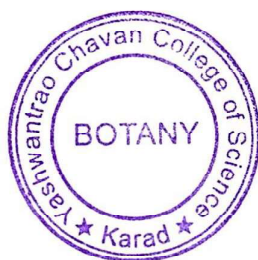


Yashwantrao Chavan College of Science, Karad

Department of Botany

REPORT

Name of the activity	Field Visit of B.Sc. III Botany Students
Day & Date	Saturday, 01/09/2018
Place of visit	Walmiki & Patan
Purpose of the Program	To understand floral diversity of that particular region including cryptogams and Phanerogams.
No. of Students Participated	22 13
No. of Teachers Participated	02
Visit outcomes	Students learnt something new apart from class room teaching. In addition to this, they learned how to write field notes during data collection.



Teacher In-charge

Head

Department of Botany

Head

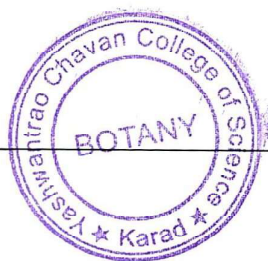
**Department of Botany
Yashwantrao Chavan College of
Science, Karad**

Principal

Principal

**Yashwantrao Chavan College of Science
Karad**

Study Visit of B. Sc. Botany Students –
Walmiki & Patan



Yashwantrao Chavan College of Science, Karad
Department of Botany
B.Sc.III
Study Tour

Date : 30.08.2018

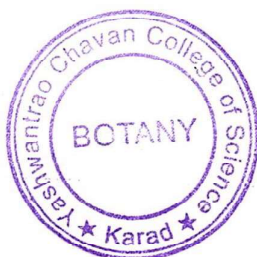
The students of B.Sc. III (Botany + Botany-Pollution) are hereby informed that their One day Botanical study tour is arranged to Valmiki and Patan on Saturday the 1st Sept. 2018.

All concerned should note and follow strictly.

Class In-charge

Head

Head
Department of Botany
Yashwantrao Chavan College of
Science, Karad



Yashwantrao Chavan College of Science, Karad
Department of Pollution

B.Sc.III
Study Tour
Programme

Date : 01.09.2018

The students of B.Sc. III (Pollution) are hereby informed that their One day Botanical study tour is arranged to Valmiki and Patan on Saturday the 1st Sept. 2018.

All concerned should note and follow strictly.

Study Tour Programme –

7.00 a.m.	Departure from Yashwantrao Chavan College of Science, Karad
10.00 a.m. to	Visit to different localities
5.00 p.m.	Valmiki and Patan
7.00 p.m.	Arrival at Karad (Approximate).

Students should bring with them:

1. Identity card.
2. Note book, Pencil, Scalpel & Polythene bags for collection.
3. Lunch Tiffin.
4. Umbrella / Raincoat
5. Medicine if any required.


Head

Head
Department of Botany
Yashwantrao Chavan College of
Science, Karad

Yashwantrao Chavan College of Science, Karad

Department of Botany

Study Tour Report



2018-19



Exam Seat No. -

Date: 12-2-2019

Roll No.- 3145

Shri Shivaji Education Society's, Board for Higher Education, Karad

**YASHWANTRAO CHAVAN COLLEGE OF SCIENCE,
KARAD**



Vidyanagar, Karad - 415 124

AN ISO 9001:2015 CERTIFIED COLLEGE
Reg: RQ91/5237

IAS-ANZ



Accredited at the B⁺⁺ level by NAAC, Bangalore



**Department of Botany
CERTIFICATE**

This is to certify that

Shri / Smt. / Miss Sathe Sayali Sanjay

has satisfactorily attended the Botanical Excursion organized by the Department of Botany for the B.Sc. III course in Botany and that this excursion report represents his / her bonafide work in the year 2018-2019.


Teacher In-charge

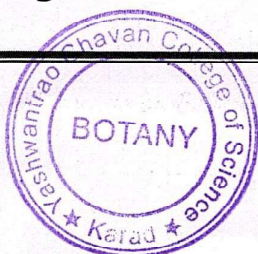

Examiner


Head

Head

Department of Botany

Yashwantrao Chavan College of
Science, Karad



Yashwantrao Chavan College of Science, Karad
Department of Botany
Botanical Study Tour B. Sc. III
(Walmiki)

Our one day Botanical Excursion was arranged to Walmiki on 1.09.2018.

