various topics of plant sciences, they learnt in the classroom, are applied in practical settings. This helped bridge the gap between theoretical knowledge and its real-world application, thus making the learning more meaningful and relevant.

3. Observation and exploration: Field trip provided students with the chance to observe and explore different sites around Kasauli to have the natural view of wild roses, rhododendrons, coral tree, flame of the forest, kachnar and kashmal. This firsthand exposure helped stimulate curiosity, critical thinking, and observation skills.

Course *In charge*

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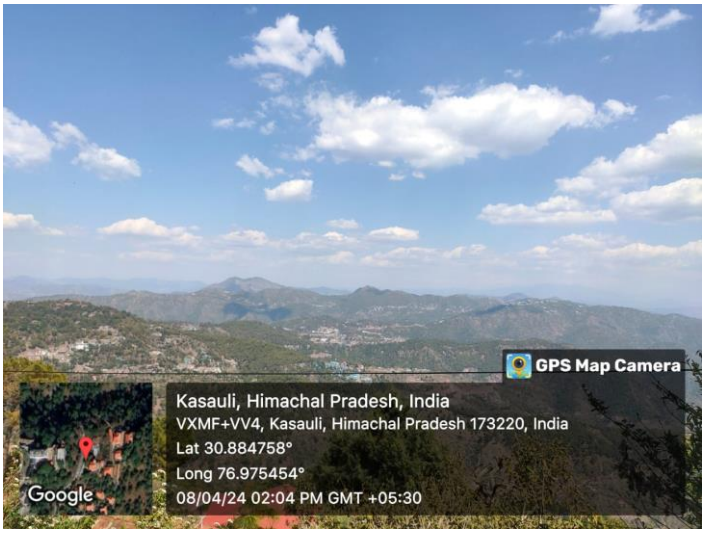
Exploring Flora of Kasauli & Adjoining areas



Species studied at Kasauli

5.Bamboo (Angiosperm)

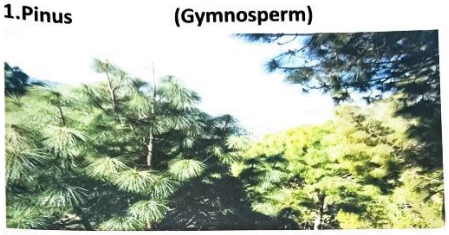
Botanical name- Bambusa vulgaris

Family – poaceae

Description: • Bamboo is a woody plant with a hollow stem that's in the grass family.

• It is the fastest growing plant on the planet.

1.Pinus (Gymnosperm)



Botanical name- Pinus roxburghii

Family – Pinaceae

Description : • Pinus is a conifer tree or shrub reaching 30-50m in height.

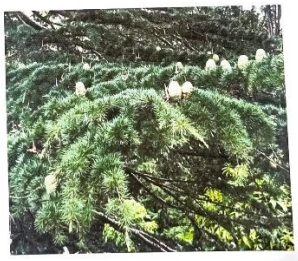
• The bark is Red-brown ,thick and deeply fissured at the base of the trunk, thinner and flaky in the upper crown.

• The leaves are needle-like, in fascicles of three, very cylinder, long and distinctly yellow green.

• The cone are ovoid conic, long and broad at the base when closed.

- Zinnias – Zinnias are among the many types of flora that grow in Kasauli .They come in a wide range of flower colors and shapes, and they can withstand hot summer temperatures and are easy to grow from seeds. They are grown in fertile, humus-rich, and well-drained soil, in an area with full sun.

- Cedar (Cedrus deodara) – Native to the Himalayas . Its form is broadly pyramidal when young; its pendulous or weeping branches become wide and spreading, as its central leader often dies out.It grows in places that are 1500–3200 m above sea level. It is a large evergreen coniferous tree reaching 40–50 m tall, exceptionally 60 m, with a trunk up to 3m thick.



6.*Rosa multiflora.* *(Angiosperm)*

Botanical name- Rosa polyantha

Family - Rosaceae

Description:

- *It is a scrambling shrub climbing over other plants with stout stem with recurved prickles.*
- *Leaves are 5 to 10 cm long,compound with 5 to 9 leaflets and feathered stipules*
- *The flowers are produced in large columns each flower is small, white or pink borne in early summer.*

AESCULUS

Botanical name- *Aesculus hippocastanum*
Common Name- Horse chestnut
Family- Sapindaceae

MORPHOLOGYICAL FEATURES

- Leaves: The leaves are palmately compound, meaning they consist of 5 to 7 leaflets radiating from a central point. Each leaflet is ovate or lanceolate in shape, with serrated margins. The leaves are dark green in color
- Flowers: Horse chestnut trees produce showy, upright clusters of flowers called panicles. Each flower has four or five petals and is usually white or cream-colored with yellow or red markings near the base.
- Fruits: The fruits are large, round capsules known as conkers or horse chestnuts.
- Bark: The bark of horse chestnut trees is smooth and gray when young, becoming rough and furrowed with age. The bark often develops distinctive fissures and ridges as the tree matures.
- Height: capable of reaching heights of 20 to 30 meters when mature.
- Branches: The branches of horse chestnut trees are stout and spreading, with a somewhat irregular branching pattern.
- Root System: Horse chestnut trees typically have shallow root systems

6.Bridal wreath spirea (Angiosperm)

Botanical Name: Spiraea prunifolia

Common name: Bridal wreath spirea

Family: Rosaceae

Description:● Bridal wreath spirea is an old-fashioned, upright, clumping, flowering, deciduous shrub.

