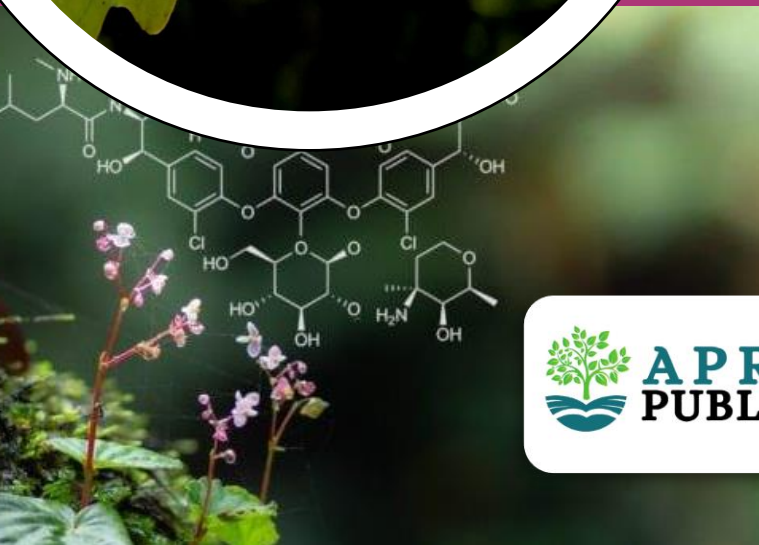


INDIAN MEDICINAL PLANTS



Smita Basole
Nibedita Jena
Sanjeet Kumar



APRF
PUBLISHERS

Indian Medicinal Plants



Smita Basole
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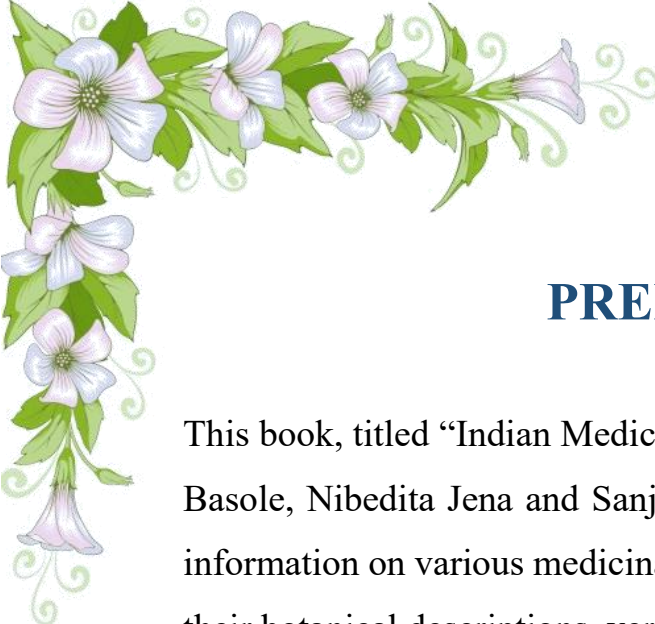
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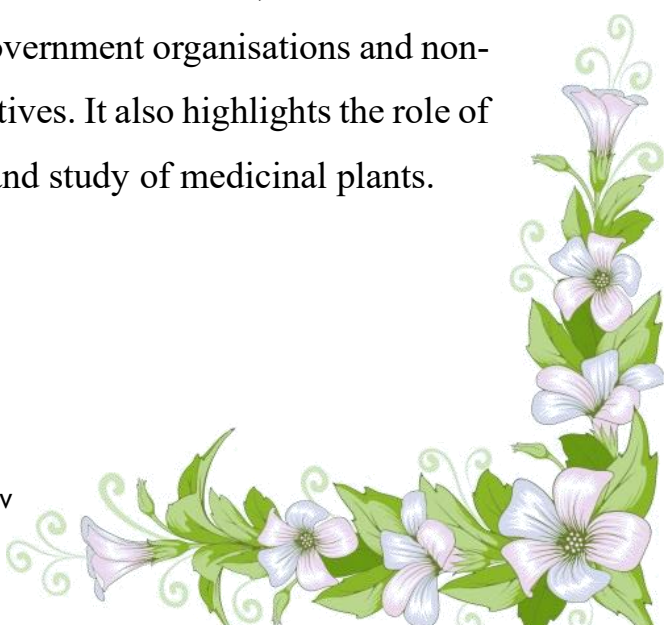
*Nature, a generous healer through
the magic of medicinal plants*



PREFACE

This book, titled “Indian Medicinal Plants,” is authored by Smita Basole, Nibedita Jena and Sanjeet Kumar that provides detailed information on various medicinal plants found in India, including their botanical descriptions, vernacular names, local names, parts used for propagation, medicinal & pharmacological uses, bioactive compounds, and IUCN status. The document is structured into chapters, each focusing on a specific plant, such as *Celastrus paniculatus*, *Cleistanthus collinus*, *Cryptolepis buchananii*, *Jatropha gossypifolia*, *Holarrhena pubescens*, *Mimosa pudica*, *Morinda pubescens*, *Schleichera oleosa*, *Terminalia chebula*, *Vitex negundo* etc.

Additionally, the document discusses the importance of medicinal plants in ancient and modern medicines, threats to their survival, conservation efforts, government organisations and non-governmental organisation initiatives. It also highlights the role of herbariums in the conservation and study of medicinal plants.



INTRODUCTION



Ancient civilizations are recognized for using plants as medicinal remedies for thousands of years. Medicinal plants have played a vital role in the field of human health and well-being. Human have turned towards naturopathy as these plants have been proven for being an invaluable source of medicines. Medicinal plants contain a wide range of secondary metabolites including flavonoids, terpenoids, alkaloids and glycosides etc., which are found to be responsible for showing magnificent healing properties for the treatment of common illness such as headache, infections, digestive issues to addressing major health problems like cancer, diabetes and cardiovascular diseases. They have also played a significant role in mythology across various cultures, often depicted as powerful entities with healing properties. In Hindu mythology, the Kalpavriksha (*Ficus religiosa*), a divine tree also known as Peepal, is a representative of Lord Bishnu that grants wish, is often seen as a symbol of healing, with medicinal herbs growing around it that are believed to possess curative powers.