The route of Excursion was –

Karad → Walmiki → Karad

Walmiki is a small village situated in Patan Taluka of Satara District. It is famous for ancient old historical temple of Walmiki Rishi. It is also a best place for the study of flowering plants. It is also rich in non-flowering plants in rainy season. The localities are rich in green algae, saprophytic fungi, parasitic fungi, bryophytes, pteridophytes and epiphytes in the monsoon season. Favorable climate and humus rich laterite soil, favors the luxuriant growth of the vegetation in the forest.

GEOGRAPHY AND CLIMATE OF WALMIKI –

Altitude: 668 meters from mean sea level

Temperature: 16 - 33°C

Relative humidity: 65 to 95%

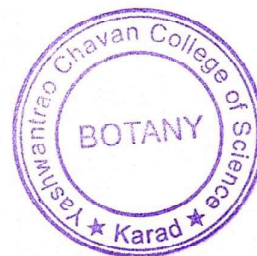
Annual average rainfall: 4000 to 6000 mm

Forest type: Mixed deciduous forests

ALGAE:

We have observed and collected various species of algae from water and moist places.

- | | |
|---------------------------|-----------------------------|
| 1. <u>Oscillatoria</u> | Family -. Oscillatoriaceae. |
| 2. <u>Nostoc</u> | Family - Nostocaceae. |
| 3. <u>Spirogyra</u> | Family - Spirogyraceae. |
| 4. <u>Chara</u> | Family - Characeae |
| 5. <u>Batrachospermum</u> | Family - Batrachospermaceae |



FUNGI

Fungi constitute the second important group of thallophytes. Fungi grow in water, soil, on other plants, animals as saprophyte or parasite. Certain fungi also grow as symbionts. Some fleshy fungi grow on soil as saprophytes or few hard bracket fungi growing on dead wood. Some are on leaves, branches and fruits of higher plants as parasites.

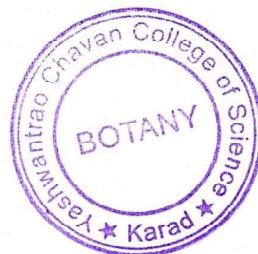
1. Agaricus sp. Family - Agaricaceae.
With pink coloured basidiocarp growing on moist places
2. Peziza sp. Family - Pezizaceae
Growing on dung of animals
3. Polyporus sp. Family - Polyporaceae
Growing on dead wood of higher plants
4. Kulkarniella pavettae Family - Pucciniaceae
Rust growing on the leaves of Pavetta indica, brown or yellow coloured spots
5. Phyllachora sp. Family - Phyllachoraceae
Tar spot on the leaves of Terminalia arjuna or black thick spot on leaves of Scutia indica.
6. Meliola holigarnae Family - Meliolaceae
Black circular cottony spot on the leaves of Holigarna sp

BRYOPHYTES - Following important bryophytes we have collected

1. Riccia sp. Family - Ricciaceae
Growing on moist places in the form of patches.
2. Targionia sp. Family - Targionaceae
Common liverwort found around Koynanagar
3. Anthoceros sp. Family - Anthocerotaceae
Commonly growing on moist places at Ghatmatha.
4. Funaria sp. Family - Funariaceae
Growing on tree trunk or branches as epiphyte

PTERIDOPHYTES - Koynanagar is also rich in vascular cryptogams.

1. Selaginella sp. Family - Selaginellaceae
Grows on moist places, plant is erect, branched, bearing cones/ strobili at the apex
2. Marsilea sp. Family - Marsileaceae
Quadrifoliate leaves



3. Adiantum sp. Family - Polypodiaceae

Grows on moist places on rocks

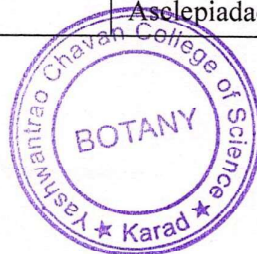
4. Pleopeltis sp. Family - Polypodiaceae

Epiphytic fern grows on the bark of trees

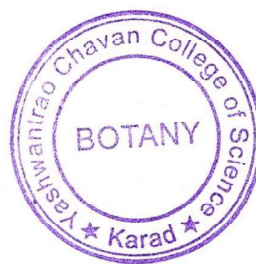
ANGIOSPERMS

It is best place for the study of angiosperm plants. Following are few plants we have studied around Walmiki.

