



Dr. Sanjay Mishra
Scientist “B”
Botanical Survey of India,
Andaman & Nicobar Regional Centre, Port Blair

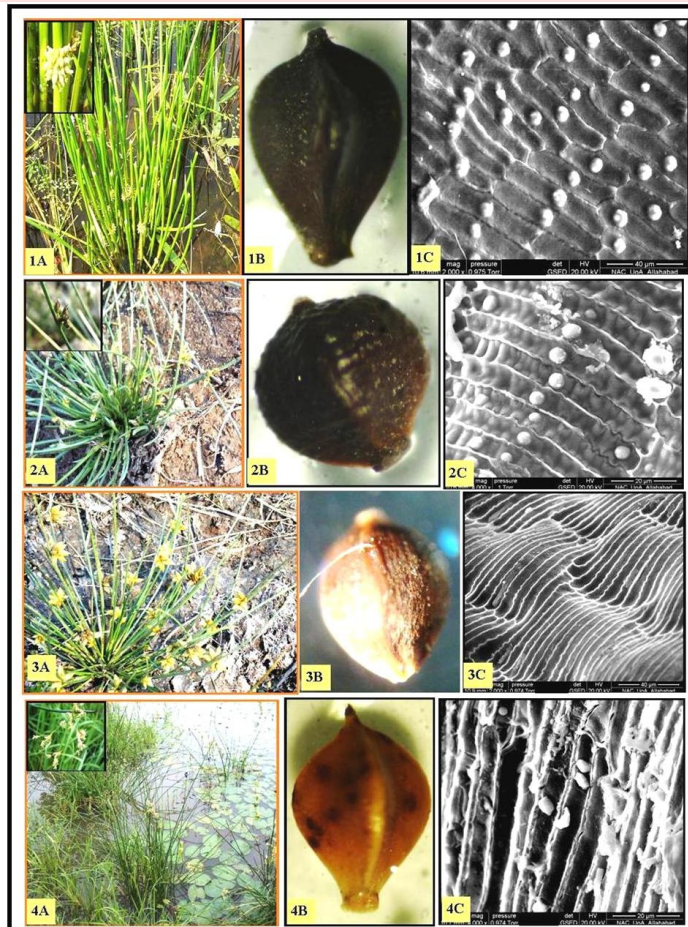


RESEARCH EXPERIENCE:

- Junior Research Fellowship and Senior Research Fellowship (CSIR-NET/JRF-2003)
- D. Phil from Department of Botany (Plant Taxonomy), University of Allahabad, Allahabad, India (2009).
- Title of research (D. Phil.): *Studies on Aquatic and Marshy Angiospermic Plants in Eastern Uttar Pradesh.*
- Worked as guest lecturer in Department of Botany, University of Allahabad for the academic session 2011-2012 and 2012-2013.