It also believed that all Trimurtis (Brahma, Bishnu and Mahesh) were born under this tree (Sood et al., 2024). Another example like, *Anogeissus acuminata* is well-known for its medicinal properties extensively found across South Asia, Africa, and India. This plant is rich in active phytoconstituents with a long history of traditional uses in treating a variety of ailments like rheumatoid arthritis, tuberculosis, headache and eczema. This also closely linked to the socio-cultural and religious traditions of Odisha as the wood is specifically used in crafting the wheels of Lord Jagannatha's chariot, which are necessary for the renowned Ratha Yatra festival (Sureshrao et al. 2024). These mythical representations of medicinal plants reflect the deep cultural reverence for the natural world and its potential to heal both the body and the spirit. In the modern era, medicinal plants have been the raw sources in pharmacology, serving as the foundation for many pharmaceutical drugs and treatments. Contemporary science has recognized and incorporated the therapeutic effects of plant-based drugs, which were known to ancient civilizations and have been used for thousands of years. The growing understanding of medicinal plant usage has increased the ability of pharmacists and physicians to address the challenges that have arisen with the expansion of healthcare services, ultimately improving human well-being. Medicinal plants in India face several threats that risk their survival and availability, followed by the consequences, and conservation efforts including:

Threats

1. **Over-exploitation:** Extreme harvesting for commercial purposes resulted with the depletion of certain medicinal species.
2. **Habit loss:** Deforestation, urbanization, agricultural expansion and infrastructure development extensively reduces the natural habitat where they grow.
3. **Invasive species:** Non-native species outcompeting active medicinal plants.
4. **Harmful chemicals:** Extensive use of harmful agricultural chemicals negatively impact the growth and quality of medicinal plants.
5. **Climate change:** Rising temperatures affect in altering ecosystems which disturbing the growth patterns, particularly those found in specific regions or altitudes.

6. **Lack of conservation efforts:** Insufficient awareness, protection and regulation of the trade in medicinal plants contribute to their decline.
7. **Unsustainable harvesting practices:** Destruction of plant habitats.
8. **Pollution:** Soil, water, and air pollution affecting plant growth.
9. **Over-reliance on wild sources:** Dependence on wild plants rather than cultivated ones.

Consequences

1. Loss of biodiversity
2. Decreased availability of medicinal plants
3. Threats to traditional medicine systems
4. Economic impacts on local communities
5. Potential loss of new medicinal discoveries

Conservation efforts

1. Establish protected areas (national parks, wildlife sanctuaries)
2. Promote sustainable harvesting practices
3. Support cultivation of medicinal plants
4. Conduct research on medicinal plant conservation
5. Raise awareness about medicinal plant importance
6. Develop policies for medicinal plant conservation
7. Encourage community-led conservation initiatives

Government Initiatives

1. Works of National Medicinal Plants Board (NMPB).
2. Works of Ministry of AYUSH on Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy.
3. Different works under Forest Conservation Act, 1980

Need of community involvement in following works:

1. Local communities' involvement in conservation efforts.
2. Traditional knowledge documentation.
3. Sustainable livelihoods through medicinal plant cultivation.

Research and Development

1. Study medicinal plant ecology and conservation
2. Develop sustainable harvesting practices

3. Investigate medicinal plant potential

International Cooperation

1. Collaborate with international organizations (e.g., WHO, UNESCO)
2. Share knowledge and best practices
3. Joint research initiatives

Challenges

1. Lack of funding
2. Limited awareness
3. Inadequate infrastructure
4. Policy implementation gaps
5. Balancing conservation with commercial demands

For the conservation and study of medicinal plants, herbariums serving as essential repositories of plant specimens for the easy identification, conservation, scientific research and documentation. It provides a permanent record of plant species, their characteristics and geographic distribution, by preserving these plant samples in a dried and catalogued form. Herbariums also support the sustainable use of medicinal plants by helping in the identification of rare and endangered species, promoting their conservation. Furthermore, they offer valuable data for researchers studying plant biodiversity, ecological relationships and the potential development of new medicines, which could make up the gap between traditional knowledge and contemporary science.



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A close-up photograph of a plant, likely a species of Myrica. The image shows several green, oval-shaped fruits (infructs) clustered together, some with a reddish-brown base. A bright yellow flower with five petals and numerous stamens is visible in the lower right corner. The background is a soft-focus green, suggesting foliage.

ENUMERATION

Celastrus paniculatus Willd.

Vernacular name: Black oil tree (E), Malkangani (H), Valuluvai (T) and Velo (S).

Local Name: Kujari or Pengu

Botanical Description: It is a climbing shrub with long branches. Leaves are obovate, glabrous and the base is acute to rounded. The flowers are greenish or yellowish with ovate-oblong petals. Capsules yellow, 7-8 mm across with 3-6 seeds inside (Figures 1-2).

Parts for Propagation: Seeds and stem cutting.

Medicinal Uses: Seed oil is used to enhance memory and cognitive function.

Pharmacological Uses: Antioxidant, Anti-inflammatory, Antimicrobial and Neuroprotective.

Bioactive Compounds: Celastrine, paniculatine and different types of flavonoids.

IUCN Status: It comes under least concern (LC) but it also depends in the habitats. In some place, it comes under vulnerable category.

Future Research:

1. Need of more exploration works in ethnobotanical aspects.
2. More experimental works are needed in the line of cognitive enhancing effect and neuroprotection.
3. Clinical trials should be established to know their actual efficacy and safety.
4. Sustainable harvesting, propagation methods and biotechnological cultivation should be addressed properly.

(E: English, H: Hindi, T: Telugu, S: Sanskrit)



