

Pharmacognosy Unit BSI, Headquarters

A.B.D. Selvam
Scientist - D

Ph.D. Thesis

Studies on Pharmacognosy, Phytochemistry and
Biological activities of *Plumeria alba* L. and
Carissa spinarum L. (Apocynaceae).

**STUDIES ON PHARMACOGNOSY, PHYTOCHEMISTRY
AND BIOLOGICAL ACTIVITIES OF *PLUMERIA ALBA* L.
AND *CARISSA SPINARUM* L. (APOCYNACEAE)**

THIS THESIS SUBMITTED TO THE
UNIVERSITY OF MADRAS
FOR THE AWARD OF THE DEGREE OF
DOCTOR OF PHILOSOPHY

By

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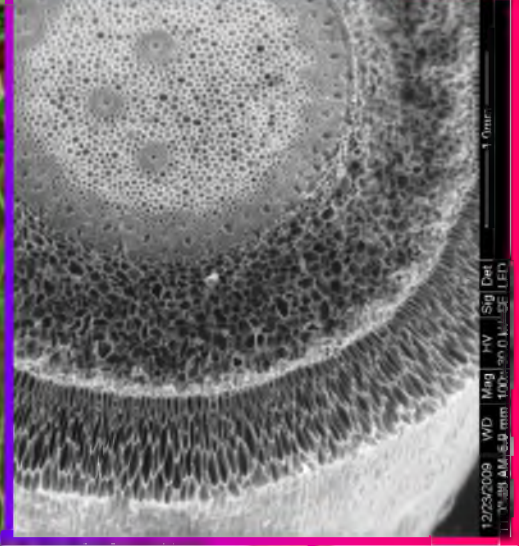
DECEMBER 1994

Annual Action Plan projects

- ✓ Pharmacognosy of Negative listed Plants (2003 – 09)
- ✓ Pharmacognosy of Indian Aconites (2010 – 16)
- Pharmacognosy of Indian Cycads (2016 – 21)

Project - completed

Pharmacognostic studies on Negative listed Plants



Valley of Aconites - VIDEO

Field tour (2016-17)

Undertaken a field tour to **Andhra Pradesh** (Chittor district) collected Cycads (leaves, male and female cones).

- Tirumala hills.
- Chamala forest.
- Thalakona reserve forests.
- Sri Venkateswara University Campus.
- Bhakarapeta Forest Range Officer's campus.
- Chittecharala village.

(9 field numbers and 3 species)

PLANT COLLECTION TOURS

Meghalaya viz. Shillong, Upper Shillong, Jarain (Amalarm) and Barapani from 5.10.2003 to 14.10.2003.

Maharashtra and Andhra Pradesh from 26.06.2004.

S.V. National Park, Andhra Pradesh from 01.11.2004 to 05.11.2004.

Chamoli district of Uttaranchal (Valley of Flowers etc.) from 03.09.2005 to 19.09.2005.

Sikkim and Tawang District of Arunachal Pradesh from 25.06.2006 to 10.07.2006.

East Sikkim from 21.10.2006 to 30.10.2006.

Himachal Pradesh from 15.09.2007 to 25.09.2007.

Sikkim during the period from 03.08.10 to 15.08.10.

East & North Sikkim during the period from 16.07.11 to 01.08.11.

East & North Sikkim and also **Darjeeling district of West Bengal**.

Himachal Pradesh (Pin valley National park of Lahul & Spiti district) from 27.08.13 to 15.09.13.

Jammu & Kashmir and Himachal Pradesh from 03.07.15 to 21.07.15.

Nagaland (Dzukou valley) & Darjeeling district of West Bengal (Singalila National Park).

Andhra Pradesh during the period from 04.06.16 to 13.06.16.

Pharmacognostic studies on 3 species of *Cycas*.

- Leaf anatomy - LM
- Leaf morphology - SEM
- Pollen morphology - LM
- Pollen morphology - SEM

Advisory Services

Vegetable Crude Drugs authenticated

Sr. No.	Year	Total samples
1	2004 - 2005	34
2	2005 – 2006	27
3	2006 – 2007	25
4	2007 – 2008	65
5	2008 – 2009	30
6	2009 – 2010	50
7	2010 – 2011	42
8	2011 – 2012	40
9	2012 – 2013	40
10	2013 – 2014	62
11	2014 - 2015	50
12	2015 – 2016	22
13	2016 – 2017	32
Total		519

Publications

- Selvam, A.B.D. 2016. **Indian Cycas L.: An overview.** In: Chourasia, H.K & Roy, A.K. (eds.), **Conservation, Cultivation, Diseases and Therapeutic Importance of Medicinal and Aromatic Plants.** Today & Tomorrow's Printers and Publishers, New Delhi. pp. 307–314.
- Selvam, A.B.D. 2016. **Trans-anatomy: A new Botanical Term.** World J. Pharm. Pharmaceut. Sci. 5(9): 1539–1546.

Phcog Rev.: Review Article Inventory of Vegetable Crude Drug samples housed in Botanical Survey of India, Howrah

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ABSTRACT

This paper provides a comprehensive list of about 472 authentic vegetable crude drug samples belonging to about 375 plant species that are housed in the Crude Drug Museum (CDM) of Pharmacognosy Section, Botanical Survey of India (BSI), Howrah. This museum is a repository of raw drug samples or vegetable crude drug samples such as rhizomes, roots, stems, wood, bark, leaves, flowers, fruits, seeds etc. that are commonly used in the Indian Systems of Medicine (ISM). It provides a baseline information on these raw drugs. The various uses of this museum have been highlighted in this paper.

