

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

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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-**Viridiplantae**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- $\oplus K_{(4-5)} C_{4-5} A_{(8-10)} \overline{G}_{(2-5)}$.

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.

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