Figure 1: Plant parts of *C. paniculatus*

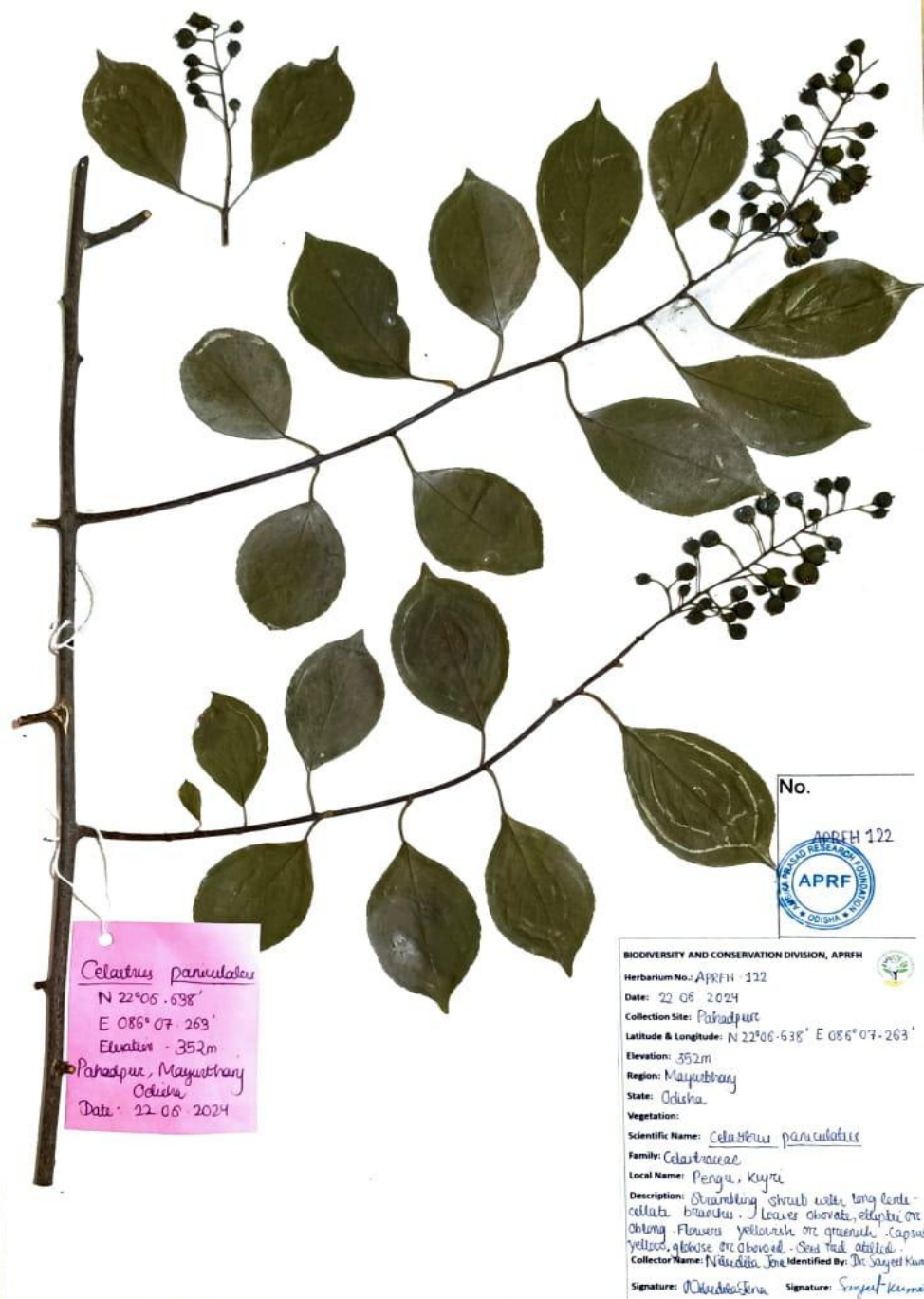


Figure 2: Herbarium of *C. paniculatus* (APRFH-122)

Cleistanthus collinus (Roxb.) Benth. ex

Vernacular name: Garari (H), Odan (M), Indrajaba (S)

Local Name: Karada, Pasu

Botanical Description: It is a shrub or small to moderate-sized tree. Leaves are broadly elliptic with fine reticulate nerves. Flowers are green, small about 6.1 to 7.4 mm across. Petals are minute and fleshy. Capsules are subglobose and woody, when ripe it becomes chestnut-coloured (Figures 3-4).

Parts for Propagation: Seeds and nodal segments.

Medicinal Uses: The extract of crushed leaves is used to treat gastrointestinal disorders.

Pharmacological Uses: Antimicrobial, anticancer and antifungal.

Bioactive Compounds: Cleistanthin, cleistanthoside and glycosides.

IUCN Status: It comes under vulnerable category but in Odisha state, India, it has good population.

Future Research:

1. There is need of more research work to understand the mechanism of *C. collinus* on the male reproductive system.
2. Experimental studies are required to identify and understand the toxic molecules along with their toxicity level.
3. More bioassay works are needed to understand the cardio-respiratory action in the poisoning of *C. collinus*.

(H: Hindi, M: Malayalam, S: Sanskrit)



Figure 3: Plant parts of *C. collinus*

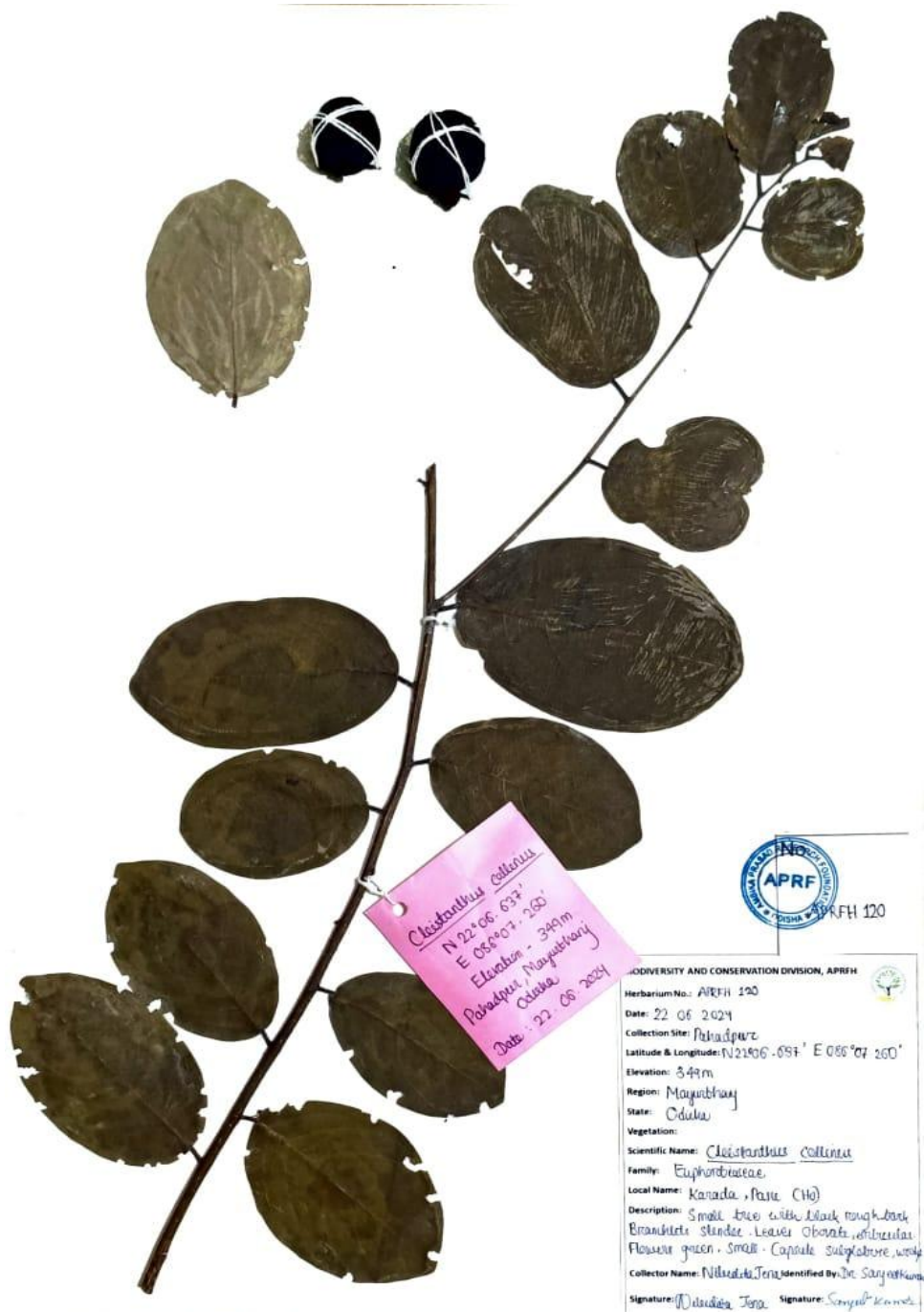


Figure 4: Herbarium of *C. collinus* (APRFH-120)

Cryptolepis buchananii R.Br. ex Roem. & Schult.

Vernacular name: Wax leaved climber (E), Kala bel (H), kavali (M), Pala koti (T), Krishnasariva (S).

