

A NEW SUBSPECIES OF *AZADIRACHTA INDICA* A. JUSS. (MELIACEAE) FROM INDIA

M. J. KOTHARI, A.N. LONDHE AND N.P. SINGH*

Botanical Survey of India, Pune

ABSTRACT

Azadirachta indica A. Juss. subsp. *vartakii* Kothari, Londhe et Singh (Meliaceae), a new subspecies closely related to *A. indica* A. Juss. is described. This subspecies can be distinguished by pinnatisect leaves, winged rachis, equilateral leaf bases with ultimate ends linear, acuminate, racemose inflorescences as long as leaves and smaller, oval-ellipsoid drupes.

INTRODUCTION

Hiern (1875) in Hooker's Fl. Brit. India records more than 20 genera and 100 species for the family Meliaceae. Chaudhuri (1965, 1967) studied Meliaceae of India and neighbouring countries and enumerated ca. 21 genera and 111 species. Abdulla (1972) and Nayar (1984) have mentioned ca. 50 genera and 1400 species in family Meliaceae. These species are distributed in Pantropical belt *i.e.* W. Africa, America, W. Indies, Myanmar, E. Australia, W. Pakistan and India. Recently, while revising family Meliaceae of India, Jain S.S. & Benett (1997) have mentioned

51 genera and *ca.* 575 species of the world distributed in the tropics and subtropics. Among them in India, 19 genera and 70 species are described. The genus *AZADIRACHTA* A. Juss. is distributed in Indo-Malesian region, with 2 species; one in India.

Recent plant exploration in Amaravati district of Maharashtra yielded a taxon quite different from any of the hitherto described taxa of *AZADIRACHTA* (Harms, 1940; Jacobs, 1961; Chaudhuri, 1965, 1967; Penington & Styles, 1975; Jain & Benett, 1997) and is described as a new subspecies of *Azadirachta indica* A. Juss. belonging to genus *AZADIRACHTA* A. Juss.

Azadirachta indica* A. Juss. subs. *vartakii
Kothari, Londhe et Singh, subsp. *nova*

(Fig.1). L.N. 'Trishunnim'.

This new subspecies is closely related to the typical subspecies, to be distinguished by pinnatisect leaves, winged rachis, equilateral leaf bases, with ultimate ends linear, acuminate, racemose inflorescences as long as leaves, smaller, oval-ellipsoid drupes, otherwise just as in typical subspecies.

Haec subspecies nova subspecie indicae arte affinis, foliis pinnatisectis, rhachidi alatus, folii basibus aequalateris extremis linearibus acuminatis, inflorescentiis racemosis folia aequantibus, drupis parvis ovatis-ellipsoidialibus dignoscenda, alitur velut in subspecie typicae.

Type : India. Maharashtra state, Amaravati District, Rani-Amaravati, 6th March, 1997, Kothari 173100 A (Holotype, CAL); Isotypes: 173100 B (K); 173100 C, D, E (BSI).

Trees, ca. 8-10 m high. Leaves simple, 7-15 cm long, crowded at branch ends, dissected (pinnatisect), serrate-crenate, ultimate ends linear, apex acute-acuminate, base equilateral, rachis winged. Inflorescence racemose, extra-axillary, as long as leaves. Flowers 4 mm across, regular, hermaphrodite, pedicelled, bracteate, pedicel 2 mm long, glabrous, bracts minute, caducous. Calyx 5-partite, sepals 1 mm long, rotund ovate, glabrous. Corolla creamy-white, petals 5 mm long,

much exceeding sepals 5, free, obovate-oblong, imbricate. Staminal tube 4 mm long, laciniate, obconic anthers 10, 1 mm long, apiculate. Disk 0. Carpels ca. 4 mm long, style 1, stigma 3-toothed. Ovary glabrous, 3-celled, ovule two in each cell. Drupes 0.4 × 0.2 × 0.7 cm, oval-ellipsoid, acute or truncate at proximal end, stalked, glabrous, stalk 5 mm long, glabrous.

Fl. & Fr. : February April.

Distribution : Hitherto known only from the type locality where only a few plants were present.

Ecology : *Azadirachta indica* subsp. *vartakii* is found in plain area on sandy gravelly soil.

Economic uses : Whole plant (Trishunim) is used to cure 'diabetes' (Fig.2)

Etymology : The subspecific epithet is attributed in honour of Dr. V.D. Vartak, former Director of Agharkar Research Institute, Pune, Advisor for Environmental Protection and for his contribution in the field of plant taxonomy, sacred groves, ethnobotany, conservation etc.

Relationships The morphological characters described for *A. indica* subsp. *vartakii* are allied to *A. indica* A. Juss. (L. N. 'Nim') in having similar habit, crowded, serrate-crenate leaves near branch ends, creamy-white flowers and 3-loculate drupaceous fruits and all parts with bitter taste. But differs in having distinguishing characters like pinnatisect leaves, winged