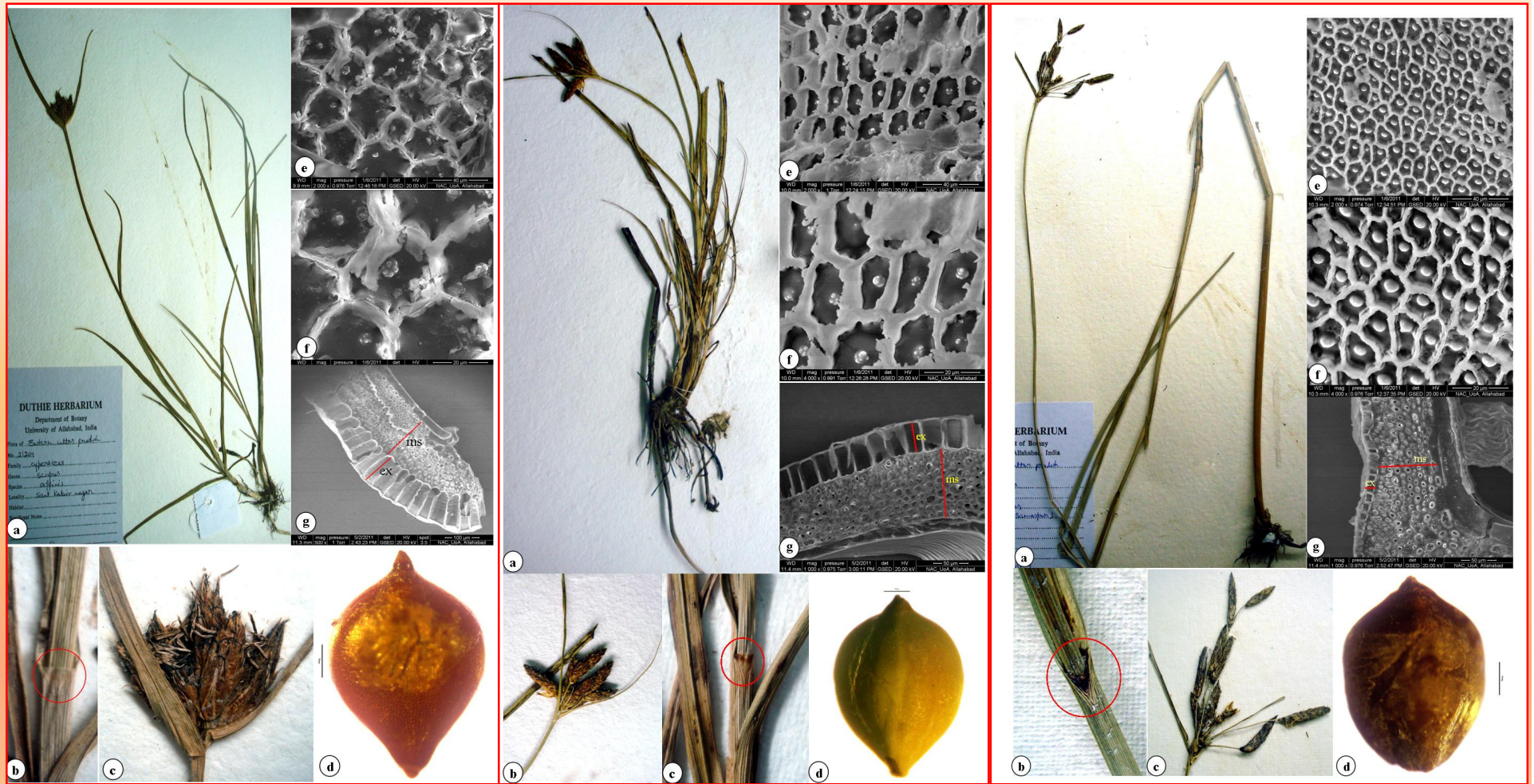


- Research associate in Major Research Project funded by Uttar Pradesh State Biodiversity Board (UPSBB), on the topic “Assessment of sedges based on Micro-morphological characters, Food value and Potential role in Phytoremediation in wetlands of Uttar Pradesh” (14-03-2013 to 14-03-2015).



- For the study of micro morphological characters, Scanning electron microscopic (SEM) studies were conducted.
- Seeds (achenes) of various species were collected and achenes of various species of genus *Bolboschoenus*, *Schoenoplectus* were subjected to SEM study.
- Our results were able to help in solving taxonomic problems of two complexes i.e. *Bolboschoenus complex* and *Schoenoplectus complex*.

Schoenoplectus articulatus L. - (1A) Plant (1B) Achene (1C) SEM of Achene
Schoenoplectus lateriflorus Gmel.- (2A) Plant (2B) Achene (2C) SEM of Achene
Schoenoplectus supinus (L.) Palla (3A) Plant (3B) Achene (3C) SEM of Achene
Schoenoplectus lacustris (L.) Palla. (4A) Plant (4B) Achene (4C) SEM of Achene



Mishra S, Tripathi DK, Hroudová Z, Chauhan DK (2015) A potential contribution of achene micromorphology and phytolith analysis in describing the systematics of genus *Bolboschoenus* from India. *Plant Systematics and Evolution* 301: 955–966.