Local Name: Dudhilata

Botanical Description: It is a large twining shrub with brown bark. Leaves are oblong or rounded, about 7-14 × 3.6-6.3 cm. Flowers are yellow, often paniced cymes with opposite, cymes usually 2.5-5 cm long and broad. Pollinia is very minute and linear. Follicles are poniard-shaped (Figures 5-6).

Parts for Propagation: Seeds, stems and roots.

Medicinal Uses: Its roots, stems and leaves are used for the treatment of bone fracture, paralysis and rickets by tribal people.

Pharmacological Uses: Anti-inflammatory, treatment for rickets and arthritis.

Bioactive Compounds: Buchananine, cryptolepine, armentogenin and cryptanosides.

IUCN Status: Not evaluated.

Future Research:

1. Further experimental analysis is required to isolate the active compounds possessing the anti-inflammatory activity.
2. More analytical studies are needed for the subacute and chronic toxicological effects in animals before proceedings of clinical trials.

(E: English, H: Hindi, M: Malayalam, T: Telugu, S: Sanskrit)



Figure 5: Plant parts of *C. buchananii*



Figure 6: Herbarium of *C. buchananii* (APRFH-127)

Holarrhena pubescens Wall. ex G. Don

Vernacular name: Kutaja (H), Kodagasana (K), Kewar (P), Indrayava (S)

Local Name: Kurei, Kurchi, Paba

Botanical Description: It is a large shrub or small tree species with smooth branches. Leaves are elliptic-oblong about $7-30 \times 3.4-12.5$ cm. Flowers are white. Seeds are linear-oblong with a long comma (Figures 7-8).

Parts for Propagation: Seeds.

Medicinal Uses: The seed powder of the plant is used to treat fevers. The leaves are used to treat bronchitis and ulcers.

Pharmacological Uses: Antidysenteric, astringent and anthelmintic.

Bioactive Compounds: Pubadysone, pubamide and puboestrene.

IUCN Status: Least concern

Future Research:

1. There are more possible studies can be done on anti-inflammatory, and anti-amnesic properties.
2. Experimental analysis should be done for the identification of its active phytoconstituents and their effects on oxidative stress in dendritic cells.
3. In vitro and in vivo studies are required for the understanding of its biological activities and toxicity.

(H: Hindi, K: Kannada, P: Punjabi, S: Sanskrit)



Figure 7: Plant parts of *H. pubescens*

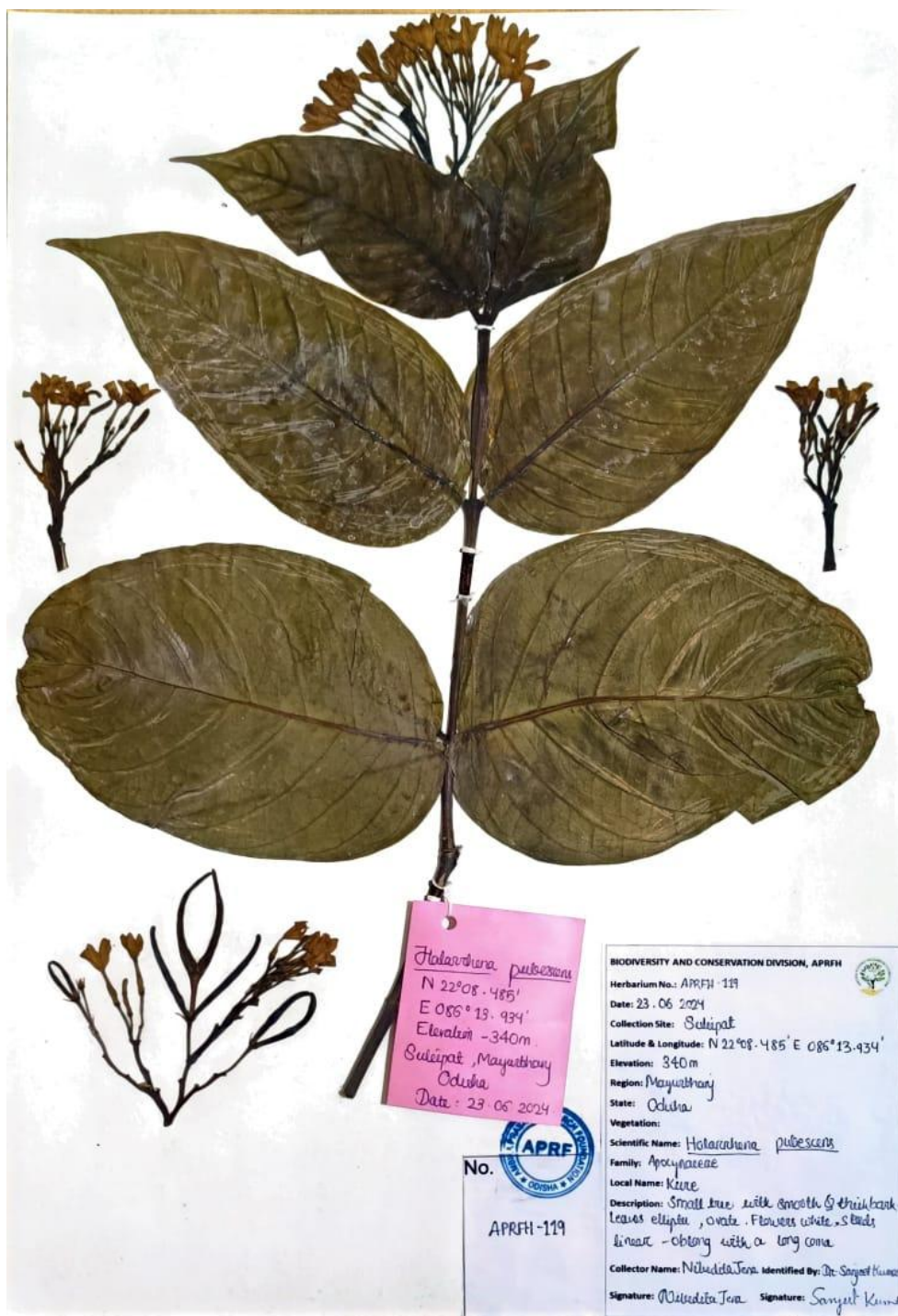


Figure 8: Herbarium of *H. pubescens* (APRFH-119)

Jatropha gossypifolia L.

Vernacular name: Lal Bherenda (B), Bellyache bush (E), Ratanjoti (H), Chikka Kada Haralu (K).

Local Name: Baigaba, Potam Jada

Botanical Description: It is a shrub species with suborbicular leaves about 7-13 cm diam. Flowers are red with yellow centre, in glandular corymbose cymes. Petals are free with 10-12 stamens (Figures 9-10).

Parts for Propagation: Stem cuttings.

Medicinal Uses: The latex is used to treat wounds and bites from venomous animals. Diluted latex is used to treat diarrhoea.

Pharmacological Uses: Antineoplastic, antioxidant and anticholinesterase.

Bioactive Compounds: Coumarins, saponins, steroids and lignoids.

IUCN Status: Least concern.

Future Research:

1. Experimental analysis is required for the isolation of bioactive compounds for novel pharmaceutical productions.
2. More clinical studies and trials should be done for the future implementation.

