

UNIVERSITY OF CALCUTTA.

EXAM-2023, SEM-IV, (ABC)

EXCURSION TO PHYGEOGRAPHICAL REGION

SUBJECT - BOTA (H)

PAPER - CC8

ROLL- 213044- 11- 0063.

REG - 044- 1214- 0205-21

EXAMINED  
Dept. Botany  
Dinabandhu Andre. College Centre (052)  
Garia, Kolkata-700084

UNIVERSITY OF CALCUTTA

BSC SEMESTER-IV (HONOURS) EXAM-2023 (CBCS)

EXCURSION TO PHYGEOGRAPHICAL REGION TO

EASTERN HIMALAYAN REGION - DARJEELING-MIRIK

PAPER-(00-8)

SUBJECT- BOTANY (BOJA)

CU-ROLL.NO - 213044-11-0063.

CU-REG. NO - 044-1214-0205-21

EXAMINED  
Dinabandhu Andre  
Garia, Kolkata 700044

# INTRODUCTION

Nestled in the lap of the Eastern Himalayas, Darjeeling stands as a picturesque gem known for its enchanting landscapes, diverse flora, and culture. Located in Bengal, Darjeeling offers a unique blend of natural beauty, altitude-driven ecosystems and vibrant communities. This region, renowned for its biodiversity and breathtaking views, attracts researchers, tourists and adventure-seekers alike.

## → LOCATION & ALTITUDE:

Darjeeling is situated on the northeastern part of India, bordering Nepal, Bhutan and the state of Sikkim.

Its geographical coordinates are  $27.0417^{\circ}\text{N}$  latitude and  $88.2667^{\circ}\text{E}$  longitude. The town itself is perched at an elevation of 2050 metres (6,710 feet) above sea level.

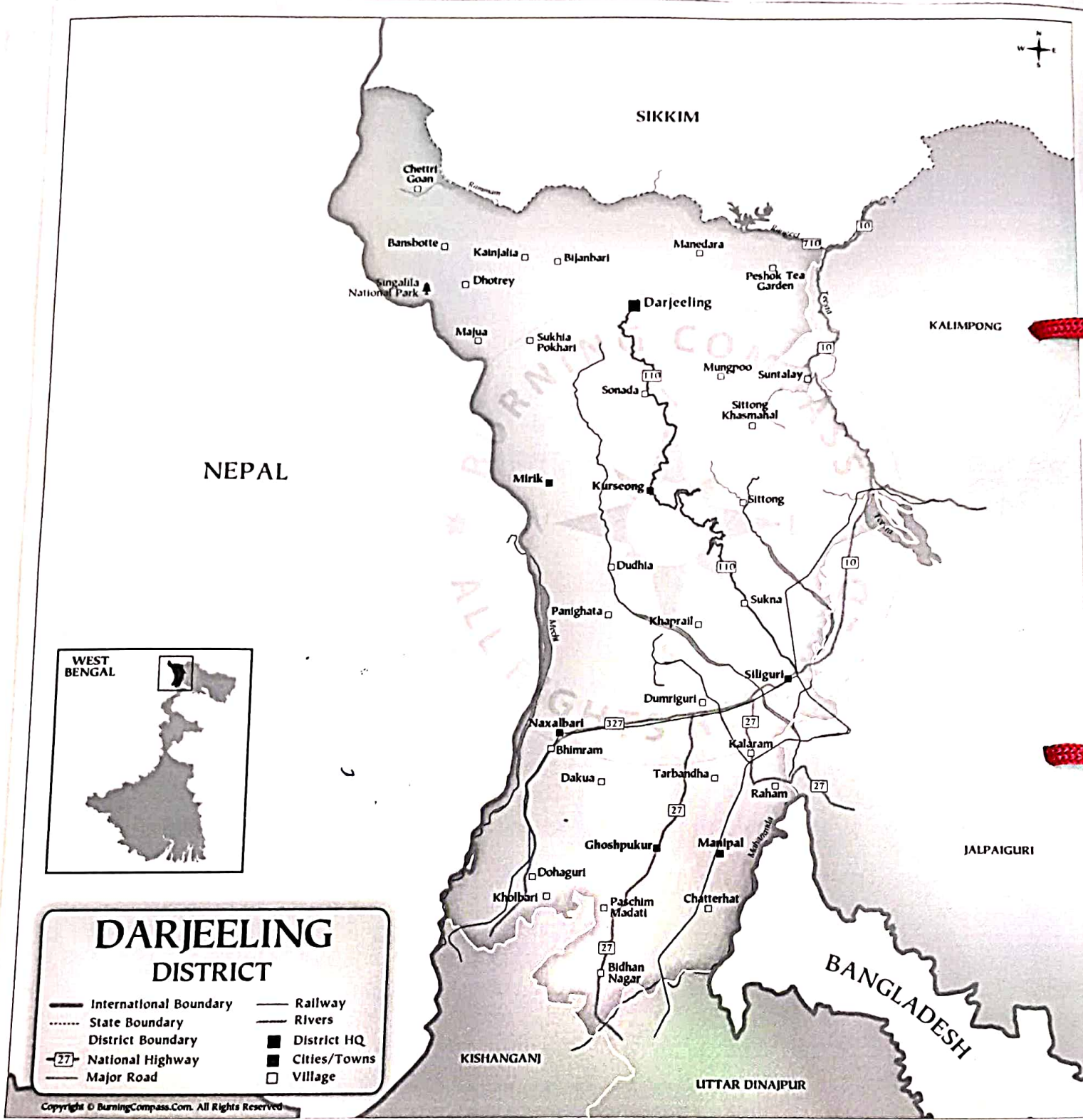
## → POPULATION & COMMUNITIES:

The population of Darjeeling is a vibrant melting-pot of diverse ethnicities and cultures. The predominant communities include the Gorkhas who have rich history in the region, as well as Tibetan refugees and various indigenous groups.

## → PROMINENT PLACES AND LANDMARKS:-

1. Tiger Hill.
2. Batasia Loop and War Memorial





Map of Darjeeling and Mirik.

3. Darjeeling Himalayan Railway.
4. Ghoom Monastery.
5. Padmaja Naidu Himalayan Zoological Park.

### → MAJOR FLORA:-

The flora of Darjeeling is as diverse as its landscape. The Region's latitudinal variation has fostered distinct vegetation zones.

1. Subtropical zone.
2. Temperate zone.
3. Alpine zone.
4. Endemic species.

### → ROUTE:-

We boarded the Kanchankanya Express from Sealdah Station on 2<sup>nd</sup> May at 8:30 pm and reached Siliguri Station by 8:00 am. We took a bus to Mirik where we reached by noon. We had a night-stay at Mirik, visited the Mirik Lake and a social forest and left for Darjeeling the next morning where we reached by evening on 4<sup>th</sup> May.



Hiroik Lake.





Darjeeling hill areas is unique from environmental perception. The relief varies from 100 mts. above sea level to the mighty Kanchejunga. There are different climatic zones with distinctive attributes and there are endangered animals like the red panda etc. along with memory orchids and medicinal plants are available in the hilly region.

