

A PHARMAGNOSTICAL STUDY OF MELIA AZEDARACH LINN**Dr. Umesh Kumar Singh and Dr. Sunita D. Ram**

MO (Ayush) Bihar MD (Dravyagun) Dept of Dravyaguna. Auto. Govt Dhanwantari Ayurved College Ujjain M.P.
H.O.D Dept of Dravyaguna. Auto. Govt Dhanwantari Ayurved College Ujjain M.P.

***Corresponding Author: Dr. Umesh kumar singh**

MO (Ayush) Bihar MD (Dravyagun) Dept of Dravyaguna. Auto. Govt Dhanwantari Ayurved College Ujjain M.P.

Article Received on 09/08/2017

Article Revised on 29/08/2017

Article Accepted on 19/09/2017

ABSTRACT

The term pharmacognosy is derived from two Greek words 'Pharmacon' means drugs and Gignosco or Gnosis - to acquire knowledge. The original and basic approach towards phrmacognosy includes study of morphological system, study of the cell structures and organization and study of tissue system, which still holds a key in identification and the better understanding of the correct species of the plant and also to help us to differentiate between closely related species of the same genus. It is also the first step to standardize a drug, which is the need of today.

KEYWORDS: Since vedic kala and Samhita kala even.**INTRODUCTION**

The term pharmacognosy is derived from two Greek words 'Pharmacon' means drugs and Gignosco or Gnosis - to acquire knowledge. The original and basic approach towards phrmacognosy includes study of morphological system, study of the cell structures and organization and study of tissue system, which still holds a key in identification and the better understanding of the correct species of the plant and also to help us to differentiate between closely related species of the same genus. It is also the first step to standardize a drug, which is the need of today.

Since vedic kala and Samhita kala even, our Acharyas have stressed on proper identification of the drug before use. In Nighantu kala, Raj Nighantukar (1/13) has given 7 methods for identification of drug, these are Rudhi, Prabhav, Desh, Lanchan, Upama, Virya and Atidesh.

But later on with the increasing in number of the drugs and Nighntu, which are hotchpotch of synonyms, drugs became controversial. Moreover today, in the age of globalization, raw drugs collection is done by unskilled persons causes doubt in the genuineness and possible adulteration. Unlike the traditional methods the participation of traders in the chain of procurement of drugs, adulteration is increasing day by day when the original genuine material is not available in sufficient quantity; the allied species of plant with proven efficacy or similar chemical constituents can be used as substitute and in such instances efforts should be made for a systematic identification by pharmacognostical methods.

Melia azaderach was first discovered by Linnaeus in 1753. The generic name is derived from the Greek word melia -manna ash, referring to the resemblance of the leaves to Fraxinus ornus. The species name is from the Persian-azadarakht, meaning -noble tree.

Latin name-Melia azaderach Linn.**Common name-**chinaberry.**International name English-**Barbados lilac, Pride of india, Umbrella tree, White cedar.**Spanish-**arbol del paraiso.**French-** azadarach, lilac des Antilles.**Taxonomical classification****Domain-**Eukaryotes**Kingdom-**Plantae**Sub kingdom-**Viridiaeplantae**Phylum-**Magnoliophyta**Sub-phylum-**Spermatophytina**Infra- phylum-**Angiospermae**Class-**Magnoliopsida**Sub- class-**Rosidae**Super- order-**Rutanae**Order-**Sapindales**Sub- order-** Melineae**Family-**Meliaceae**Sub- Family-**Melioideae**Tribe-** Melieae**Genus-**Melia

Species-azaderach.

Synonymes of Melia azaderach- azedarach azaderach China tree Chinaberry tree Melia azedarach Persianlilic Pride of india Pride of china.

Distribution-Tropical, sub-tropical and temperate region of the world. Cultivated throughout the middle east, the Indian subcontinent and china.

Character of Meliaceae family- Habit-mostly tree Leaves-Pinnately compound leaflets oblique Inflorescence- An axillary panicle Flowers- Regular often bisexual sometimes poly gamus hooogynous Calyx- Sepals(4-5) gamosepalous Corolla-Petals(4-5),usually polypetalous Androcium -Stamen(8-10),generally united into a long or short staminas tube Gynaecium –carpels(2-5), syncarpous ovary superior. Fruit –a capsule, berry or drupe. Seed- often winged, albuminous. Floral formulae- $\oplus K_{(4-5)} C_{4-5} A_{(8-10)} \underline{G}_{(2-5)}$.

Some plants of Meliaceae family-Azadirachta indica Ajuss, Melia azadirach linn, Soymida febrifuga Ajuss, Cedrela tooma Roxb.

Botanical Description- A moderate size, deciduous tree, ht 09-12 meter.

Leaf- Bipinnate occasionally tripinnate.