(B: Bengali, E: English, H: Hindi, K: Kannada)



Figure 9: Plant parts of *J. gossypifolia*



Figure 10: Herbarium of *J. gossypifolia* (APRFH-126)

Mimosa pudica L.

Vernacular name: Touch-me-not (E), Nilajban (A), Lajwanti (H), Muchuga (K).

Local Name: Lajakuli, Japith

Botanical Description: It is a small prostrate herb with prickly stems. Leaves are spreading, long petioled with linear leaflets. Flowers are bisexual; calyx and petals 4-lobed. Pods clustered, jointed with weak prickles (Figures 11-12).

Parts for Propagation: Seeds and stem cuttings.

Medicinal Uses: The leaves are applied to the forehead to relieve headaches and migraines. A decoction of the leaves and seeds is used to treat urinary tract infections.

Pharmacological Uses: Antimalarial, antidiabetic and anxiolytic.

Bioactive Compounds: Chlorogenic acid, gallic acid, caffeic acid and catechin.

IUCN Status: Least concern.

Future Research:

1. Experimental analysis is needed for the isolation of phytochemicals along with their mechanisms to explore the toxicity of *Mimosa pudica* to make sure of its safe use.
2. Pharmacological studies are required to test the effects of genetically encoded sensors on AP generation.

(A: Assamese, E: English, H: Hindi, K: Kannada)



Figure 11: Plant parts of *M. pudica*



Figure 12: Herbarium of *M. pudica* (APRFH-124)

Morinda pubescens Sm.

Vernacular name: Indian Mulberry (E), Aal (H), Dhaula (M), Maddi (T), Paphanah (S).

Local Name: Achu, Sali

Botanical Description: It is a small tree species with brown or gray bark. Leaves are obovate, elliptic; secondary nerves 5-10, base often unequal. Flowers are white, 1.6-2.6 cm diam. Fruits usually whitish-green, less than 1.8 cm diameter (Figures 13-14).

Parts for Propagation: Seeds, stem and root cuttings.

Medicinal Uses: The leaves can be used to treat wounds, inflammation. The plant is also used to treat hypertension and blood purification.

Pharmacological Uses: Antioxidant and nephroprotective.

Bioactive Compounds: Carotenoids, polyunsaturated fatty acids, phytosterols and tocopherols.

IUCN Status: Not evaluated.

Future Research:

1. Further studies are needed to identify the bioactive compounds responsible for the therapeutic effects.
2. Experimental analysis is required to assess the toxicological data of *M. pubescens*.

(E: English, H: Hindi, M: Malayalam, T: Telugu, S: Sanskrit)



Figure 13: Plant parts of *M. pubescens*

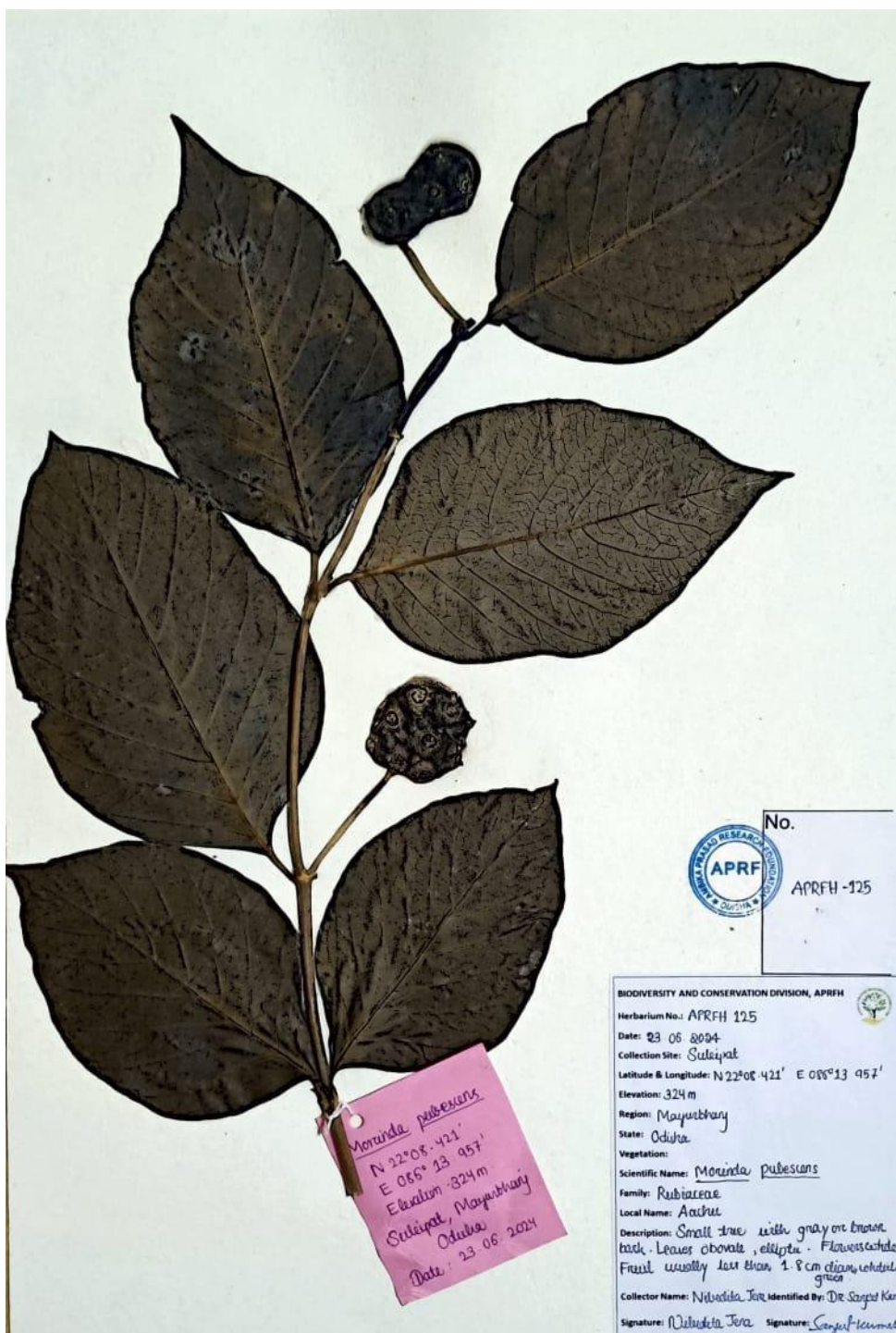


Figure 14: Herbarium of *M. pubescens* (APRFH-125)

Schleichera oleosa (Lour.) Oken

Vernacular name: Ceylon oak (E), Posku (T), Kusumb (M), Kumbadiri (T), Cottilai (M).

Local Name: Baru, Kusum

Botanical Description: It is a tree species with dense foliage and thin bark. Leaves are paripinnate about 22-40 cm long with 2-4 pairs of leaflets. Flowers are yellowish small; 5-8 stamens. The drupe is ovoid and sharply pointed with compressed brown seed (Figures 15-16).

Parts for Propagation: Seeds and stem cuttings.

