

CENSUS OF THE GENUS *IPOMOEA* L. IN DHULE DISTRICT (MAHARASHTRA)

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The present paper gives an account of 17 species of genus *Ipomoea* L. occurring in Dhule district of Maharashtra. Brief description of each species alongwith their phenology, distribution, abundance, synonymy, local name/s use/s have been presented. Comparison of occurrence of species with the adjoining states/district has been made. All the exotic six species are native of America. An artificial key to the species is also provided.

Keywords : Floristics; *Ipomoea* L.

Introduction

Ipomoea L. is one of the largest genus of the family Convolvulaceae. It has attracted the attention of many taxonomists on account of its variability and species delimitations, of many horticulturists because of lovely flowers and agriculturists for the sweet potato. It has also repute in medicine.

Originally the genus was established with only 17 species¹. It is now represented by over 500 species worldwide².

In India, so far 57 species were reported³. There has been considerable change in the circumscriptions and nomenclature of many convolvulaceous taxa⁴. Of the then 57 Indian species, 10 infact belong to different genera such as *Aniseia*, *Merremia*, *Operculina*, *Xenostegia* and *Turbina*, whereas three others fall outside the

present political boundary of India. Subsequent authors added two more taxa⁵⁻⁶, thus making the total 46 species of the genus represented in India⁷.

The present author recorded 17 species of *Ipomoea* L. from Dhule district, a north-western part of Maharashtra. This is an attempt to bring these taxa in line with the current concept of species in the genus. The present account will also shed light on geographical distribution of taxa studied. Voucher herbarium specimens are deposited in Herbarium of the college. Key to the species, short description, up-to-date synonymy, distribution and abundance in the district, phenology, local name/s and use/s, if any, have been presented below. In the enumeration these taxa have been arranged alphabetically:

Key to the species

1. All leaves divided variously :
 2. Corolla red; leaves pinnatifid I. quamoclit
 2. Corolla and leaves are not as above :
 3. Leaves palmatifid :
 4. Flowers stalked, blue to purplish, in cymes; hairs on the seeds scattered I. cairica
 4. Flowers subsessile, pale-rosy, aggregated in capitate clusters; hairs on the seeds in small tufts I. pes-tigridis
 3. Leaves lobed, lobes 3-5, triangular, lobe apex acute to acuminate :

5. Leaf-base truncate to subcordate;
plants cultivated, roots tuberous I. batatas
5. Leaf-base cordate;
plants wild, roots not tuberous :
6. Flowers more than 2 cm in
length; corolla lobes blue,
tube whitish; latex not milky I. nil
6. Flowers upto 2 cm in length;
corolla throughout pink-violet;
latex milky I. trilobata
1. All leaves entire or entire are divided
leaves both present :
7. Peduncles much enlarged in fruits I. turbinata
7. Peduncles not enlarged much in
fruits :
8. Stem fistular :
9. Leaf-base hastate to sagittate;
seeds minutely pubescent I. aquatica
9. Leaf-base not as above;
seeds densely villous, brown I. carnea
ssp. fistulosa
8. Stem not fistular :
10. Plants extensive woody twiners I. illustris
10. Plants herbaceous twiners :
11. Ovary 4-locular; flowers scarlet I. hederifolia
11. Ovary 2-locular; flowers not scarlet :
12. Flowers sessile or subsessile :
13. Capsules glabrous, seeds villous
corolla infundibuliform, white I. sindica
13. Capsules pubescent, seeds glabrous
corolla campanulate, pink I. eriocarpa
12. Flowers pedicellate :
14. Outer sepals sagittate or
cordate at base I. sinensis
ssp. sinensis
14. Outer sepals truncate or
rounded base :
15. Flowers in pedunculate umbels I. sepiaria
15. Flowers in pedunculate cymes
or panicles :
16. Sepals glabrous; corolla white
and with purple eye I. obscura
16. Sepals clothed with long hairs;
corolla pink I. dichroa

Enumeration

- 1) *Ipomoea aquatica* Forsk. Fl. Aegypt. Arab. 44.1775; Clarke in Hook. f
Fl. Brit. India 4:210.1833; Cooke, Fl. Pres. Bombay 2:315.1958
(Repr.ed.) Vern.:Nali.

(Repr.ed.) Vern.:Nali.

Floating or procumbent herbs, stem fistular, rooting at nodes. Leaves variable, ovate-lanceolate, cordate, mostly hastate, acute or acuminate, 8-12 X 4-8 cm. Flowers purple-white, solitary or in dichasial cymes. Capsules glabrous, ovoids, seeds 2-4, minutely pubescent.

A paleotropical element, occasional along bank of water reservoirs and rivers, Fl. & Fr. : Throughout the year.

Use : Decoction of leaves and roots are used on piles. Leaves are used also as vegetable.