Leaflet are glabrous with short petioles, ovate or lanceolate entire are serrate. The leaves are faintly bitter which distinguishes from true Azadirachta leaves. Leaf shows the presence of one layer of upper epidermis with thick cuticle. Some of the epidermal cells are transformed into glands palisade is one layered, but some of the palisade cells split up in the middle and thus form two rows occasionally. Some of them contain rosette crystal of calcium-oxalate. The lower epidermal cells are similar in size. The spongy parenchyma is characterised by the presence of intercellular space, vascular bundle which indicate the position of veins are interspaced within the tissue. The xylum vessels shows spiral thickening. Transverse section through the midrib region shows an arc of phloem often with three subsidiary bundle and a ridge above and below, composed of collenchymas.

Stem Bark- Bark pieces are usually 4-8 cm long, 1-2 cm broad, 1-1.5 cm thick and curved. Lenticels are absent. Surface are scaly, colour blackish grey before and snuff brown after scrapping with a scalpel, flaking off in small pieces having cracks and fissure with clearcut edges. Fracture of outer bark is splintery and inner bark fibrous. Odour not characteristic, taste bitter.

Root and Root bark-The root system consist of a comparatively short tap root and a number of long horizontally growing lateral roots and their branches. The roots are stout and woody. The external appearance and general internal structure of the bark are usually

similar in all roots irrespective of their size. But the relative thickness and the degree of hardness of the outer portion of the bark, as well as the texture of the wood; vary in accordance with the age of the root and to some extent with the nature of the soil. The bark is however fairly soft to cut. The surface of the root bark is profusely covered with numerous large narrowly oblong lenticels, two to five millimetres long, arranged closely in regular longitudinal and intermittent transverse or annular rows. These rows of closely arranged lenticels give a rough appearance to the bark. The yellowish brown corky tissue fringing the opening of the lenticels irregularly alternate with thin narrow streaks of rusty brown tissue that forms the real skin. Thus even though the natural surface colour is rusty brown, it is masked to a great extent by the yellowish brown color of the lenticels. The outer bark varies in thickness according to the size of the root. It is generally soft and corky and therefore can be easily removed by scrapping or rubbing. It is composed mainly of several thin membranous to occasionally slightly crustaceous yellowish to rusty brown corky exfoliating layers. As in case of stem bark the officinal tissue in the root bark can be differentiated into a leathery peripheral purplish or rosy part, a somewhat nearly lustrous starchy white, soft middle region and a fibrous stratified inner portion. It also possesses the characteristic nauseating odour and bitter and astringent taste.

T.S. of Root of Melia azaderach Linn-Showing secondary growth, outer bark 2-3, layered formed of brick shaped cells compactly arranged and of dead tissue followed by 2-3, layered cork cambium secondary cortex 5-6 layered cells parenchymatous interspread by group of sclerids vascular bundle conjoint collateral endarch and open made up of secondary xylem, cork cambium and secondary phloem.

Substitutes and Adulterant-Melia azaderach is often confused with the Azadirachata indica tree to which it is related. A indica easily be distinguished by the absence of stellate leaf hairs, pinnate leaves (not bipinnate as in M azaderach), 3-lobed stigmas (not 5-lobed) and 1 to 2 seeded drupes (not up to 5-seeded).

Toxicology-Fruits are considered poisonous to man and animals. symptoms of paralysis and necrosis have been produced in experimental cats, dogs and sheeps by ingestion of the fruits.

Parts used- Bark, Fruit, Flower and Leaves.

Formulation and Preparations- Arshoghni vati, kandarpasar tail etc.