Sr. No.	Name of Plant	Family
1.	<i>Clematis gouriana</i> Roxb. ex DC.	Ranunculaceae
2.	<i>Atalantia monophylla</i> (L.) Corr.	Rutaceae
3.	<i>Swietenia mahagoni</i> (L.) Jacq.	Meliaceae
4.	<i>Nothapodytes nimmoniana</i> (Grah.) Mabb.	Icacinaceae
5.	<i>Scutia indica</i> Brongn.	Rhamnaceae
6.	<i>Ziziphus trinervia</i> Roxb.	Rhamnaceae
7.	<i>Leea indica</i> (Burm f.) Merr.	Vitaceae
8.	<i>Crotalaria retusa</i> L.	Fabaceae
9.	<i>Moullava spicata</i> (Dalz.) Nicols.	Caesalpinaceae
10.	<i>Mimosa pudica</i> L.	Mimosae
11.	<i>Drosera indica</i>	Droseraceae
12.	<i>Terminalia arjuna</i> (Roxb.) Wt. & Arn.	Combretaceae
13.	<i>Eugenia jambolana</i> Lamk.	Myrtaceae
14.	<i>Centella asiatica</i> (L.) Urb.	Umbelliferae
15.	<i>Randia dumetorum</i> (Retz.) Lamk.	Rubiaceae
16.	<i>Oldenlandia corymbosa</i> L.	Rubiaceae
17.	<i>Pavetta indica</i> L.	Rubiaceae
18.	<i>Wendlandia notoniana</i> Wall. ex Wt. & Arn.	Rubiaceae
19.	<i>Ageratum conyzoides</i> L.	Asteraceae
20.	<i>Vernonia anthelmintica</i> (L.) Willd.	Asteraceae
21.	<i>Holarrhena pubescens</i> (Buch.-Ham.) Wall. ex G. Don.	Apocynaceae
22.	<i>Asclepias curassavica</i> L.	Asclepiadaceae



23.	<i>Ceropegia santapau</i>	Asclepiadaceae
24.	<i>Hoya wightii</i> Hook. f.	Asclepiadaceae
25.	<i>Trichodesma indicum</i> Lehm.	Boraginaceae
26.	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae
27.	<i>Utricularia striatula</i> Smith	Lentibulariaceae
28.	<i>Rhynchoglossum notonianum</i> (Wall.) Burt.	Gesneriaceae
29.	<i>Asteracantha longifolia</i> (L.) Nees.	Acanthaceae
30.	<i>Adathoda vasica</i> Nees	Acanthaceae
31.	<i>Stachytarpheta indica</i> (L.) Vahl.	Verbenaceae
32.	<i>Tectona grandis</i> L.	Verbenaceae
33.	<i>Colebrookea oppositifolia</i> J. E. Smith	Lamiaceae
34.	<i>Pogostemon parviflorous</i> Benth.	Lamiaceae
35.	<i>Polygonum glabrum</i> Willd.	Polygonaceae
36.	<i>Emblica officinalis</i> Garertn.	Euphorbiaceae
37.	<i>Glochidion hohenackeri</i> Bedd.	Euphorbiaceae
38.	<i>Mallotus philippinensis</i> (Lam.) Muell.-Arg.	Euphorbiaceae
39.	<i>Trema orientalis</i> (L.) Bl.	Urticaceae
40.	<i>Vanda testacea</i> (Lindl.) Reichb.f.	Orchidaceae
41.	<i>Gloriosa superba</i> L.	Liliaceae
42.	<i>Smilax zeylanica</i> L.	Liliaceae
43.	<i>Caryota urens</i> L.	Arecaceae
44.	<i>Bambusa arundinacea</i> (Retz.) Willd.	Poaceae



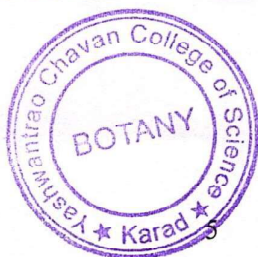
Study tour at Walmiki



Gloriosa superba



Aponogeton satarensis



Yashwantrao Chavan College of Science, Karad

Department of Botany

Botanical Study Tour B. Sc. III

(Vengurla, Malvan and Kunkeshwar)

(LONG TOUR)

The Botanical Excursion tour was arranged at Vengurla, Malvan and Kunkeshwar from 4th to 5th January 2019 to study the plants growing in different ecological conditions. The main object of study tour was to study environmental, taxonomical, floristic and geographical aspects and variations of above places and observations of plants from these localities. We are interested in taxonomical & ecological study of lower and higher plants of the Western Ghats and coastal regions. Through this visit we got an idea about the natural vegetation and diversity of Western Ghats and Coastal region of Maharashtra state.