Medicinal Uses: The oil extracted from the seeds is used as a massage oil for rheumatic pains. The water extract of the bark of the plant is used to treat menstrual pain.

Pharmacological Uses: Analgesic, antibiotic and antitumour.

Bioactive Compounds: Betulin, lupeol, beta-sitosterol and scopoletin.

IUCN Status: Least concern.

Future Research:

1. Further investigations are needed on their therapeutic potentials which could be valuable for future drug formulations.

(E: English, T: Posku, M: Marathi, T: Tamil, M: Malayalam)



Figure 15: Plant parts of *S. oleosa*

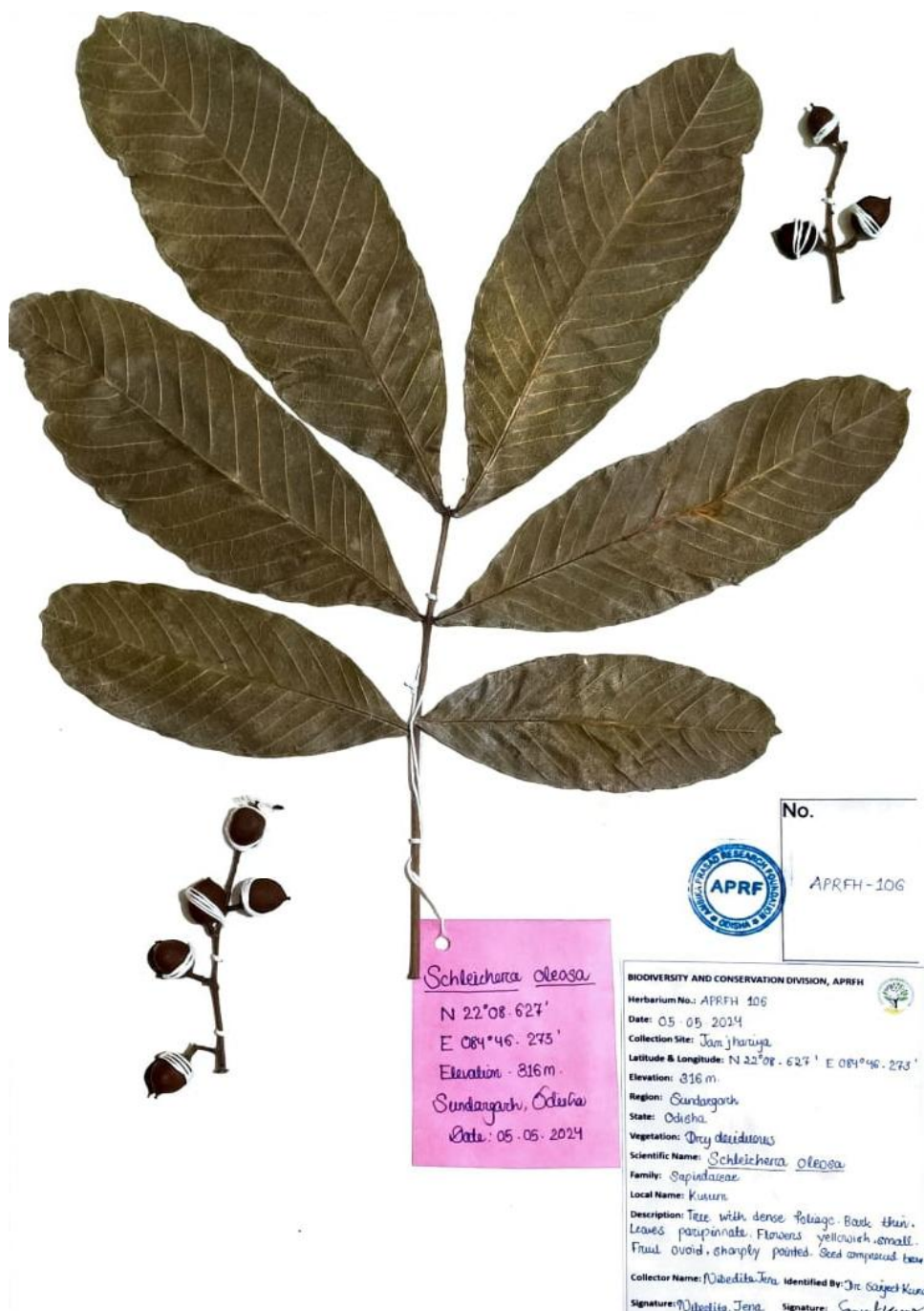


Figure 16: Herbarium of *S. oleosa* (APRFH-106)

Terminalia chebula Retz.

Vernacular name: Hilika (A), Harra (H), Alale (K), Katukka (M), Harro (N).

Local Name: Harida, Rola

Botanical Description: It is a tree species with dark grey bark. Leaves are usually subopposite, ovate or elliptic. Flowers are whitish, very densely white villous within. Drupes are about 2.5-3 cm long and glabrous (Figures 17-18).

Parts for Propagation: Seeds.

Medicinal Uses: The fruit and seed powder are useful in treating diabetes mellitus and peptic ulcers.

Pharmacological Uses: Anti-inflammatory, anti-viral and hypoglycaemic.

Bioactive Compounds: Chebolic acid, ellagic acid and ethyl gallate.

IUCN Status: Least concern.

Future Research:

1. Experimental studies are needed for the isolation of secondary metabolites which could be responsible for the inhibitory activities on cancer cell growth.

(A: Assamese, H: Hindi, K: Kannada, M: Malayalam, N: Nepali)



