



TAXONOMY AND ETHNOBOTANY OF CONVULVULACEAE IN BHANDARA DISTRICT (M.S.)

Pitambar T. Humane

Dept. of Botany, Dharampeth M. P. Deo Memorial Science College, Nagpur.

e-mail: aareenpapa_2004@rediffmail.com

ABSTRACT :

The present paper enumerates 24 taxa of the said family from Bhandara district of east Vidarbha region which is popularly known as Lake District. During the course of floristic exploration of the district 24 taxa belonging to 9 genera of this family have been reported. Some of the plants are new to the region and certain taxa showing variations in their characters are maintained. The information regarding morphological and reproductive characters as well as distribution, ethnobotanical uses and key for easy identification have been provided.

KEYWORDS: Bhandara district, ethnobotanical uses and Convolvulaceae.

INTRODUCTION

The Bhandara district of Maharashtra, the area of present study is situated in between eastern longitude of $79^{\circ} 10'$ to $79^{\circ} 20'$ and northern latitude of $20^{\circ} 00'$ to $20^{\circ} 05'$. It has an undulating topography with an altitude range from 150 to 600 m and geographical area 5425 sq. km.

Convolvulaceae a morning glory family is one of the largest families of dicotyledons and is composed of plants varying in their habit, habitat and general morphology. This is also one of the families in the local flora represented by several taxa, most of which are useful in various ways.

Taxonomic literature reveals absence of extensive and intensive work on plants of Bhandara district. The present work is an initial attempt to fill this lacuna.

MATERIAL AND METHODS

For the purpose of this study extensive and intensive visits were arranged to various regions of the district in different seasons. The plants were observed in their natural habitat and the phenological data were collected and recorded in the field diary. The multiple specimens of plants in flowering and fruiting stage were collected, preserved and their herbarium sheets were prepared. The field notes were incorporated with the specimens on the herbarium sheets.



The digital photographs of some unique plants were taken with their unique characteristics that can help in identifying the plants in the natural habitat.

Attempts have been made to use recent names and the list that follows the genera and species are arranged alphabetically. Artificial keys are prepared for the genera and species for the specimens collected for this study.

All the specimens of the taxa have been deposited in the herbarium of Department of Botany, Dharampeth M. P. Deo Memorial Science College, Nagpur.

TAXONOMIC TREATMENT

CONVOLVULACEAE Juss.

1. Corolla tube uniformly enlarged from base to apex:
 2. Stem usually not winged:
 3. Plants usually prostrate; styles free:
 4. Leaves spreading hairy; stem not rooting at nodes **Evolvulus**
 4. Leaves glabrescent; stem rooting at nodes **Volvulopsis**
 3. Plants usually twining rarely prostrate, styles united:
 5. Stigma globose:
 6. Anthers mostly spiral when dehisced **Merremia**
 6. Anthers mostly straight when dehisced **Xenostegia**
 5. Stigma elongate **Jacquemontia**
 2. Stem usually winged **Operculina**
 1. Corolla tube not uniformly enlarged from base to apex:
 7. Corolla usually infundibuliform, rarely hypocrateriform; stigma globose:
 8. Corolla tube more or less hairy outside; fruit indehiscent **Argyreia**
 8. Corolla tube usually glabrous outside; fruit dehiscent **Ipomoea**
 7. Corolla hypocrateriform; stigma elliptic-oblong **Rivea**



ARGYREIA Lour.

1. Plants cultivated; leaves glabrous above

A. nervosa

1. Plants wild; leaves strigose pubescence above

A. sericea

Argyreia nervosa (Burm. f.) Bojer, Hort. Maurit. 224. 1837; Ooststr. in Steenis, Fl. Males. 1, 4: 499. 1953; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 297. 1980. Convolvulus nervosus Burm. f. Fl. Ind. 48. 1768. Argyreia speciosa (L. f.) Sweet, Hort. Brit. 289. 1827; C.B.C1. in Hook. f. Fl. Brit. India 4: 185. 1883; Cooke, Fl. Pres. Bombay 2: 324. 1958 (Repr.). 'SAMUDRA SHOK'.

