



## CENSUS OF THE FAMILY DIOSCOREACEAE IN NANDURBAR DISTRICT, MAHARASHTRA

<sup>1</sup>S. S. Pathak, <sup>2</sup>Nikhil Tayade, <sup>1</sup>S. K. Tayade, and <sup>3</sup>C. M. Pawara\*

<sup>1</sup>Department of Botany, P. S. G. V. P. Mandal's S I Patil Arts, G B Patel Science and S T K V Sangh Commerce College, Shahada Dist. Nandurbar (M. S.) 425 409

<sup>2</sup>Mahatma Phule Krishi Vidyapeeth, Rahuri's Government College of Agriculture, Dhule Dist. Dhule (M. S.) 424001

<sup>3</sup>S. P. D. M. College, Shirpur Dist. Dhule (M. S.) 425405\*

\*Corresponding author

### ABSTRACT:

The family with 10 genera and about 650 species are distributed in the warmer part of the globe. In Nandurbar district the family represented by 1 genus and 6 species. The family is divided into two tribes according to unisexual and bisexual flowers such as: Tribe I: Dioscoreae - Flowers unisexual, Tribe II: Stenomerideae - Flowers bisexual. The present communication shows the family Dioscoreaceae with one genera and six species are present in Nandurbar district. All six species are unisexual, male flowers show six fertile stamens while in the male flower of *Dioscorea belophylla* and *Dioscorea pentaphylla* only three stamens are fertile and three are staminodes.

Keywords: Dioscoreaceae Nandurbar District

### Introduction:

Nandurbar district is situated in Northern part of the state of Maharashtra bordering the state Gujarat and Madhya Pradesh. It is the most tribal district of Khandesh. The district occupies an area of 5955 km<sup>2</sup> and has a population of 16,48,295 of which about 70 % are tribal aborigines. Nandurbar district is bounded to the south and south - east by Dhule district, to the west and north is the state of Gujarat State. The northern boundary of the district is defined by the great Narmada River with Satpuda Mountain. The district comprises 6 Tehsils. These Tehsils are Akkalkuwa, Akrani Mahal, Taloda, Shahada, Nandurbar and Navapur. The family Dioscoreaceae popularly known as Yam family, many of which produce tuberous roots rich in starch; these tubers are staple foods of aborigines of Nandurbar District. In Nandurbar District the family Dioscoreaceae is unigeneric and having six species. (Lawrence, 1951; Patil, 2003; Gawande *et. al.*, 2015; Raza Waris, 2021).

### Materials and Methods:

The plant materials were procured from various places like Toranmal, Amblibari, Leghapani and Kakarda which are hilly region of Satpuda Mountain and Tehsils of Nandurbar districts. The field work carried out in different seasons encompassing every nook and corner of the district. The data pertaining to botanical name, local name, habit, flowering and fruiting period, phenology and occurrence were particularly noted during the study. Plants were identified by using, The Flora of Presidency of Bombay (Cook, 1958), Flora of Maharashtra State: Monocotyledons (Sharma *et. al.* 1996) and Flora of Dhule and Nandurbar Districts (Maharashtra), (Patil, 2003).

Description:

#### 1) *Dioscorea belophylla* (Prain) Voigt ex Haines

Local name: Kadua - kand

Perennial, trailing or twining, unarmed herbs. Leaves 5 - 15 x 3.2 - 9.2 cm, sagittate, ovate, glabrous, side of basal sinus straight. Male flowers in spike on leafless branches female in short, solitary spikes. Capsule with short stipe, sub - orbicular, slightly broader than long, wing evenly rounded, seeds winged.

Flowering and Fruiting: August - January

#### 2) *Dioscorea bulbifera* L.

Local name: Kand

Twining, dioecious glabrous shrubs. stem not prickly, twisted, bulbils axillary, warty. Leaves up to 20 x 20 cm, alternate, ovate - cordate to suborbicular, acute to acuminate, entire 7-13 nerved. Male flowers fragrant, white purple or pinkish, in simple or branched spikes; female flowers solitary or fascicled. Capsules quadrately oblong, winged, reflexed.

Flowering and Fruiting: September - October

### 3) *Dioscorea hispida* Dennst.

Local name: Wach - kand, vaskand

An extensive, prickly twiner, often bulbils on the node. Tubers globose, lobed. Stem pubescent. Leaves pubescent, 3 - 5 foliate, leaflets 9 - 10.5 x 3 - 5 cm, thick middle one obovate - elliptic, lateral one ovate elliptic, acuminate, cuneate 3 - nerved. Flowers are greenish yellow; male in the dense paniculate spikes females in elongated, simple, solitary, distant pikes. Capsule reflexed, wing semi - elliptic or semi ovate with a short margin; seeds winged towards base.

Flowering and Fruiting: August - October

### 4) *Dioscorea oppositifolia* L.

Local name: Adavi

Shrubs, slender twiners, Leaves alternate to opposite, 5 - 15 x 3 - 13 cm, glabrous, coriaceous, elliptic - oblong, elliptic - lanceolate or elliptic - obovate, yellow cartilaginous along margin. Male flowers in dense, shortly pedunculate spikes up to 5 cm long; female spikes axillary, drooping, 10 - 15 cm long. Capsules glabrous, broader than longer; seeds orbicular with a large, membranous wing all round.