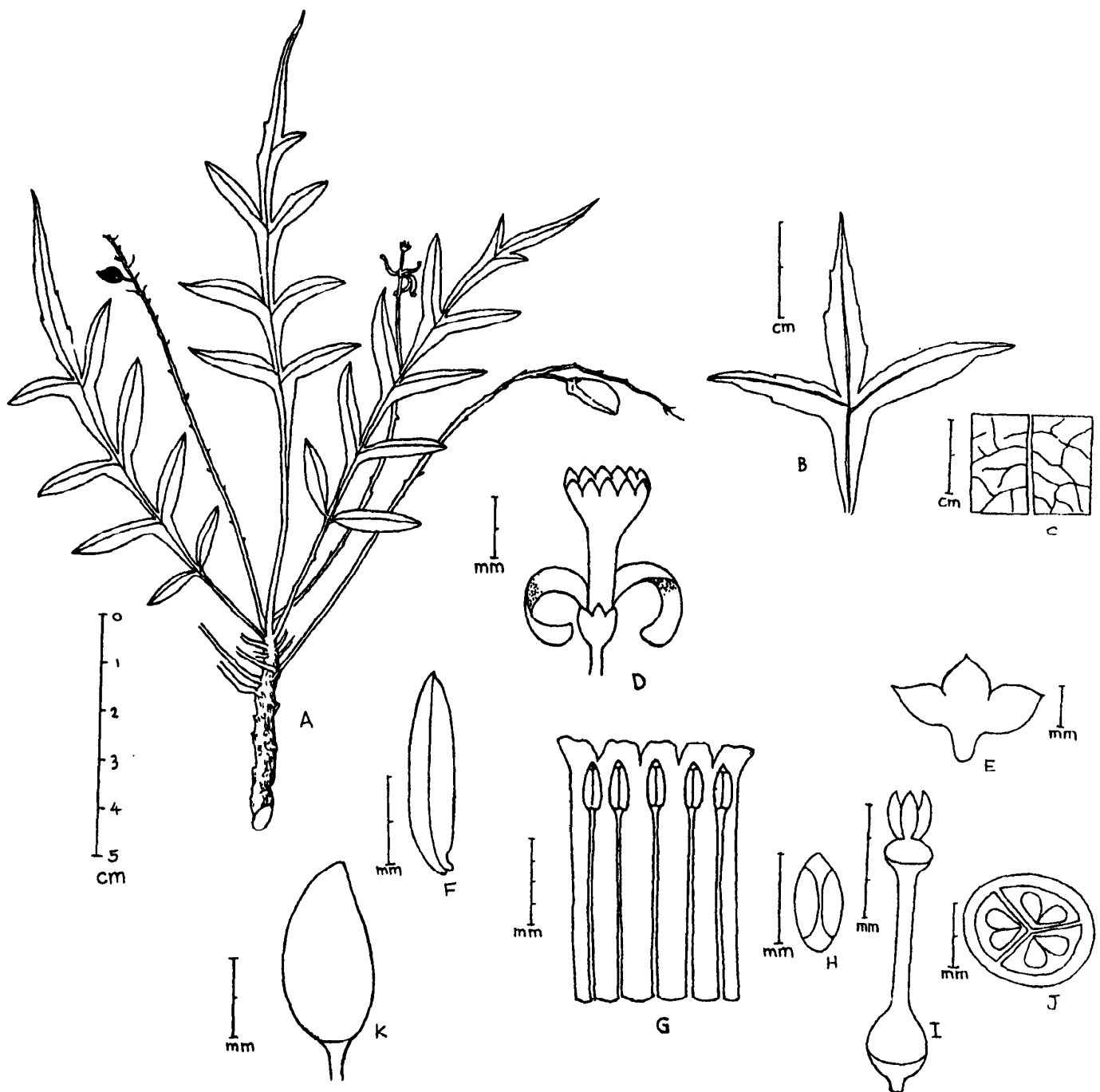


Fig.1. *Azadirachta indica* A. Juss. subsp. *vartakii* Kothari, Londhe et Singh.
 A. Habit; B. Leaf (Apical portion); C. Venation; D. Flower; E. Calyx; F. Petal;
 G. Staminal tube opened; H. Anther; I. Carpel; J. T.S. of ovary; K. Fruit.



Fig.2. A : *Azadirachta indica* A. Juss. subsp. *varitaki* Kothari, Londhe et Singh ssp. nov.
(‘V. N : *Trishun. nim*’)—Habit
B : A local vaid holding a twig of the same.

rachis, equilateral leaf base, acuminate leaves and smaller drupes in contrast to apex, racemose inflorescence as long as species proper. Details are given as under:

DIFFERENCES

	<i>A. indica</i> subsp. <i>indica</i>	<i>A. indica</i> subsp. <i>vartakii</i>
1. Habit	Large trees, ca. 12-15 m high.	Small trees ca. 8-10 m high.
2. Leaves	Simply pinnate, 20-40 cm long, rachis not winged, usually odd pinnae absent, leaf base inequilateral (oblique). acuminate, base equilateral.	Simple, dissected (pinnetisect) leaves, 7-15 cm long; rachis winged, ultimate ends linear, apex acute.
3. Inflorescence	Flowers in axillary panicles. Sizes of the flowers comparatively large i.e. ca. 6 mm across. Panicles much longer than leaves.	Flowers in extra axillary racemes. Size of the flowers comparatively small i.e. ca. 4 mm across. Racemes as long as leaves.
4. Drupes	Shape of olive, larger i.e. 1.2-1.9 cm long, oblong.	Shape oval to ellipsoid, smaller i.e. 0.4-1 cm long.

Note : Molecular analysis of above two neem plants collected from Amaravati and Pune was done at National Chemical Laboratory, Pune. The DNA finger printing report shows only 20% polymorphism between these two neem taxa. As morphological characters of the new subspecies, viz. *Azadirachta indica* ssp. *vartakii* are quite different than species proper, the present collection (Kothari 173100) from Amaravati deserves for new subspecies rank.

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