Figure 17: Plant parts of *T. chebula*

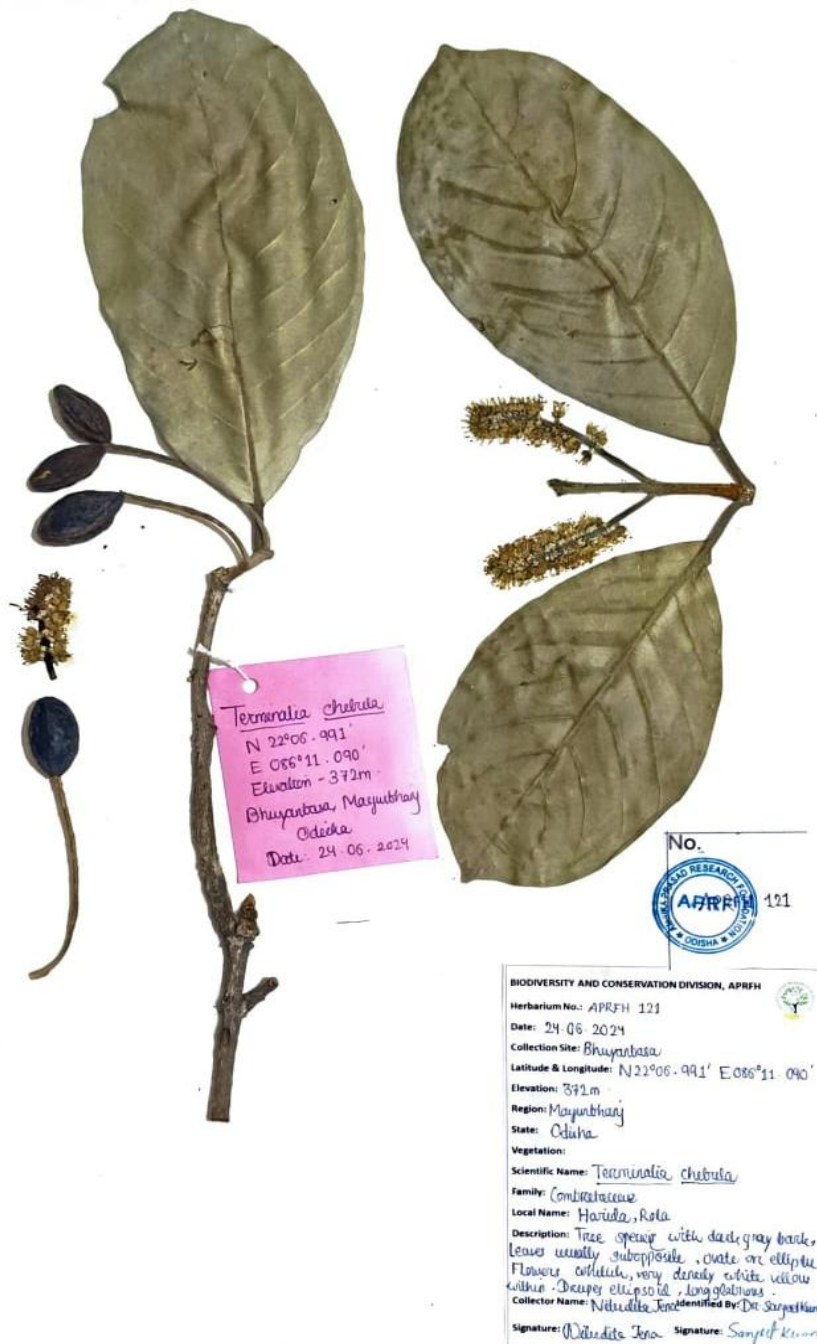


Figure 18: Herbarium of *T. chebula* (APRFH-121)

Vitex negundo L.

Vernacular name: Chaste tree (E), Nishinda (B), Nirgundi (H), Nochi (K), Simalee (N).

Local Name: Begna, Sinduari

Botanical Description: It is a shrub or small tree species with thin grey bark. Leaves are 3-5 foliolate; leaflets narrowly lanceolate about 5-15 cm long. Flowers are bluish purple or white, 5-18 cm long. Drupes are globose, 3 mm diameter (Figures 19-20).

Parts for Propagation: Seeds, stem cuttings and root suckers.

Medicinal Uses: Inhaling the smoke from the leaves can treat cough.

Pharmacological Uses: Anticancer, detoxicant and hepatoprotective.

Bioactive Compounds: Glycosidic irridoids, lignans, phenols and steroids.

IUCN Status: Least concern.

Future Research:

1. More clinical studies are needed to understand the mechanisms of action to make sure of its safety and efficacy in treating and preventing diseases.
2. More research is needed for the evaluation of possible side effects of its bioactive compounds.

(E: English, B: Bengali, H: Hindi, K: Kannada, N: Nepali)



Figure 19: Plant parts of *V. negundo*

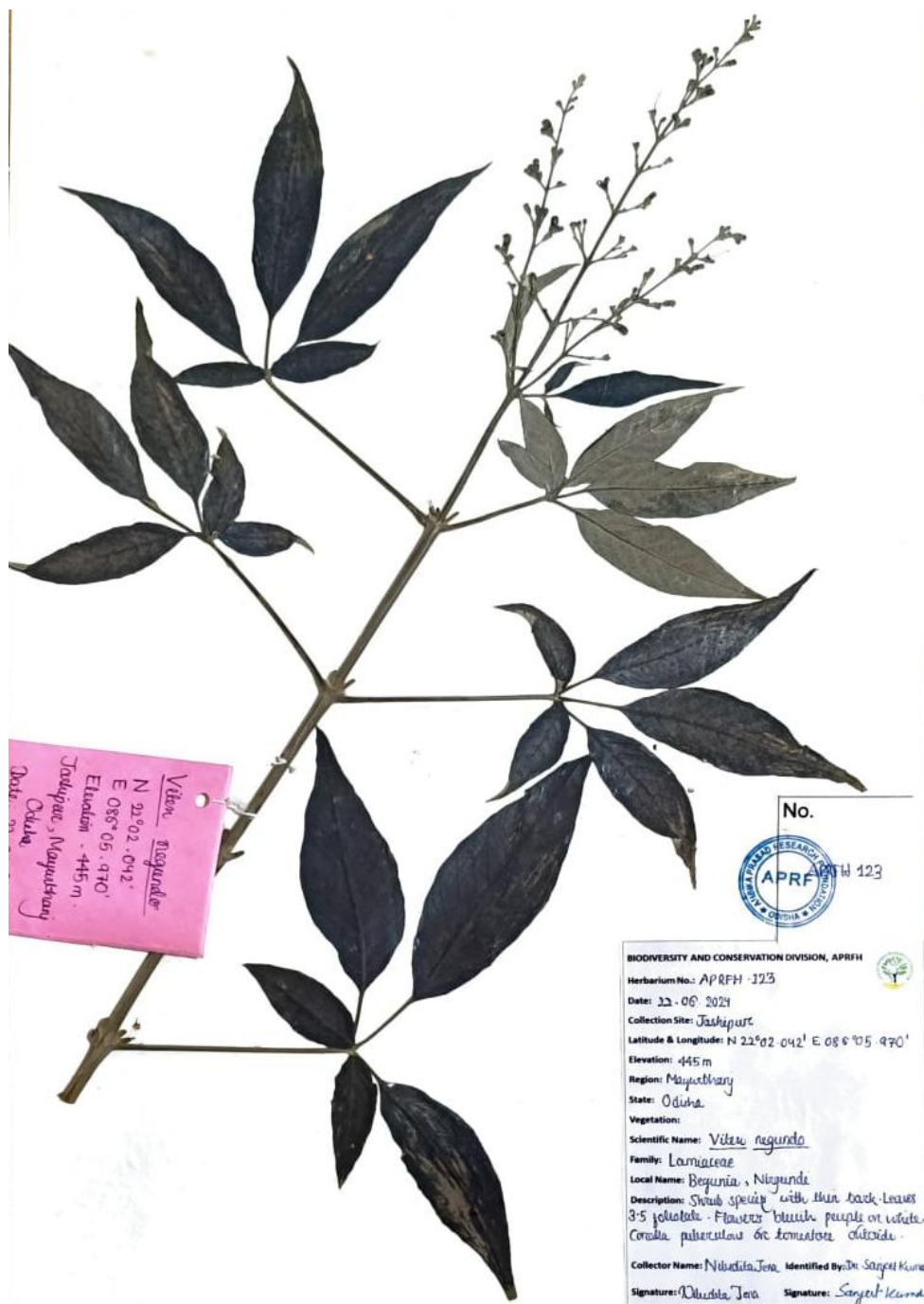


Figure 20: Herbarium of *V. negundo* (APRFH-123)