Vengurla-

We visited Regional Fruit Research Station which is one of the renowned research stations of Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli (India), located at Vengurla, District Sindhudurg, Maharashtra. It was established in the year 1957, which undertake the research and extension work on fruit crops in general and mango and cashew in particular. The station has completed 50 glorious years of its commitment to the society and boasts a concrete contribution in research on mango and other tropical fruit crops that has influenced on the economy of the Konkan region. This station has recommended more than hundreds of production technologies including crop improvement, grafting technologies (epicotyl and soft-wood grafting), development of regular bearing mango varieties and paclobutrazol application for early and regular bearing in mango varieties are the milestones for expansion of the area as well as improvement of mango productivity. At this research station we visited grafting unit, fruit processing unit and research laboratory.

Malvan -

GEOGRAPHY AND CLIMATE –

Coordinates: 16°03'24" N and 73°28'08" E

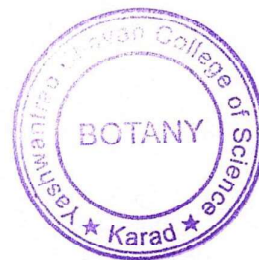
Altitude: 5 meters from mean sea level

Temperature: 16 - 33°C

Relative humidity: 65 to 95%

Annual average rainfall: 2000 to 2300 mm

Forest type: Moist deciduous forests



Our interest of study at Malvan was to study the plant diversity. We are interested in taxonomical & ecological study of lower and higher plants of the coastal regions. Through this visit we got an idea about the natural vegetation and diversity of west coast region. During two days botanical excursion we visited different places of botanical interest at Malvan and adjoining areas.

Fruit Crops:

A large number of fruit crop nurseries are present in Malvan and adjoining areas. Fruit crops like mango, cashewnut, coconut, kokam, jack fruit, Syzygium and Areca are commonly cultivated in the area.

- 1) *Anacardium occidentale* Family: Anacardiaceae [Cashewnut]

Small tree. Leaves ovate elliptic, flowers in terminal panicles. Fruit reniform, fleshy, dark yellow or orange coloured.

- 2) *Cocos nucifera* Family: Arecaceae [Coconut]

Tree. Stem covered with leaf scars. Flowers in spadix inflorescence. Fruits large, globose, hard.

- 3) *Garcinia indica* Family: Clusiaceae [Kokam]

Tree. Male and female flowers in axillary and terminal cymes. Berries spherical, purple orange-pink colored.

- 4) *Artocarpus heterophyllus* Family: Moraceae [Jackfruit]

Large, deciduous tree. Leaves broadly ovate. Flowers monoecious. Sorosis large, fleshy, hanging on branches and trunk. Sorosis large, fleshy, hanging on branches and trunks.

- 5) *Syzygium cumini* Family: Myrtaceae [Jambhul]

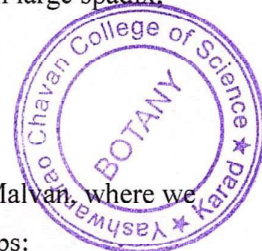
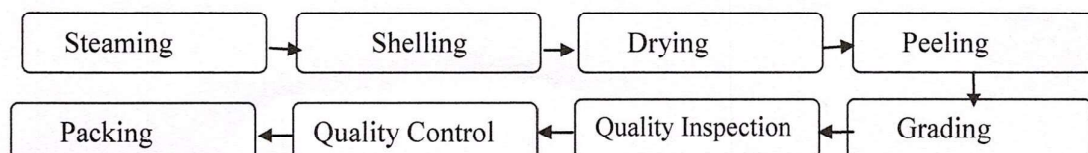
Large trees. Leaves opposite, gland dotted. Flowers fragrant, white, in cymes. Fruit juicy, purple.

- 6) *Areca catechu* Family: Arecaceae [Supari]

A slender tall palm. Leaves pinnate, numerous. Flowers in large spadix. Spathe boat shaped. Drupe small ellipsoid.