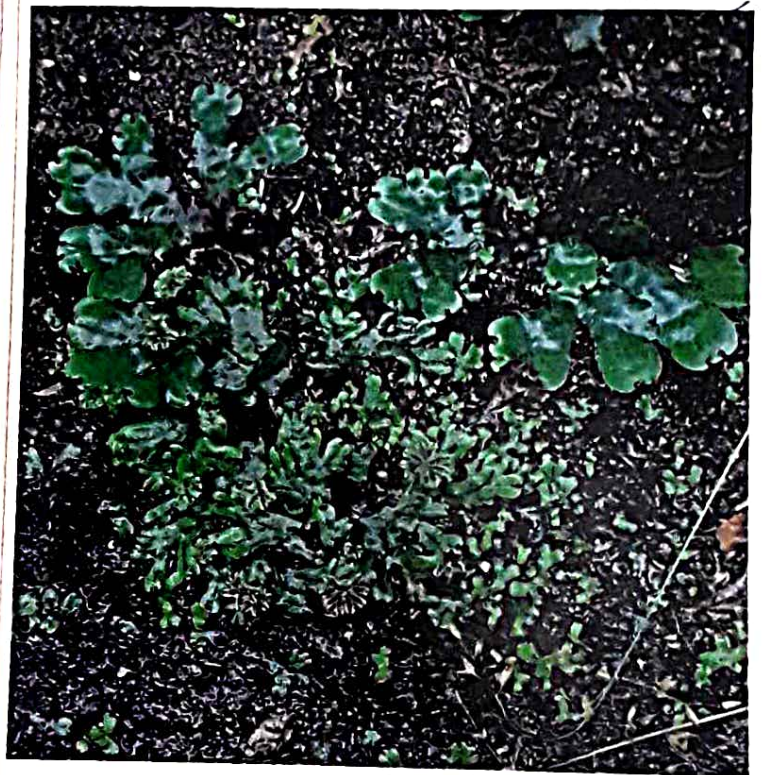
The hill areas of Darjeeling District are located within the Lesser and Sub-Himalayan belts of the Eastern Himalayas. The area is bound by the Sikkim Himalaya in the north, Bhutan Himalaya in the east and Nepal Himalaya in the west. The Southern foothill belt is demarcated by highly dissipated platform of terrace deposits extending along the east-west axis. The inner belt is defined by a ridgeline stretching from Darjeeling Hill to the West and Kalimpong Hill to the east, overlooking the southerly flowing Tista valley in between. Prominent rivulets contributing to the Rammam-Rangit basin, dissipate the northern slope of Darjeeling Hill.

Important Rivers Inflow:-

Tista, Great Rangit, Mechi, Balason, Mahananda, Lish, Gish, Chel, Rammam, Munti and Janchaka



Trestephnia (Trestephniaceae)  
(Cryptogam)



Marchantia sp  
(Marchantiaceae)



Darjeeling Gneiss → In higher reaches of hill areas, the Dalings gradually grade into the more metamorphosized rocks, which are known as Darjeeling Gneiss. The dips of the rocks are irregular and vary in between  $48-70^\circ$ . Highly foliated due to metamorphism.

### → SOIL:

In general the soils have been developed by both fluvial action and lithological disintegration. The soils that have developed in the Kalimpong area are predominantly reddish in colour. Occasional dark soils are also found due to phyllites and schists. Soils in highlands of west to the east and along most interfluvial areas are mainly mixed sandy loam and loamy, while those on Mirik and Kurseong are reddish clayey loam. All soils are definitely acidic in nature with tendency to increase slightly with depth. The basic soil types are yellow red-brown and brown forest soil.

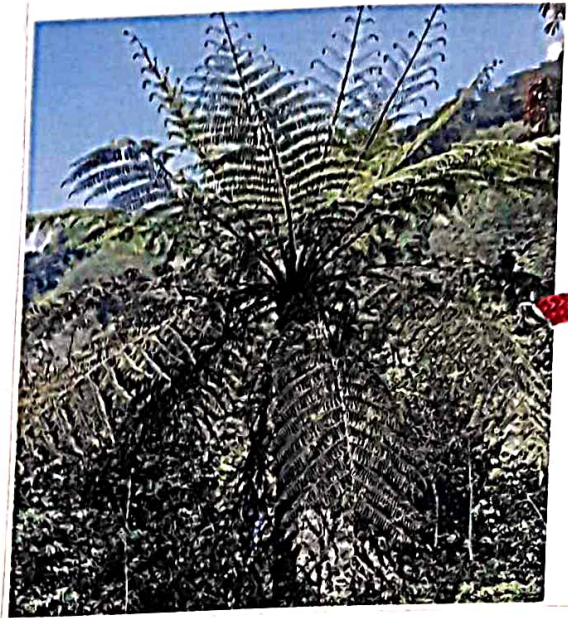
### → CLIMATE:-

A very high intensity of rainfall within in a short time span is common in the Darjeeling hill areas. The mountain front is exposed to heavy rainfall, especially