A large climbing shrubs; branches densely white tomentose. Leaves large, broadly ovate, deeply cordate at the base, entire, acute, acuminate or shortly cuspidate at apex, glabrous above, white tomentose beneath; petioles long, white tomentose. Flowers in subcapitate cymes; peduncles long, tomentose; bracts ovate lanceolate pubescent; pedicels short, tomentose. Calyx white tomentose outside; sepals elliptic-oblong. Corolla infundibuliform, bluish-pink, pubescent outside. Berries globose, yellowish brown, dry, hard. Seeds 2-4, ovoid, pale brown.

Rare in gardens and on hedges. Fls. & Frs. Aug.-Jan. Madgi, 230.

The roots are used in the treatment of rheumatic pain, wounds, chronic ulcers, anorexia, dyspepsia, flatulence, colic, constipation, cardiac debility, inflammations, cough, bronchitis, seminal weakness, nervous weakness, cerebral disorders, synovitis, haemorrhoids, obesity, syphilis, anaemia, diabetes, tuberculosis, arthritis and leucorrhoea.

Argyreia sericea Dalz. & Gibs. Bombay. Fl. 169. 1861; C. B. Cl. in Hook, f. Fl. Brit. India 4: 188. 1883; Cooke, Fl. Pres. Bombay 2: 326. 1958 (Repr.); Ugemuge, Fl. Nagpur 248. 1986. 'GAVEL'.

A large silky twiners; branches silky pubescent. Leaves large, broadly ovate, cordate at the base with rounded lobes, entire, acute or acuminate at apex, strigose above, silvery white pubescent beneath; petioles silky. Flowers in capitate or subcapitate cymes; peduncles long silky; bracts ovate or oblong-elliptic, ciliate, with parallel nerves. Sepals linear-lanceolate, ciliate. Corolla tubular infundibuliform, pink; tubes and bands hairy. Berries yellowish-orange, seeds 2-4.

Common in Pauni Taluka in hedges and on small trees and bushes while rare in other places of the district. Fls. & Frs. Aug.-Nov. Chandrapur 487; Pathri 666.

EVOLVULUS Linn.

Evolvulus alsinoides (L.) L. Sp. Pl. ed. 2, 2: 392. 1762; C.B.C1. in Hook. f. Fl. Brit. India 4: 220. 1883; Cooke, Fl. Pres. Bombay 2: 297. 1958 (Repr.); Austin & Ghazanfar in Nasir & All,



Fl. W. Pak. 126: 32, f. 5, A-B. 1979; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1:309. 1980. *Convolvulus alsinoides* L. Sp. Pl. 157. 1753. 'VISHNU KRANTA'.

Perennial, prostrate, trailing or rarely suberect herbs; stems and branches pubescent. Leaves elliptic-oblong, sub-sessile, base rounded or sometimes acute, entire, obtuse and apiculate at apex, appressed silky hairy on both surfaces. Flowers axillary, 1-many. Sepals, lanceolate, silky. Corolla broadly campanulate, sky-blue. Capsule ovoid, seeds 4, black.

Common on waste land, also along the bunds of agricultural fields. Fls. & Frs. July-Dec. Saori (Lakhni), 294; Tekepar, 1576.

The roots are used in intermittent fever in children and for gastric and duodenal ulcers. The plant is bitter tonic and used in dysentery and wide range of circulatory disorders. Plant juice is used against vomiting with honey and black pepper, also useful in insanity, epilepsy, nervine complaints, spermatorrhoea and bleeding.

IPOMOEA Linn.