VISIT TO CASHEW FACTORY:

Our next visit was organized at Laxmi Vishnu Cashew Factory Malvan, where we got an idea about cashew processing technique. It includes following steps:

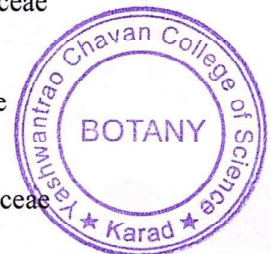


- 1) **Steaming:** The in-shell cashews are steamed under pressure to soften the shell. This causes the cashews inside to become loose and easier to remove in time.
- 2) **Shelling:** Each cashew shell is split open longitudinally and the cashew inside is immediately taken out by hand.
- 3) **Drying:** The skin on cashews is dried in an oven at low heat for a few hours to loosen the skin.
- 4) **Peeling:** The skin of each cashew is removed by hand and the cashew is simultaneously visually graded according to quality.
- 5) **Grading:** The whole cashew kernels are individually graded by hand.
- 6) **Quality Inspection:** The cashews of each grade are inspected according to the present quality standards for that grade.
- 7) **Quality Control:** The cashews are then put through a set of quality assurance measures heating in an oven, metal detection, dust aspiration and handpicking conveyor.
- 8) **Packing:** The cashews are packed in multilayer barrier pouches in a modified atmosphere of low oxygen and high carbon dioxide and nitrogen.

VISIT TO SINDHUDURG FORT:

It is a sea fort. This impressive Sindhudurg (meaning Ocean Fort), was built in 1664 by the great 17th century Maratha warrior, Shivaji on "Kurte" island to the glory of the Maratha Empire. Our main interest to visit the Sindhudurg fort was to study marine algae. These marine algae are also called as "Sea weeds" which grows on rocky substratum in shallow water. They are attached by hold-fast organs forming kelp beds just below the low-tide mark.

- | | |
|---|-----------------------|
| 1. <i>Sargassum</i> species | Family: Sargassaceae |
| Thallus brown coloured, with receptacles and air bladders. | |
| 2. <i>Laminaria</i> species (Red algae) | Family: Laminariaceae |
| Thallus shows distinct holdfast, stipe and a large flattened blade. | |
| 3. <i>Caulerpa racemosa</i> (Green algae) | Family: Caulerpaceae |
| Thallus bears prostrate rhizome with number of assimilatory shoots. | |
| 4. <i>Fucus</i> species (Brown algae) | Family: Fucaceae |
| Thallus is flat, leathery, ribbon like dark brown structures. | |
| 5. <i>Padina</i> species (Mermaid's fan) | Family: Dictyotaceae |
| Thallus is an erect fan like cluster of thin, flat branches. | |

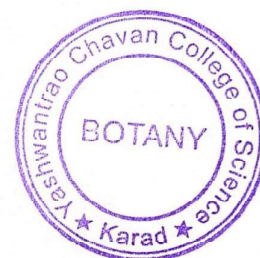


VISIT TO ROCK GARDEN:

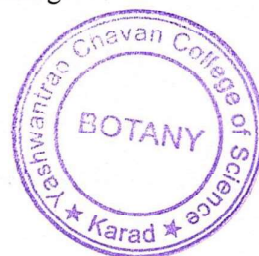
The Rock garden is situated on the Rocky Shore near the Chivala Beach. This garden is beautifully decorated by ornamental herbs, shrubs and trees like *Agave americana*, *Bambusa vulgaris*, *Calophyllum inophyllum*, *Cordia sebestina*, *Nerium* species, *Mussaenda glabrata*, *Stenotaphrum dimidatum*, *Zoysia japonica* etc.

Other important Plants studied at Malvan and adjoining areas are as follow:

- 1) *Clematis gouriana* (Ran jai) Family - Ranunculaceae
Climbing habit, hairy style persistent on fruits.
- 2) *Capparis spinosa* Family - Capparidaceae
Stipules modified into two hooked spines. Gynophore present.
- 3) *Scutia indica* (Chimat) Family - Rhamnaceae
Thorny shrub, spines recurved, umbel inflorescence.
- 4) *Leea indica* (Dinda) Family - Vitaceae
Large shrub with pinnately compound leaves, young leaves brown.
- 5) *Mangifera indica* - (Mango) Family - Anacardiaceae
A large tree, evergreen fruit edible.
- 6) *Crotolaria juncea* Family - Fabaceae
Erect hairy shrub, flowers bright yellow. Fruit pod.
- 7) *Fragaria indica* (Straberry) Family - Rosaceae
Small herb, short thick stem, trifoliate leaves, fruit aggregate.
- 8) *Eugenia jambolana* (Jambal) Family Myrtaceae
Tree, bark white, Intramarginal vein, fruits edible.
- 9) *Memecylon umbellatum* – Anjan Family - Melastomaceae
Small tree, leaves dark green, flowers umbellate cyme.
- 10) *Woodfordia floribanda* (Dhayati) Family - Lythraceae
Growing on dark places on rocks, stem angular, flowers red.
- 11) *Pavetta indica* Family - Rubiaceae
Shrub, stipules triangular, interpetiolar, flower white.
- 12) *Coffea arabica* (coffee) Family - Rubiaceae
Shrub, interpetiolar stipules, fruits used for coffee.
- 13) *Randia dumetorum* (Gehala) Family - Apocynaceae
Small tree, strong straight nearly opposite spines, stipules obovate.