Diplazium glaucum  
(Gleicheniaceae)



Cyathea sp.  
(Cyatheaceae)



Hypolepis punctata  
(Asplenaceae) / Polypodiaceae



Plagiochasma sp.  
(Autoniaceae) Cryptogam.



Cleodendrum bracteatum, C. viscosum, Dioscorea bulbifera, D. glabra, Smilax perfoliata. Thickets of Amaranthus spinosus, Lantana camara, Sida acuta etc.

## 2. Tropical Evergreen zone:-

Altitude  $\rightarrow$  1200m above sea level.  
This zone receives heavy rainfall and the relative humidity is about 80%.  
One striking feature of these tropical forest is extremely mixed dominance. Trees shed their leaves but no tree remains completely leafless.  
Species include Castanopsis indica, Ficus auriculata, Litsea litseoides, Lithocarpus fenestratus, Symplocos glomerata and etc. Dense herbaceous species include Lycium mollissimum, Crotalaria albida and etc.

## 3. Subtropical Evergreen zone:-

Altitude between 1200-1800m.  
Characterized by heavy rainfall, moderately cold temperature and high humidity.  
Species of trees include Lithocarpus elegantis, Proun nepaulensis, Rhododendron arboreum, Alnus nepaulensis, etc. Species of second storey include Quercus glauca, Acer oblongum, etc.  
Shrubby species of Solanum indicum, Urena lobata and etc. Orchids like Calanthe spp., Gonolobus spp. and etc.

## 4. Temperate Mixed zone:-

Altitude between 1800-2630m. Heavy rainfall, high humidity and very cold temperatures.  
Species include Rhododendron arboreum, R. gran





Cryptomeria japonica common name → Dhupi.  
male cone. (Cupressaceae)



Pinus sp. (Pinaceae)



Female cone, of  
Cryptomeria japonica



R. griffithianum, Magnolia campbelli, Michelia dolostopa, Acer sikkimense, Prunus undulata, Cinnamomum bejolghota, Brassaiopsis alpina, Daphne bhola. Species of Selaginella and Lycopodium found everywhere.

## B. SECONDARY VEGETATION:-

### 1. Tropical Deciduous and Evergreen zone:-

Cassia tora, Oxalis corniculata, Mimosa pudica are some species. Some species of grasses are Cyperus spp., Digitaria cruciata etc. Herbaceous plants like Commelina pallidosa, Cardamine scutata etc. Forest trees like Chenopodium amorooides, Ageratum conyzoides and bamboos like Arundinella bengalensis and Bambusa pallida.

### 2. Subtropical Evergreen zone:-

Tall grasses like Agrostis pilosula and shorter ones like Eragrostis nigra. Common shrubby herbaceous plants like Geranium nepalense, Hydrocotyle himalaica and etc. Common trees are Lithocarpus elegans, Prunus cerasoides, Alnus nepalensis and etc. Species of Bamboo Arundinaria maling, Dendrocalamus hamiltonii and Orchids like Bulbophyllum striatum etc.

### 3. Temperate Mixed zone:-

Trees like Quercus pachyphylla, species of Symplocos and Rubus. Herbaceous plants like Edgaria darjeelingensis, Begonia megaptera and etc.