Nakana 675, Dhule 1808.

- *2) *Ipomoea batatas* (L.) Lam. Tabl. Encycl. Meth. Bot. 1:465.1793; Clarke in Hok. f. Fl. Brit. India. 4:202.1883; Cooke, Fl. Pres. Bombay 2:320.1958 (Repr.ed.) Vern : Ratalu, Sakru.

Creeping climbers, rooting at nodes, roots tuberous. Leaves variable, ovate-orbicular, entire or lobed, 8-9 cm across. Flowers reddish-purple, in 1 to few-flowered cymes. Fruits not seen.

An American root crop, cultivated sometimes, Fl. & Fr. : Aug.-Oct.

- *3) *Ipomoea cairica* (L.) Sweet var. *cairica* Hort. Brit. 287.1827; Clarke in Hook. f. Fl. Brit. India 4:214.1883; *I. palmata* Forsk. Cooke, Fl. Pres. Bombay 2:319.1958 (Repr.ed) Vern.: Garwel.

Perennial twiners. Leaves broadly ovate-orbicular, palmately 5 to 7-partite, 4-10 cm long, punctate. Flowers large, blue or purple-white, in 1 to 3-flowered axillary cymes. Capsules ovoid, glabrous.

An American element, cultivated in gardens. Fl. & Fr.: Round the year.

- *4) *Ipomoea carnea* Jacq. ssp. *fistulosa* (Mart. ex Choisy Austin in *Taxon* 26 :237. f. 2 1917; *I. fistulosa* Mart. ex Choisy in DC. Prodr. 9:349.1845; *I. carnea* Jacq. Cooke Fl. pres. Bombay 2:321.1958 (Repr.ed.). Vern.: Besharam, Jaharinagin.

Shrubs, stem woody below, fistular above. Leaves ovate, ovate-lanceolate, acuminate, 6-13 X 5-10 cm. Flowers large, pale pink or whitish, in axillary and terminal corymbose cymes. Capsules ovoid, seeds 4, villous.

Native of S. America, introduced and now perfectly naturalised.

Fl. & Fr. : Throughout the year.

Use : Mat of stems is used in bullock-carts and also as a partition in huts.

Gartad 957, Nimgul 1016.

- *5) *Ipomoea dichroa* (Roem. & Schult.) Choisy in DC. Prodr. 9:364.1845; *I. pilosa* Sweet, Hort. Brit. ed. 2.289.1827, non Houtt. 1777; Clarke in Hook. f. Fl. Brit. India 4:213.1883; Cooke, Fl. Pres. Bombay 2:313.1958 (Repr.ed.).

Twining herbs, clothed with long, spreading, glandular-based hairs. Leaves ovate-cordate, entire or angled or 3-lobed, acute to acuminate, appressed white hairy, wooly beneath. Flowers pink, in lax, axillary racemose cymes. Capsules subglobose, seeds cotton-hairy. Occasional in open forests. Fl & Fr. : Aug.-Nov. Borzar 432.

- 6) *Ipomoea eriocarpa* R.Br. Prodr. 484.1810; Clarke in Hook. f. Fl. Brit. India 4:204.1883; Cooke, Fl. Pres. Bombay 2 : 321.1958 (Repr. ed.).

Hispid twiners. Leaves ovate-lanceolate or oblong. 3-10 X 0.8-5.0 cm, cordate or hastate, acute to acuminate. Flowers pink, in axillary, sessile to subsessile 1 to 7-flowered clusters. Capsules globose, hairy, seeds glabrous.

A paleotropical element, occasional in open forests among bushes and grasses. Fl & Fr. : Sept.-Dec.

Nakana 1459, Arvi 1620.

- *7) *Ipomoea hederifolia* L. Syst. Nat. ed. 10, 925. 1759; *I. Coccinea* auct. non Linn. Clarke in Hook. f. Fl. Brit. India 4 : 199. 1883; *Quamoclit coccinea* Cooke. Fl. Pres. Bombay 2 : 330. 1958 (Repr. ed.).

Glabrous twiners. Leaves broadly ovate, 6-9 X 5-7.5 cm, cordate, cuneate, acuminate, entire or 3 to 5-lobed. Flowers scarlet, in axillary, lax, dichasial cymes. Capsules globose, 4-gonous, seeds 4, black, pubescent.

Native of tropical America, naturalised along roads, railway lines, on waste places etc. Fl & Fr. : Sept.-Dec.

Use : Leaves are used as vegetable.

Nakana 1460, Awdhan 1621.

- 8) *Ipomoea illustris* (Clarke) Prain, Beng. Pl. 2 : 735. 1903; *I. illustris* L. Var. *illustris* Clarke in Hook. f. Fl. Brit. India 4 : 211. 1883; *I. campanulata* Choisy, Cooke, Fl. Pres. Bombay 2 : 316. 1958 (Repr. ed.) non L. 1753. Vern. : Kumrhay.