Flowering and Fruiting: August - October

### 5) *Dioscorea pentaphylla* L.

Local name: Ulashi, Jagala

Herbaceous twiners, usually prickly towards base. Leaves alternate, 3 - 5 foliate, Leaflets 5 - 16 x 3 - 7.3 cm, obovate - oblong, elliptic - oblong or elliptic - lanceolate, base oblique, pubescent. Flowers white or greenish - white; males in racemose towards branch ending; female in pendulous spikes. Capsules longer than broad, wings dark, retuse at both ends, seeds winged only at the base.

Flowering and Fruiting: August - November

### 6) *Dioscorea wallichii* Hook. f.

Local name: Kadukand

Twiners, prickly towards base. Leaves alternate, 7 - 15 cm, glabrous, dark green and shining above, paler beneath. Male panicles 4.5 - 20 cm long, axillary or on leafless branches; female in decurved slender spikes. Capsules rounded along margins, wings truncate above and below; seeds with a brown wing all round.

Flowering and Fruiting: September - December

**Table I: Enumeration of Dioscoreaceae taxa:**

Sr. No.	Botanical Name	Habit	Flowering and Fruiting Period	Frequency occurrence	Local Name
1	<i>Dioscorea belophylla</i> (Prain) Voigt ex Haines	Herb	August - January	Frequent in hilly slopes.	Kadua - kand
2	<i>Dioscorea bulbifera</i> L.	Herb	September - October	Common in edges of forest.	Kand
3	<i>Dioscorea hispida</i> Dennst.	Herb	August - October	Occasionally found in the forest.	Wach - kand, Vaskand
4	<i>Dioscorea oppositifolia</i> L.	Shrub	August - December	Occasionally in the hilly slopes.	Aadvi
5	<i>Dioscorea pentaphylla</i> L.	Herb	August - November	Frequent in the forest.	Ulashi, Jagala
6	<i>Dioscorea wallichii</i> Hook. f.	Shrub	September - December	Occasionally in the hilly forest.	Kadukand

---

**Results and Discussion:**

All six taxa of Dioscoreaceae are unisexual and monoecious, *Dioscorea belophylla*, *Dioscorea bulbifera*, *Dioscorea hispida* and *Dioscorea pentaphylla* are herbs while *Dioscorea oppositifolia* and *Dioscorea wallichii* are shrubs. *Dioscorea hispida* and *Dioscorea pentaphylla* have palmately compound leaves while other four taxa *Dioscorea belophylla*, *Dioscorea bulbifera*, *Dioscorea oppositifolia* and *Dioscorea wallichii* have simple leaves. In all taxa the male flower shows six fertile stamens whereas in the male flower of *Dioscorea belophylla* and *Dioscorea pentaphylla* only three stamens are fertile and three are staminodes. The striking aspect of the family is the Dicotyledonous characters such as reticulate venation of the leaf, arrangement of vascular bundles in a ring with pith, pith rays, pericycle and absence of bundle sheath at the leaf base. The most noteworthy feature is simultaneous division of pollen mother cell in young anther recalling that of Dicotyledonous, this may indicate its probable phylogenetic relationship with Dicotyledonous (Mitra, 1988).

---

**Acknowledgment:**

The authors are thankful to the to the Principal, P. S. G. V. P. Mandal's, S I Patil Arts, G B Patel Science and S T K V Sangh Commerce College, Shahada, Dist. Nandurbar (M. S.), for Laboratory, Library facility and constant inspiration.

---

**REFERENCES:**

1. Cooke T (1958) Flora of the Presidency of Bombay Vol. I - III (Repr. Ed.) Calcutta, India
2. Gawande, Prashant Ashokrao, Neha V. Nimbhorkar and Prashant Vinayakrao Thakare (2015) Distribution and Morphodiversity Analysis of Genus *Dioscorea* from India with special reference to Satpura Hilly ranges and Western Ghat of Maharashtra state, India. *Int. J. of Basic and Applied Sciences*. Vol.4(3): 146-150.
3. Lawrence, GHM (1951) Taxonomy of Vascular Plants (McMillan, New York., U. S. A).
4. Mitra, J. N. (1988) An Introduction to Systematic Botany & Ecology, Latest Ed., World Press, Calcutta, India
5. Patil, D. A. (2003) Flora of Dhule and Nandurbar districts (Maharashtra) (Bishen Singh Mahendra Pal Singh, Deharadun, India).
6. Raza Waris, Shailja Tripathi, Amritesh C. Shukla & Priyanka Agnihotri (2021) An overview of the genus *Dioscorea* L. (Dioscoreaceae) in India. *Plant Science Today*, 2021 Vol 8(1): 72-78
7. Sharma, B. D., Karthikeyan, S. and Singh, N. P. (1996) Flora of Maharashtra State: Monocotyledons (Botanical Survey of India, Calcutta, India).