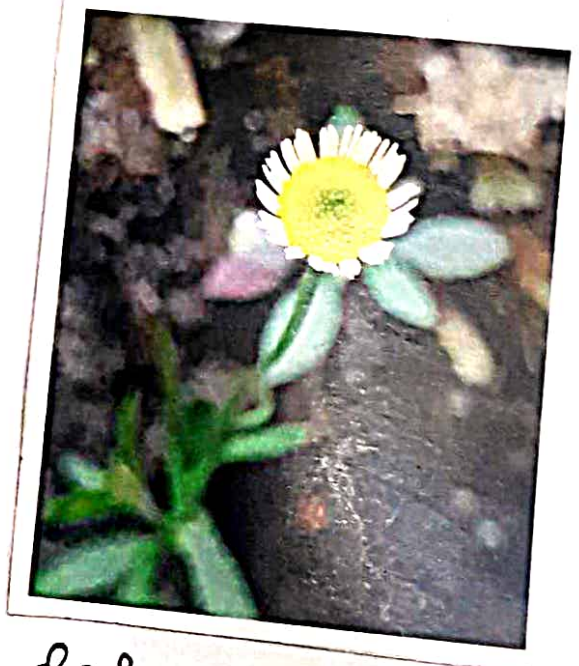
Rhododendron sp.  
(Ericaceae)



Parakeetus communis  
(Fabaceae)



Oxalis corniculata  
(Oxalidaceae)



Erigeron sp.  
(Asteraceae)

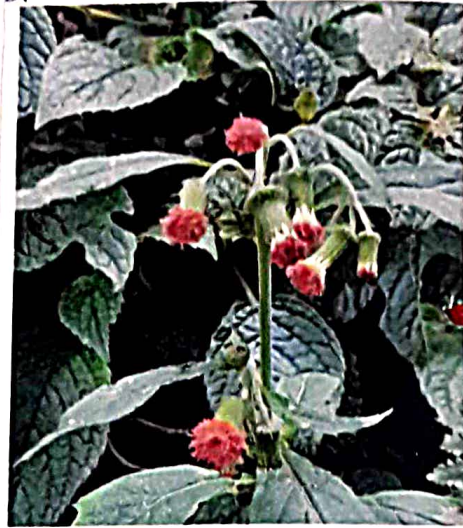


## (II) MARSHLAND:-

Species like Commelina paludosa, Colocasia esculenta, Oenanthe javanica, Mimulus nepalensis, Polygonum hydropiper, Commelina sikkimensis, Pimpinella sikkimensis are some to name.



Hydrangea sp.  
(Hydrangeaceae)



① rassocephalum ② repidioides  
(Asteraceae)

Removal / removal  
Scarlet / blood

Family

Lamiaceae

Ericaceae



Gentiana sp.  
(Gentianaceae)



Geranium wallichianum  
(Geraniaceae)



Botanical Name

1. Salvia coccinea

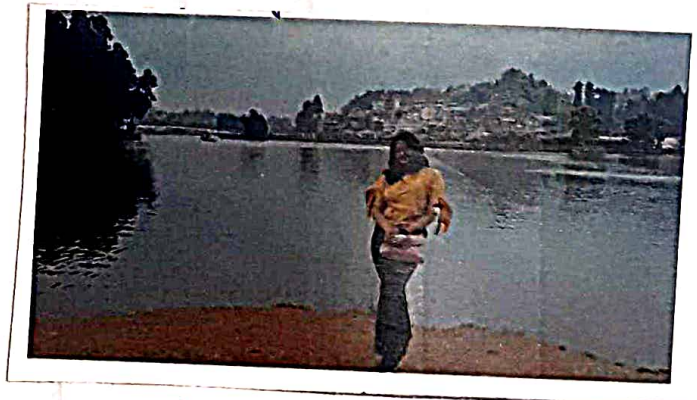
2. Rhynchospora sp.