Field Photographs



Field Photographs



Field Photographs



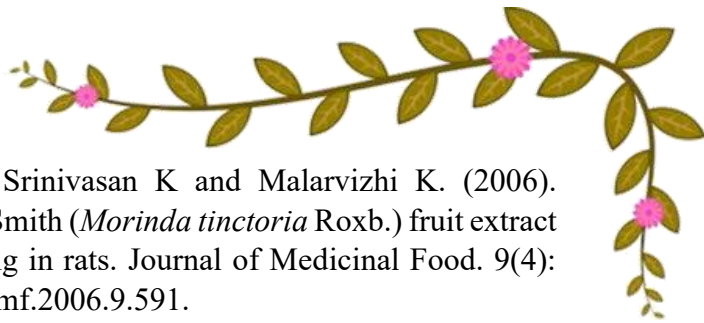
Field Photographs





BIBLIOGRAPHY

- Adurosakin OE, Iweala EJ, Otike JO, Dike ED, Uche ME, Owanta JI, Ugbogu OC, Chinedu SN and Ugbogu EA. (2023). Ethnomedicinal uses, phytochemistry, pharmacological activities and toxicological effects of *Mimosa pudica*- a review. Pharmacological Research-Modern Chinese Medicine. 7: 1-18.
- Bag A, Bhattacharyya SK and Chattopadhyay RR. (2013). The development of *Terminalia chebula* Retz. (Combretaceae) in clinical research. Asian Pacific Journal of Tropical Biomedicine. 3(3): 244-252.
- Basri F, Sharma HP, Firdaus S, Jain P, Ranjan A. (2014). A review of ethnomedicinal plant- *Vitex negundo* Linn. International Journal of Advanced Research. 2(3): 882-894.
- Bhatia H, Kaur J, Nandi S, Gurnani V, Chowdhury, Reddy PH, Vashishtha and Rath B. (2013). A review on *Schleichera oleosa*: pharmacological and environmental aspects. Journal of Pharmacy Research. 6(1): 224-229.
- Chaudhari ST, Singh J, Chaudhari H, Aher V and Pande S. (2024). *Vitex negundo* Linn (Nirgundi): journey from past to future therapeutic prospects. International Journal of Pharmaceutical and Clinical Research. 16(2): 681-688.
- Chichaghare AR, Deshmukh HK, Kumar NM and Jamatiya A. (2019). Garari (*Cleistanthus collinus*): multipurpose hedge crop for organic farming through agroforestry intervention. Journal of Pharmacognosy and Phytochemistry. 8(2): 2124-2127.
- Jedage and Manjunath (2016). Phytochemical, pharmacological evaluation of *Morinda pubescens* J.E.Sm. bark extract for nephroprotective activity. AYU. 37(3-4): 244-249.



Mathivanan N, Surendiran G, Srinivasan K and Malarvizhi K. (2006). *Morinda pubescens* J.E. Smith (*Morinda tinctoria* Roxb.) fruit extract accelerates wound healing in rats. Journal of Medicinal Food. 9(4): 591-593. DOI: 10.1089/jmf.2006.9.591.

Mili C, Boruah T, Dulal K and Kalita CK. (2024). A narrative review of ethnomedicinal usage, phytochemical constituents, and pharmacological activities of *Cryptolepis buchanani* Roem. & Schutt. (Asclepiadaceae). ELSEVIER. Pharmacological Research-Natural Products. 4: DOI: 10.1016/j.prenap.2024.100078.

Priyadarshini JF, Usharani S and Ramu P. (2023). Physiochemical and preliminary phytochemical screening of root of *Cryptolepis buchananii*. International Journal of Zoological Investigations.9(1): 572-577.

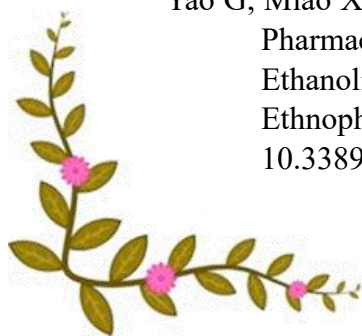
Saxena HO and Brahmam M. (1994). The Flora of Orissa. Volume 1-4. Regional Research Laboratory, Bhubaneswar and Orissa Forest Development Corporation Limited, Bhubaneswar.

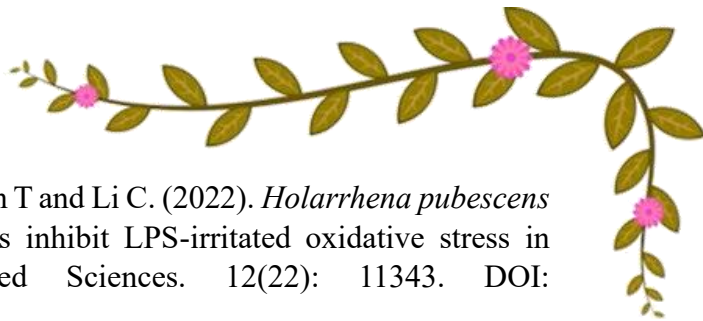
Silva JF, Giordani RB, Silva-Jr AAD, Zucolotto SM and Pedrosa MFF. (2014). *Jatropha gossypifolia* L. (Euphorbiaceae): a review of traditional uses, phytochemistry, pharmacology, and toxicology of this medicinal plant. Evidence Based Complementary Alternative Medicines. 2014: 369204. DOI: 10.1155/2014/369204.

Sood Y, Lal M, Rattan I and Walia V. (2024). Sanctified Trees (*Ficus religiosa* and *Ficus benghalensis*) in India: a significance and analogous mythology. International Journal of Plant & Soil Science. 36(10): 199-207.

Sureshrao GA, Singh B, Nisha KK, Kumar NA, Radke S, Mishra S and Kumar S. (2024). Comprehensive review on *Anogeissus acuminata* (Roxb. ex DC.) Wall. ex Guill. & Perr. Medicinal Combretaceae of India. APRF Publishers, India. 1: 1-9.

Yao G, Miao X, Wu M, Lv Z, Bai Y, Chang Y, Ouyang H and He J. (2023). Pharmacokinetics of active compounds of a *Terminalia chebula* Retz. Ethanolic extract after oral administration rats using UPLC-MS/MS. Ethnopharmacology. Frontiers in Pharmacology. 14: 1067089. DOI: 10.3389/fphar.2023.1067089.





Yin Y, Zhou B, Bai L, Feng D, Qin T and Li C. (2022). *Holarrhena pubescens* Wall. ex G. Don extracts inhibit LPS-irritated oxidative stress in dendritic cells. *Applied Sciences*. 12(22): 11343. DOI: 10.3390/app122211343.

Younus M. (2015). Ethno botanical study and traditional uses of *Celastrus paniculatus*. *International Journal of Innovative Science, Engineering & Technology*. 2(11): 139-143.

Zahara K, Panda SK, Swain SS and Luyten W. (2020). Metabolic diversity and therapeutic potential of *Holarrhena pubescens*: an important ethnomedicinal plant. *Biomolecules*. 10(9): 1341. DOI: 10.3390/biom10091341.





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