KEY WORDS: Inventory, Vegetable Crude Drugs, Crude Drug Museum, Pharmacognosy Section, Botanical Survey of India.

INTRODUCTION

Since its inception in the year 1960, the Pharmacognosy unit of Botanical Survey of India located at the Central National Herbarium Building in Indian Botanic Garden Campus, Howrah has been engaged in studying the Pharmacognostic aspects of medicinal and economically important plants. Further, it is rendering public/advisory services to the teaching and research institutions and so on.

The Pharmacognosy unit is maintaining a Crude Drug Museum and at present, it is holding a total of about 472 vegetable crude drug samples (exhibits) belonging to about 375 plant species collected from different parts of India. A large number of school, college and university students, researchers and others across the country visit this Museum to consult vegetable crude drug samples (medicinal plants/plant parts) in connection with their studies and research work. This priceless botanical treasure plays an immense role in the identification and authentication of vegetable crude drug samples, which are received from outside agencies such as customs and forest authorities, research institutions, pharmaceutical companies and others.

MATERIALS AND METHODS

The various data under the following headings viz. number

Of the available/enlisted 472 vegetable crude drug samples, about 50 vegetable crude drug samples were incorporated by the author recently, which were either received from outside agencies for identification/authentication or collected by the author from different parts of India during the field collection tours undertaken by him in connection with the project entitled "Pharmacognostic studies on some selected plants of Negative list of Export".

DISCUSSION

Providing of too many names (trade names, common names and vernacular names) to refer a single vegetable Crude drug and also using a single name to refer more than one vegetable crude drugs is a common practice in India, which often leads to confusion, deception and also gives room for fraudulent activities in the trade.

In India, various systems of medicine such as Siddha, Ayurveda, Unani, Homoeopathy, Tibetan, tribal, folk medicine etc. are in practice, which are predominantly based on the raw drugs/vegetable crude drugs in most of their drug preparations or formulations. The aforesaid ambiguous names (using many trade names to refer a single crude drug and a single name to refer more than one crude drugs) may often lead to/and/or in using an irrelevant crude drug(s) instead of

Conference

National:

Title: National Conference on Conservation, Cultivation, Diseases and Therapeutic Importance of Medicinal and Aromatic Plants.

Topic: Indian *Cycas* L.: An Overview.

Venue: T.N.B. College, Bhagalpur, Bihar, on 21.11.2016 .

International (**Abstract accepted**):

Title: International Conference on Pharmacy and Pharmacology.

Topic: *Cycas beddomei* Dyer: An endemic and endangered Indian medicinal Plant.

Venue: Bangkok, Thailand, during 17-18, December 2017.

Scientific papers presented in National Conferences, Symposium, Workshop, etc.

National:

1. Attended 3-day National Symposium on recent trends in Plant Sciences & 27th All India Botanical Conference held at Sri Krishnadevaraya University, Anantapur, AP, during 29-31, October 2004
2. Attended a five-day 98th Indian Science Congress held at SRM University, Kattankulathur, Chennai during 3rd – 7th, January 2011 organised jointly by Indian Science Congress Association.
3. Attended National Workshop on Botanical Identification & Evaluation of Indian Medicinal Plants held at Jadavpur University, Kolkata.
4. Attended National Workshop on 'Preservation Methods along with the Practical Techniques in Botany' held at the University of Burdwan, on 04.03.14.
5. Attended the National Conference on "Conservation of Medicinal Plants: Conventional and Modern Approaches" held on 16.03.2016 at T.N.B. College, Bhagalpur.
6. Attended a National conference on "Conservation, Cultivation, Diseases and Therapeutic importance of Medicinal and Aromatic plants" held at T.N.B. College, Bhagalpur during 21 – 23, November 2016.

International (Abstracts accepted/published):

1. An abstract "Identification of Blue and Red Vanda with SEM of aerial Velamen roots" published in "XVIII International Botanical Congress (IBC 2011)" held in Melbourne, Australia, 23 – 30 July 2011.
2. Attended Conference, an abstract entitled 'Application of Scanning Electron Microscopy (SEM) in Plant Taxonomy' written by Dr. A.B.D. Selvam and others published in Abstract book of "International Conference on Electron Microscopy" held at Kolkata during July 3 - 5, 2013.
3. Abstract "Anatomy & Identification of Indian Medicinal Aconites" 2nd International Conference & Exhibition on Pharmacognosy, Phytochemistry and Natural Products, Beijing, China Aug 25-27, 2014.

Summary

Number of projects completed : 2

Number of **books** written : 2 + 1

Number of **book chapters** : 3

Number of **research papers** : 24

Number of **popular articles** : 7 + 2

Future Plan of Action

To study

VEGETABLE CRUDE DRUGS ...

PHARMACOGNOSTICALLY REPUTED ORGANIZATIONS

- 1.RRL, Jammu (IIM)
- 2.NISCAIR, New Delhi
- 3.CCRAS, New Delhi
- 4.NBRI, Lucknow
- 5.CIMAP, Lucknow
- 6.ARYA VAIDYA SALA, Kottakkal
- 7.FRLHT, Bangalore
- 8.NATIONAL INSTITUTE OF SIDDHA, Chennai
- 9.CSMDRIA, Chennai

Thank you