- Joined Botanical survey of India in April 2015 as Scientist -B

Ongoing Research Projects

Flora of Kyd, Pitman & James Islands, South Andaman

Executive officials: Dr. Sanjay Mishra (Scientist B)

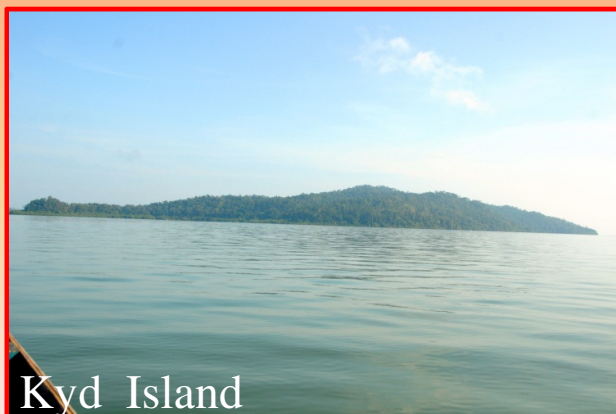
Dr. Vivek C. P. (Botanical Assistant)

Shri. Gautam Anuj Ekka (Pres. Asstt.)

Period of the project: April 2015 –March 2018

Objectives

- To survey, collect and document the flora of Kyd, Pitman and James Islands
- To conserve Endangered, Rare, Threatened and Endemic plants of these Islands at Dhanikhari Experimental Garden-cum-Arboretum, Nayasahar.



Kyd Island

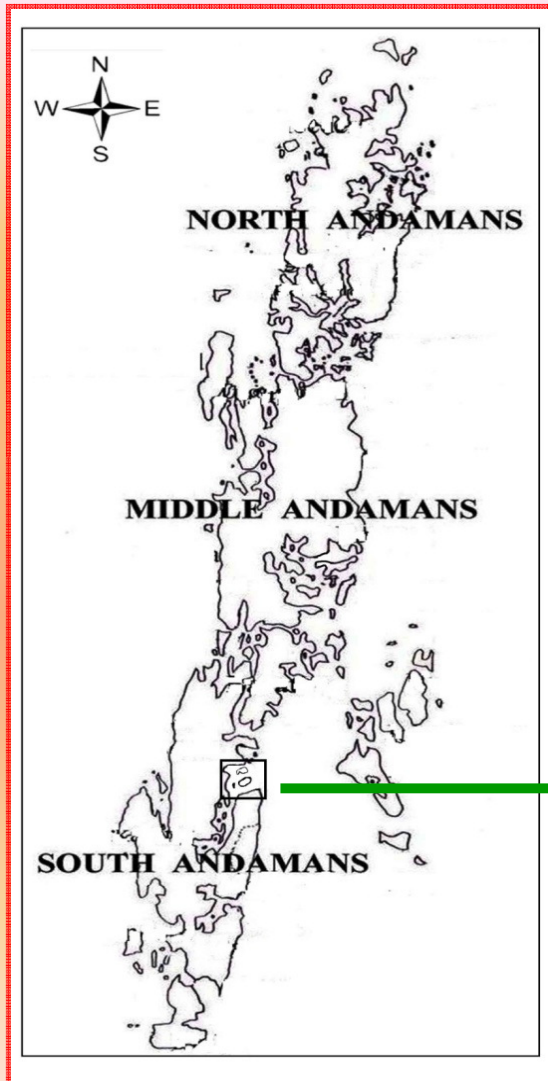


Pitman Island



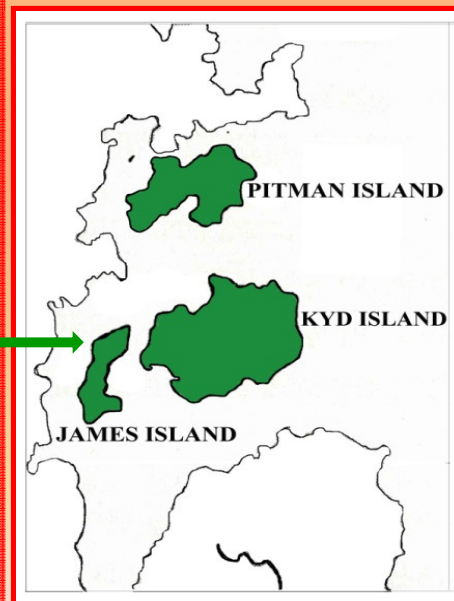
James Island

Study Area



Kyd Island : *ca* 8.0 sq.km.
Pitman Island : *ca* 1.27 sq.km.
James Island : *ca* 2.10 sq km.