Woody twiners. Leaves ovate to suborbicular, 7-16 X 7-15 cm, nerves prominent beneath, acuminate. Flowers large, pale violet, in many-flowered corymbose cymes. Capsules globose, enclosed in calyx, seeds silky-hairy.

Occasional but locally abundant. Fl. & Fr. : Oct.-Feb.

Amalibari 1520, Molagi 1809.

- 9) *Ipomoea nil* (L.) var. *himalaica* (Clarke) Johri in Jour. Econ. Tax. Bot. 5:432. 1984; *I. hederaceae* Jacq. Cooke, Fl. Pres. Bombay 2:321. 1958 (Repr. ed.); *I. hederaceae* Clarke in Hook. f. Fl. Brit. India 4:199 non Jacq.

Herbaceous twiners, stems clothed with spreading hairs. Leaves 6-9 cm across, entire or palmately 3-lobed. Flowers blue, solitary or 2 to 3-flowered cymes. Capsules ovoid or globose, calyx accrescent, seeds 6, black, grey-puberlent.

Common on hedges or bushes. Fl. & Fr. : Aug.-Jan.

Use : Leaves are used as vegetable.

Morkaraja 279, 365; Borzar 461; Valheri 925; Gartad 952.

- 10) *Ipomoea obscura* (L.) Ker.-Gawl. in Bot. Res. t. 239. 1817; Clarke in Hook. f. Fl. Brit. India 4:207. 1883; *I. obscura* Ker.-Gawl. Cooke, Fl. Pres. Bombay 2:317. 1958 (Repr. ed.). Vern. : Pungali-na-pala.

Twiners, leaves broadly ovate, cordate to reniform, acute or obtuse, 4-5 X 3.5-5 cm. Flowers pale-yellow or white with yellow bands, axillary, 1-3 together. Capsules ovate, beaked, seeds brown, velvety.

Common on hedges and bushes. Fl. & Fr. : Aug.-Dec.

Use: Leaves are crushed with salt and applied on boils or swellings.

Dhule 115, Borzar 462.

- 11) *Ipomoea pes-tigridis* L. Sp. Pl. 162. 1753; Clarke in Hook. f. Fl. Brit. India 4:204. 1883; Cooke, Fl. Pres. Bombay 2:328. 1958 (Repr. ed.). Vern. : Borwel.

Twining herbs, stem clothed with long spreading hairs. Leaves

broadly ovate, 3-14 cm across, deeply 5-7-lobed, appressed hairy. Flowers pale rosy, seldom white, in peduncled heads. Capsules ovoid, papery, enclosed in calyx, seeds grey-pubescent.

Common throughout the district. Fl. & Fr. Aug.-Dec.

Use: Leaf powder if smoked relieves bronchial phlegma.

Nakana 1461, Awdhan 1622.

- *12) *Ipomoea quamoclit* L. Sp. Pl. 159. 1753; Clarke in Hook. f. Fl. Brit. India 4:19.1883; *Quamoclit vulgaris* Choisy in Mem. Soc. Phys. Nat. Geneve 6:434.1833; Cooke, Fl. Pres. Bombay 2:351.1958 (Repr.ed.) Vern.: Ganeshwel, Ganeshpushpa.

Slender, glabrous, herbaceous twiners. Leaves broadly ovate-ovate-oblong in outline, 3-5 cm across, finely pinnatisect, lobes linear, pseudo-stipules pinnatifid. Flowers red, axillary, solitary. Capsules globose, brown, seeds black-brown, oblong, minutely hairy.

Native of Mexico, planted in gardens and also naturalised.

Fl. * Fr. : Aug.-Oct.

- 13) *Ipomoea septaria* Koen. ex Roxb. Fl. Ind. 2:90.1824; Clarke in Hook. f. Fl. Brit. India 4:209.1883; Cooke, Fl. Pres. Bombay 2:315.1958 (Repr.ed.).

Twiners, stem pilose. Leaves ovate, 3-8 X 3-3.5 cm, cordate to hastate or sagittate, acute or acuminate. Flowers pale pink or whitish, in subumbellate cymes. Capsules globose, seeds 4, thinly pubescent.

Occasional on hedges and bushes. Fl. & Fr. : Aug.-Dec.

Dhule 1406, Bhatpura 1650.

- 14) *Ipomoea indica* Stapf. in Kew Bull. 93:346.1894; Cooke, Fl. Pres. Bombay 2:313.1958 (Repr.ed.).

Trailing, hirsute herbs. Leaves oblong or ovate-cordate, hastate or sagittate, 2-8 X 1-6 cm, acute or acuminate. Flowers white, axillary, in 1 to few-flowered cymes. Capsules globose, seeds black, grey-velvety.