- 14) *Ageratum conyzoids* Family - Asteraceae
Erect herb, heads, flowers pale blue or white, roadside weed.
- 15) *Nothapodytes nimmoniana* (Narkya, Ghanera) Family - Icacinaceae
Shrub, leaves broad, glabrous, flower yellow with foetid smell.
- 16) *Carrisa carandas* (Karvand) Family - Apocynaceae
Large evergreen shrubs, twin spines, stigma dumbbell shaped.
- 17) *Carvia callosa* (Karvi) Family - Acanthaceae
Small shrub rough rigid stem, leaves opposite, Honey is obtained.
- 18) *Lantana camara* (Ghaneri) Family - Verbenaceae
Small shrub, flowers white or red or pink, stem spiny angular.
- 19) *Pogostemon parviflorus* (Pangali) Family - Lamiaceae
Four to six feet tall, stem quadrangular, leaves with odour.
- 20) *Celebrookea oppositifolia*
Much branched shrub, stem quadrangular, flower spike.
- 21) *Actinodaphne hookeri* (Pisa) Family - Lauraceae
Tree, leaves hairy, flowers dioecious, yellowish.
- 22) *Lasiosiphon eriocephalus* – (Ramata, Datpadi) Family - Thymeleaceae
Much branched shrub, leaves sub sessile perianth silky.
- 23) *Elaeagnus latifolia* (Ambgul, Nerli) Family - Elaeagnaceae
Much branched shrub, young stem running over large trees. Lower surface of leaves glistering silvery - white, flowers straw coloured.
- 24) *Glochidion hohenackeria* (Bhoma) Family - Euphorbiaceae
Medium sized tree, leaves stipulate flowers greenish yellow. Female flowers deep - yellow.
- 25) *Smilax zylanica* (Chopchini) Family - Liliaceae
A climber with the help of tendrils, leaves simple, flowers umbel.
- 26) *Bambusa arundinacea* (Kalak) Family - Poaceae
Culms erect, thorny, hollow.
- 27) *Caryota urens* (Fish-tail palm) Family - Palmae
Tall plants, unisexual, flowers compound spadix - ornamental.
- 28) *Dendrobium sp.* Family - Orchidaceae
Epiphytic orchid, leaves absent at the time of flowering.



Kunkeshwar-

Kunkeshwar is a small sea-side pilgrimage centre in Devgad taluka of Sindhudurg district in Maharashtra. It is famous not only for its scenic beauty, but also for the ancient temple said to have been built by some unknown sea-farer. The background of the Arabian Sea increases its serene and solemn atmosphere. Different species of algae are observed at rocky substratum of sea shore.

List of Marine Algae found at Kunkeshwar-

- | | |
|---|-----------------------|
| 1. <i>Sargassum</i> species | Family: Sargassaceae |
| 2. <i>Laminaria</i> species (Red algae) | Family: Laminariaceae |
| 3. <i>Caulerpa racemosa</i> (Green algae) | Family: Caulerpaceae |
| 4. <i>Fucus</i> species (Brown algae) | Family: Fucaceae |
| 5. <i>Padina</i> species (Mermaid's fan) | Family: Dictyotaceae |

Adaptations observed in Mangroves –

Mangroves are adapted for survival in sheltered saline habitats along coasts. Mangroves can live in fresh water but normally occupy tidal areas where fresh water plants cannot live. They possess number of adaptations for different ecological and physiological processes. We observed some adaptations in mangroves.

- 1) **Salt secretion** – Secreted salt is seen on leaves of *Avicinia officinalis*
- 2) **Aeration** – Slender pneumatophores in *Avicinia officinalis*
- 3) **Mechanical support** – Prop roots also called stilt roots perform anchoring in loose substratum observed in *Rhizophara mucronata*.
- 4) **Vivipary** – Vivipary i.e. seed germinates while fruit is still attached to the mother plant observed in *Rhizophara mucronata* and *Cereops tagal*