BIBLIOGRAPHY

1. A Sanskrit English dictionary Monier M. Williams; Motild Danarasidas, Delhi, 1988.
2. Amarkosa - Shri Bhattagi dixitat majavidwadwar shri bhanuji dixitakritiya-Ramashrami-Chaukhambha Sanskrit Samsthan,
3. Ayurvedic Pharmacopiea of India, Vol.02, Published by CCRAS, Govt. of India,
4. Bhavaprakasa Nighantu; Dr. K.C. Chunekar; Edited by G.S. Pandey; Choukhambha Bharati Academy, Varanasi, 2002.
5. Bhavaprakash nighantu (Indian material Medica of Sri Bhavmisra) by Dr. K.C. Chunekar, Published by Caukhambha Bharti academy Varanasi, Reprint, 2002.
6. Classical uses of Medicinal plants by Priya Vrat Sharma Chaukhamba Vishwabharati, Varanasi 1st edition, 1996.
7. College Botany and Applied Botany by Dr. R.M.Saxena and Dr. R.K.Sarbhoy, Arun Prakashan Gwalior.
8. Database on Medicinal plants used in Ayurveda(Vol.03) by P.C.Sharma, M.B. Yelne, T.J. Dennis Published by central council for Research in Ayurveda & Siddha (Deptt. Of ISM & H, Min. Of Health & Family welfare, Govt. of India) New Delhi.
9. Dhanvantari Nighantu by Prof. Priya Vrat Sharma, Published by Chaukhambha orientalia varanasi, 3rd edition, 2002.
10. Dravyagun hastamlak by vaidya vanvarilal Mishra p. by Publication Schem, 3rd edition, 1995.
11. Dravyaguna Vigyana (Materia Medica-vegetable druge) by Dr. Gyanendra Pandey, Krishnadas academy, Varanasi, 2nd edition, 2002.
12. Dravyaguna-Vijnana (Vol.II) by Prof. P.V. Sharma P. by C.Bh. aca. Bhu. Reprint, 1995.
13. Dravyguna kosha, Sharma R.V. Chaukhamba Bharti Acaamy Varanasi.
14. Essentials of Medical Pharmacology; K.D. Tripathi; Jaypee Brothers Medical Publishers, New Delhi; 5th edition, 2004.
15. Flora Medica, Important Plants used in medicine by John Lindlel Ajay book service, New Delhi, 1981.
16. Flora of Madhya Pradesh by D.M. Verma, N.P. Batakrishnan, R.D. Dixit, Published by Botanical survey of India Calcutta, 1993.
17. Gadanigraha with the 'Vidyotini' Hindi commentary; By Sri Indradeva Tripathi; Edited by Sri Ganga sahaya Pandeya; Choukhambha Sankrit series office, Varanasi; 1st edition, V.Samvat, 2026.
18. Glossary of India Medicinal Plants by R.N.Chopra, S.L.Nayar & I.C. Chopra Published by Council of Scientific & Industrial Reaearch New Delhi, 1956.
19. Glossary of Vegetable drugs in brhatrayi by Thakur Balwant Singh forward by pandit Shiv Sharma. Published by Chaukhamba Amarabharti Prakashan Varanasi, 2nd edition, 1999.
20. Hutchison's Clinical Methods; Michael Swash; W.B. Saunders; 21st edition, 2002.
21. Indian Materia Medica, by the Late Dr. K.M. Nadkarni Chaukhambha Publications, 3rd Revised edition 1954reprinted, 2000.
22. Indian Materia Medica (Vol.I) by Dr.K.M. Nadkarni's, Bombay popular prakashan, 3rd revised edition, 1954.
23. Indiginious drug of india
24. Indian Medicinal Plants, K.R. Kirtikar, major B.D. Basu & Ani. C. S. international book distributors, Dehradun IInd edition.
25. Indian Medicinal Plants by Vaidyaratnam P.S.Varier's Arya Vaidya sala Kottakkal Published by orient Longman Limited, Hyderabad, 1994.
26. Indian Phamacopoea of Ayurvedic drugs Govt. of India.
27. Indian Plants and Drugs with their Medical Properties & uses, by K.M. Nadkarni Published by Asiatic published House Delhi, Reprint Indian edition
28. Indian plants and Drugs with their medical properties and uses Edited K.M. Nadkarni published by Asiatic publishing house Delhi Reprint Indian edition, 2001
29. Kaiyadeva-Nighantu(Pathyapathya-Vibodhakah) by Prof. Priya Vrata Shama and Guru Prasad Sharma Published by Chaukhambha Orientalia, 1st edition, 1979.
30. Materia Medica of Ayurveda based on Ayurveda Saukhyam of Fodarananda by Vaidya Bhagwan Dash. Concept publishing Company New Delhi- 1st edition, 1980.
31. Materia Medica of India And Their Therapeutics by Rustomjee Naserwanjee khory and Nanabhai Navrotri Katrak, Neeraj Publishing House Delhi, 2nd edition, 1984.
32. Materia Medica of India and their Therapeutics by Rustomjee Naserwanjee Khory and Nanabhai navrosji katrak Published by Neeraj Publishing house Delhi, 2nd reprint edition, 1984.
33. Materia Medica,of the Hindus By Uday chand dutt with a glossary of Indian plants by George king Chowkhambha Sasraswatibhawan Varanasi, 3rd edition.
34. Nighantu Adarsh, by Bapalal G. Vaidya Published by Chaukhamba Bharati academy Baranasi, 2nd edition, 1998.
35. Nighantu Kalpadrum, by Pt. Sudarshan Lal Trivedi Vaidyashastra Published by Bhargava Pustakalaya Kashi.
36. Pharmacology and Pharmaco-Therapeutics by V.Iswariah and M.N.Guruswami Published by P.Varadachary & Co.Madras, 7th edition reprinted, 1973.
37. Prinighantuh by Prof. Priya Vrat Sharma Published by Chaukhambha Surbharti Prakashan Varanasi, 2nd edition, 1995.
38. Rajanighantu of Pandit narhari "by Dr. Indradeo Tripathi Published by Mbha academy Baranasi, 3rd edition, 2003.
39. Shaligram nighantu,Lala Shaligram vaisha.

40. Sodal Nighantu (Nama Samgrahar & Guna Samgraha) of Vaidyacharya Sodhala, Edited by Priya vrat Sharma. Oriental Institute Baroda, 1978.
41. The Ayurvedic Pharmacopoeia of India; Government of India, Ministry of Health and family welfare Department of Helath; Ist edition, 1986.
42. Wealth of India, A Dictionary of Indian Raw Materials and Industrial Products, National Institute of Science Communication and Information Resources Council of Scientific & Industrial Research New Delhi.