Geographical Position: Situated between 11° 56' 28" - 11° 59' 20" N Latitude to 92° 43' 34" - 92° 45' 01" E Longitude



Summary of the work done

- Three exploration tours were undertaken to Kyd, Pitman and James island.
- During the exploration total 364 field numbers (Fl.no.32426-32580, 32581-32691,32694-32700 and 33001-33091) were vouched along with the GPS data.
- 284 field numbers were identified as 231 sp. by comparing own descriptions with the descriptions available in literatures and authenticated or type specimens available in Indian as well as foreign herbaria.
- Plants/seedlings of 74 species were introduced in the Dhanikhari Experimental Garden cum Arboretum.



Ongoing Research Projects.....

Highlights of the collections:

- Endemic-27
- Medicinal – 30 nos.
- Economically important – 35 nos.

Research Based Publications: 01

Seminar/ Symposia/ Conference attended:

Attended International Conference on Climate Change Adaptation: Ecological Sustainability and Resource Management for Livelihood Security organized by Andaman Science Association (ASA), Port Blair, 8-10 December 2016, at Central island agriculture research institute (CIARI), Port Blair.

Poster, titled “A Preliminary Account on the Flora of Kyd, Pitman and James Islands Wildlife Sanctuary, South Andaman” was presented.

A PRELIMINARY ACCOUNT ON THE FLORA OF KYD, PITMAN AND JAMES ISLANDS, SOUTH ANDAMAN

Sanjay Mishra, Vivek, C.P., Gautam Anuj Ekka & Lal Ji Singh
Botanical Survey of India, Andaman and Nicobar Regional Centre, Port Blair - 744 102

OVERVIEW OF STUDY

The study area covers three Islands in South Andamans, Kyd, Pitman and James Wildlife Sanctuary. These Islands enriched with diverse plant groups are yet to be explored. Thus, the study aims the documentation of their flora for efficient plant resource utilization and to analyze changes in biodiversity with respect to the effect of anthropogenic and natural factors.

Total number of 283 species belonging to 230 genera under 43 families have been collected and studied so far. Three samples of each plant were collected for the study. Their herbarium specimens have been prepared and deposited in the herbarium of Botanical Survey of India, Andaman and Nicobar Regional Centre, Port Blair (PBL).

GEOGRAPHIC POSITION

These three Islands are situated northward from Port Blair. Kyd Island covers an area of about 8.0 sq.km., Pitman Island covers an area of ca. 1.27 sq.km. & James Island, ca. 2.10 sq.km.

These are situated between 11° 56' 28" - 11° 59' 20" N Latitude to 92° 43' 34" - 92° 45' 01" E



Map of Andaman Islands showing the study area (Diagrammatic, Not to Scale)

VEGETATION

Trees, shrubs and herbs: Major portion of these Islands constitutes tree and shrub vegetation while herbs are poorly represented. Tall species such as *Bombax insigne* Wall. (Bombacaceae), *Dipterocarpus alatus* Roxb. ex G. Don (Dipterocarpaceae), *Heritiera littoralis* Dryand ex W. Aiton (Sterculiaceae), *Pisonia umbellifera* (J. et G. Forst) Seem (Nictaginaceae), etc. are common in the forests. Common shrubs present are *Acanthus ilicifolius* L. (Acanthaceae), *Glycosmis mauritiana* (Lam.) Tanaka (Rutaceae), *Pseuderanthemum album* (Roxb.) Merr. (Acanthaceae), etc. Herbs are mostly found scattered along the shores. Majority are from the family Poaceae [*Cenothea lappacea* (L.) Desv., *Cyrtococcum patens* (L.) A. Camus, *Thuarea involuta* G. Forst. R. Br. ex Roem et Schult.], Cyperaceae (*Cyperus diffusus* Vahl, *C. javanicus* Houtt.), and Asteraceae (*Blumea sinuata* (Lour.) Merr.).