Botanical Name	Family	Remark / Probable Use
1. <u>Salvia coccinea</u>	Lamiaceae	Scarlet / blood sage
2. <u>Rhododendron</u> sp.	Ericaceae	
3. <u>Hydragea</u> sp.	Hydrageaceae	
4. <u>Viola</u> sp.	Violaceae	
5. <u>Impatiens stenantha</u>	Balanitaceae	Narrow flowered bulb
6. <u>Crassocephalum crepidioides</u>	Asteraceae	e tolo
7. <u>Psoralea communis</u>	Fabaceae	Shamrock pea
8. <u>Erigon</u> sp.	Asteraceae	Canada fleabane
9. <u>Gentiana</u> sp.	Gentianaceae	
10. <u>Oxalis coniculata</u>	Oxalidaceae	Creeping wood sor
11. <u>Geranium wallichianum</u>	Geraniaceae	Cranebill
12. <u>Digitalis purpurea</u>	Scrophulariaceae	foxglove



Group picture.



Mirik Lake.

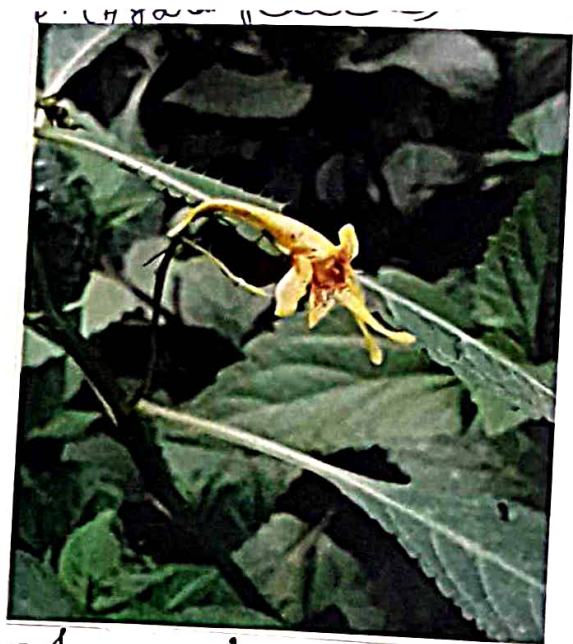


Botanical Name	Family	Remark/Probable Use.
13 <u>Chenopodium</u> sp.	Chenopodiaceae	algae.
14 <u>Plagiocharma</u> sp.	Dyttoniaceae.	liverwort, bryophyte.
15 <u>Marchantia</u> sp.	Marchantiaceae	liverwort.
16 <u>Selaginella</u> sp.	Selaginellaceae	pteridophyta
17 <u>Equisetum</u> sp.	Equisetaceae	pteridophyta
18 <u>Cyathea</u> sp.	Cyatheaceae	tree fern.
19 <u>Hypolepis</u> <u>punctata</u>	Polypodiaceae	pteridophyte, tree free.
20 <u>Diplazium</u> <u>glaucom</u>	Gleicheniaceae	pteridophyte fern
21 <u>Cryptomeria</u> <u>japonica</u>	Cupressaceae	Gymnosperm
22 <u>Pinus</u> sp.	Pinaceae	Gymnosperm.





Digitalis purpurea  
D. lanterna (Scrophulariaceae)



Impatiens stenantha  
(Balsaminaceae)



Salvia coccinea (Lamiaceae)



Viola sp. (Violaceae)



## CONCLUSION.

From this trip I gathered important informations regarding species, climate, soil, and regions of Darjeeling and Mirik. Considering the location it falls under the phytogeographical region of Eastern Himalayas. The climate is pretty cool and humid. In areas we found several algae, bryophyte, liverwort and pteridophytes. Along with gymnosperms and cryptogams as well. We found Cryptomeria japonica and various tea gardens and Orchids too. We also saw Rhododendron plants. We visited various places like the Rock Gardens, Batasia loop, Ghoom Monastery and the Him-  
-alayan Zoo. The clear view of clouds that feels so beautiful. It was an amazing trip.

S. Seshendhury  
07.08.2023.

EXAMINED  
Dept. of Botany  
Dinabandhu Andrews College Centre (052)  
Garia, Kolkata-700084