Common in open forests amidst grasses. Fl. & Fr. : Aug.-Dec. Kasara 1810, Shenpur 1811.

- 15) *Ipomoea sinensis* ssp. *sinensis* (Desr.) Choisy in Mem. Phys. Soc. Geneve 6:459.1834; *I. calycina* (Roxb.) Benth. ex Clarke in Hook. f. Fl. Brit. India 4:201.1883; *I. calycina* Clarke, Cooke, Fl. Pres. Bombay 2:311.1958 (Repr.ed.).

Twining herbs, clothed with long spreading hairs. Leaves ovate, 3-7 X 2.4-5.8 cm, cordate, acuminate. Flowers white, 1-3 on axillary peduncles. Capsules globose, seeds villous, fringed on the margin with soft white hairs.

Common on bushes and hedges. Fl. & Fr. : Aug.-Dec.

Morkaranja 364, Valheri 926.

- *16) *Ipomoea triloba* L. Sp. Pl. 161.1753; Shah, Fl. Gujrat 1:475.1978.

Twiners, leaves ovate-triangular, 2.4-6.1 X 3.5 cm, entire or 3-lobed, cordate, coarsely dentate. Flowers pink to bright violet, in axillary, aggregated cymes. Capsules subglobose, seeds 4 or less, brown.

Native of tropical America, common, naturalised on hedges along roads and wastelands. Fl. & Fr. : Aug.-Nov.

Dhule 1462, Awdhan 1627.

- 17) *Ipomoea turbinata* Lag. Gen. Sp. Pl. 10. 1816; *Calonyction muricatum* G. Don, Gen. Syst. 4:264.1838; Cooke, Fl. Pres. Bombay 2:322.1958 (Repr.ed.). Vern. : Phang, Bhamardi, Bhavara.

Large, herbaceous twiners. Leaves broadly ovate. 4-15 X 3-15 cm, cordate. Flowers rose-purple, 1 to 4 in axillary cymes, peduncle swollen in fruit. Capsules ovoid seeds 4, brown.

Throughout in the outskirts of forests and hedges.

Fl. Fr. : Sept.-Nov.

Use : Leaves are used as vegetable.

Valheri 912, Sabalapani 929.

Discussion

The genus *Ipomoea* L. in British India was divided in six subgenera³. The subgenus *Euipomoea* was designed to include all the species of the genus not distinctly referable to rest others³. This clearly warranted a need for further research of Indian Ipomoeas. Dhule district is, to-date, underexplored and has no published flora of its own. It is to be noted that there are 23 and 16 species of the genus for the adjacent states viz., Gujarat and Madhya Pradesh respectively⁷⁻⁸, whereas there is a record of only 12 species for the adjacent Nasik district. The present author collected total 17 species from Dhule district, of which six are exotic.

Ipomoea indica Stapf. and *I. triloba* L. are reported as rare plants from this districts⁹. However, the present attempt shows their wider distribution in the district. Even these were not included in Cooke's The Flora of the Presidency of Bombay¹⁰. *I. aquatica* is the only aquatic species of the genus. *I. batatas* and *I. cairica* are known from cultivation only. All the 17 species from Dhule district are, interestingly, found in Gujarat, whereas all others, except four, are reported from Madhya Pradesh, three species of it being different^{7,8}. Of twelve species from the adjacent Nasik district, ten are also found in Dhule district. It appears that Dhule district has

relatively better representation of the Ipomoeas. Of these, six species asterisked in the text are exotic, interestingly, all of them are native of various parts of America. Apart from cultivated species, six species of the genus are used for different purposes by the aborigines of this predominantly tribal district. Further phytochemical screening of these species in view of their uses are obviously needed.

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References

1. Linnaeus C 1753, Species Plantarum, I-II, Salvi, Stockholm, 5th ed. (1801).
2. Austin D F 1980, *Taxon* 29 501
3. Clarke C B 1883, Convolvulaceae. In : Hook. f. Flora of British India 4 196
4. Santapau H 1961, Professor S. P. Agharkar Comm. Vol. PP. 13. (Ed. T.S. Mahabale), Poona (M.S.).
5. Nair M P and Karthikeyan S 1981, Rec. Bot. Surv. India 21 142
6. Razi B A 1959, Rec. Bot. Surv. India 18 II+56 pp.
7. Shah G L 1978, *Flora of Gujrat State* Vol. I. Vallabh Vidhyanagar, India.
8. Srivastava R C 1983, *J Econ. Tax. Bot.* 4 765
9. Mathew V et al. 1990, *J Econ. Tax. Bot.* 14 641
10. Karthikeyan S et al. 1981 Rec. Bot. Surv. India 21 153