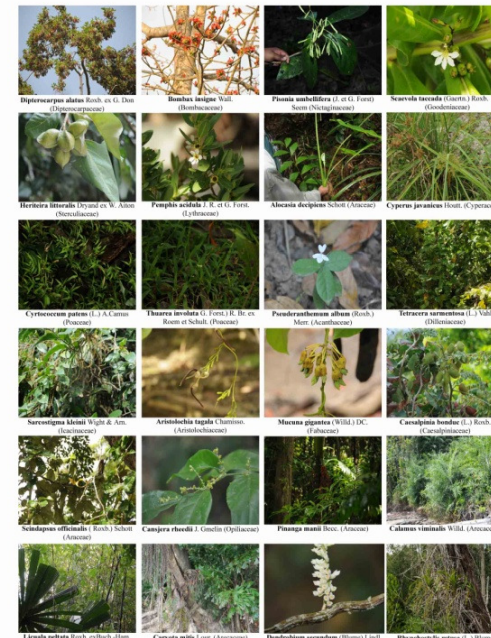
Climbers: All three Islands are well represented by climbers: *Aristolochia indica* L. (Aristolochiaceae), *Mucuna gigantea* (Willd.) DC. (Fabaceae), *Tetracera sarmentosa* (L.) Vahl (Dilleniaceae), etc.

Bamboos & Rattans: They do not form pure forests in these Islands. They are found associated with other shrubs or climbers towards margins of forests [*Calamus viminalis* Willd. (Arecaceae), *Dinochloa* sp. (Poaceae), etc.].

Epiphytes: The inland as well as tidal forests hold many epiphytic as well as terrestrial orchids like *Cymbidium aloifolium* (L.) Sw., *Dendrobium secundum* (Blume) Lindl., *Geodorum densiflorum* (Lam.) Schlecht., etc.

Mangrooves: These three Islands are found to have well protected by various species of mangrooves viz. *Lumnitzera littorea* (Jack) Voigt, *Rhizophora apiculata* Blume, *Sonneratia caseolaris* (L.) Engl., etc.

Non-flowering Plants: A good representation of the non-flowering plants such as *Acrostichum aureum* L., *Adiantum* sp., *Cycas zeylanica* (J. Schuster) Linds et K.D. Hill., *Stenochlaena palustris* (Burm. f.) Bedd., etc. are also present. Several species present in the Islands are of medicinal and economic importance.



ENDEMICISM

Many endemic species of the Andaman and Nicobar Islands, belonging to different families have been recorded from these Islands. Eg. *Calamus andamanicus* Kurz (Arecaceae), *Dillenia andamanica* C.E. Parkinson (Dilleniaceae), *Millettia andamanica* (King) Finet & Gagnep. (Annonaceae), *Pterocarpus dalbergioides* Roxb. ex DC. (Fabaceae). Some of them are also coming under RET category.



CONSERVATION

These three Islands are thus much special with respect to the curious and sensitive flora they represent. The authors made collection of only one sample of RET plants for preserving in the herbarium (PBL) and limited seeds and seedlings in order to introduce and conserve them *ex-situ* in Dhanikhari Experimental Garden Cum Arboretum, Nayasahar.



Ex-situ conservation of RET species of Andaman & Nicobar Islands at Dhanikhari Experimental Garden Cum Arboretum, and identification of unidentified angiosperm specimens in BSI, ANRC Herbarium

Executing officer : Dr. Sanjay Mishra

Period of the project: April 2015 –March 2017

Objectives

- Survey of literature and consultation of previously identified herbarium at PBL.
- To survey, collect and introduce the RET species of Andaman & Nicobar Islands at Dhanikhari Experimental Garden Cum Arboretum.
- Identification of unidentified herbarium specimen at PBL.