● It tends to be twiggy in form, loose and fountain-like and the bark is shiny, smooth, and brown.

●Small, elliptical to ovate, shiny, dark green leaves with fine-toothed margins.

●Double white flowers measuring 1/3 inch in diameter and appear in early spring.

IPOMEA

Botanical Name- *Ipomea purpurea*

Common Name- morning glory

Family – Convolvulaceae

MORPHOLOGYICAL FEATURES

- Leaves: The leaves are heart-shaped or palmately lobed, with deep, rounded lobes. They are typically medium to dark green in color and have a smooth texture. The leaves are arranged alternately along the stems.
- Stems: The stems are slender, twining, and capable of climbing by wrapping around supporting structures. They may be green or reddish in color and become woody with age.
- Flowers: The flowers are trumpet-shaped and showy, typically measuring 5 to 7 cm in diameter. They come in various shades of purple, ranging from deep violet to lavender. Some cultivars may have flowers in other colors, such as white or pink. The flowers typically bloom in the morning and close by afternoon, hence the common name "morning glory."
- Fruits: it produces small, spherical seed capsules containing several seeds. The capsules may be covered in fine hairs
- Root System: Common morning glory plants have a fibrous root system .

LANTANA

Botanical Name-*Lantana spp.*

Common Name – Verbena, Spanish Flag, Tick Berry

Family- Verbenaceae

MORPHOLOGYICAL FEATURES

- Lantana spp., commonly known as lantanas, are shrubs
- Leaves: Lantana leaves are opposite, They are ovate to lanceolate in shape, with serrated margins.
- Stems: The stems of lantanas are usually square in cross-section and can become woody with age. They may be hairy or smooth
- Flowers: Lantana flowers are small, tubular, and arranged in clusters known as umbels. The flower clusters can be various colors, including shades of pink, orange, yellow, and purple.
- Fruits: berry-like fruits that are usually black or dark purple when ripe. These fruits are mildly toxic if ingested.
- Growth Habit: grow as low shrubs, but some species can reach heights of several feet. They have a sprawling growth habit and can spread rapidly, making them invasive in some regions.
- Roots: Lantanas have fibrous roots that help anchor the plant and absorb water and nutrients from the soil.

4.Red flower Iris. **(Angiosperm)**

Botanical name- Iris milesii

Family -Iridaceae

Description –

- **The flower is easily distinguished by its stout branched inflorescence with large flowers up to 8 cm across, pale mauve with dark veins and with Obovate falls with a pale much-cut crest.**
- **Flowers are about 6 to 10 cm in diameter, Pinkish-violet with darker spots. Falls with fringed yellow crest.**

- Black hawthorn (Crataegus douglasii) – **tree or shrub that can grow up to 35 feet tall. It has straight, strong thorns that are 0.5–1 inch long, and broad leaves that are 1.5–2.5 inches long. The leaves are serrated at the tip, and the tree has dark, shiny leaves. Black hawthorn is most common in the Pacific Northwest. It has dense clusters of white flowers that attract many insect pollinators, and its dark leaves provide host properties for native butterfly and moth larvae.**

7.Nettle. *(Angiosperm)*

Botanical name- Urtica dioica

Family - Urticaceae

Description:

- *Urtica dioica is a diocious, herbaceous, perennial plant 3 to 7 feet tall in summer and dying down to the ground in winter.*
- *The soft green leaves are 1 to 6 inches long and are borne oppositely on an erect green stem.*
- *The leaves have a strongly serrated margin with a chordate base.*

RHODODENDRON

Botanical Name- *Rhododendron Spp.*
Common Name- Pink Azalea; Pinxter Flower
Family – Ericaceae

MORPHOLOGYICAL FEATURES

- Leaves: leaves are generally leathery and evergreen, arranged alternately , vary in shape from lanceolate to elliptical. The leaves often have a glossy or waxy texture.
- Flowers: Rhododendron flowers are typically large and showy, arranged in clusters at the ends of branches. They come in a wide range of colors, including shades of white, pink, red, purple, yellow, and orange. The flowers have a tubular shape with five or more petals, and they often have prominent stamens.
- Stems: stems can be woody or flexible, depending on the species. They may have a smooth or slightly rough texture and can range in color from green to brown.
- Size: Rhododendron species vary widely in size, from low-growing shrubs to tall trees. Some species can reach heights of up to 30 meters or more
- Roots: Rhododendrons typically have shallow root systems
- Fruits: produce small, dry capsules containing numerous seeds.