Summary of the work done

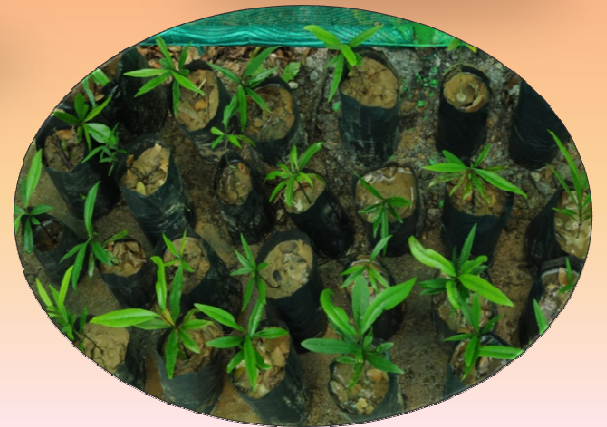
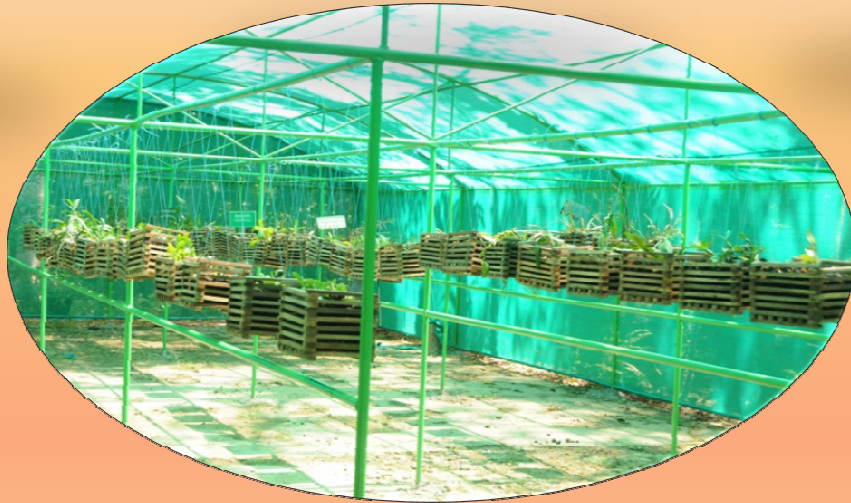
- One exploration tour was undertaken to North Andaman *w.e.f.* 14.3.2016 to 20.3.2016. During the exploration seeds/seedlings/of 51 plant species which include RET and plants of medicinal and economic importance were collected and introduced in the Dhanikhari Experimental Garden cum Arboretum.
- One exploration tour will be undertaken to Little Andaman in February 2017.
- 85 unidentified specimens of PBL have been identified.
- Besides the project work, plants of 68 species with medicinal, economical and ornamental value were collected and introduced in the garden.

Research Based Publications:

- Research Papers Published: 2



Ficus andamanica Corner



No. of projects carried out individually, jointly
-02

No. of books written/compiled/edited
Book chapter-03

Number of papers published -18

New reports

- India -01
- region -01
- State -08

Administrative duties

- In charge: Dhanikhari Experimental Garden cum Arboretum
 - Development of medicinal plant section, orchidarium and cacterium
- Raj Bhasa Adhikari
- Estate officer
- Chairman-Disciplinary Committee
- Security officer
- Member of the Independent Third Party Monitoring and Evaluation Committee, State CAMPA (State Compensatory Afforestation Fund Managment and Planning Authority)



Future Plan of Research

Ongoing project....

Flora of Kyd, Pitman & James Islands, South Andaman

- One field tour and one herbarium consultation tour to CNH and submission of final report

Proposed.....

- Collection, introduction and multiplication of Orchids of Andaman & Nicobar Islands, India at Dhanikhari Experimental Garden Cum Arboretum
- Study of family Cyperaceae of Andaman and Nicobar Islands



Etlingera fenzlii (Kurz)
Škornick. & M.Sabu

Thank you !



Papilionanthe teres (Roxb.) Schltr.