1. Leaves entire, rarely lobed or dissected:
 2. Plants terrestrial:
 3. Outer sepals not sagittate or cordate at the base:
 4. Corolla hypocrateriform; stamens and styles exerted:
 5. Leaves dissected up to midrib **I. quamoclit**
 5. Leaves not as above **I. hederifolia**
 4. Corolla infundibuliform, sometimes hypocrateriform: stamens and styles included:
 6. Flowers usually in pedunculate cymes:
 7. Plants twining herb:
 8. Corolla less than 8 cm across:
 9. Peduncles thick, more than 3 flowered **I. marginata**
 9. Peduncles thin, 1-3 flowered **I. obscura**
 8. Corolla more than 8 cm across **I. violacea**
 7. Plants shrubby **I. carnea** ssp. **fistulosa**
 6. Flowers usually in sessile heads **I. eriocarpa**
 3. Outer sepals sagittate or cordate at the base **I. sinensis**
 2. Plants aquatic **I. aquatica**
 1. Leaves lobed or rarely entire:
 10. Leaves palmately or digitately 5-9 lobed:
 11. Flowers in long peduncled cymes; bracts scaly, glabrous **I. cairica**



11. Flowers in long peduncled heads; bracts foliaceous, hairy **I. pes-tigridis**
10. Leaves 2-3 lobed:

12. Sepals linear lanceolate **I. nil**

12. Sepals ovate to elliptic- oblong **I. triloba**

Ipomoea aquatica Forssk. Fl. Aegypt.-Arab. 44. 1775; C.B.C1. in Hook. f. Fl. Brit. India 4: 210 1883; Cooke, Fl. Pres. Bombay 2: 315. 1958 (Repr.); Ooststr. in Steenis, Fl. Males. 1, 4: 473. 1953; Austin & Ghazanfar in Nasir & All Fl. W. Pak. 126: 38, f. 5, C-D. 1979. 'NELACHI BHAJI'.

Prostrate or trailing or floating herbs; stems and branches glabrous, rooting at nodes. Leaves variable, elliptic oblong to lanceolate, hastate, rounded or acute at the base, entire, acute at apex, glabrous on both surfaces; petioles long. Flowers in 1-5 flowered cymes on long peduncles. Sepals subequal, glabrous. Corolla infundibuliform, pale purple or white. Stamens included; filaments unequal and hairy at the base. Ovary glabrous. Capsules ovoid, seeds 4, minutely pubescent.

Common along the margins of water bodies. Fls. & Frs. Sept.-April, Pimpalgaon, 240.

The plant juice is emetic, purgative, antidote to opium and arsenic poisoning. Young shoots and tender leaves are used as vegetables as it is a rich source of minerals and vitamins. The stems and leaves are prescribed in febrile delirium.

Ipomoea cairica (L.) Sweet, Hort. Brit. 287. 1827; Sant. in Rec. Dot. Surv. India 16(1): 193. 1953; Naik, Fl. Marathwada 1: 586. 1998. Convolvulus cairicus L. Syst. ed. 10: 922. 1759. *Ipomoea palmata* Forssk. Fl. Aeg.-Arab.43. 1775; C.B.C1. in Hook. f. Fl. Brit. India 4: 214. 1883. 'RAILWAY CREEPER'.

Twining herbs; roots tuberous; stems and branches glabrous. Leaves palmately 5-7 lobed, lobes elliptic or ovate-lanceolate, base cordate, apex acute or subacute, glabrous. Flowers in 1-many flowered axillary cymes. Sepals unequal, ovate, glabrous. Corolla infundibuliform, bluish-purple. Stamens included; filaments hairy at the base. Capsules subglobose, glabrous. Seeds 2-4, hairy.

An ornamental plant, grown in gardens, also found escaped on hedges. Fls. & Frs. Oct.-Apr. Kesalwada, 708.

The roots and leaves are slightly cyanogenetic. The seeds are used as purgative.

Ipomoea carnea Jacq. subsp. **fistulosa** (Mart, ex Choisy) Austin in Taxon 26: 237, f. 2. 1977 & in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 322. 1980. *I. fistulosa* Mart ex Choisy in DC. Prodr. 9: 349. 1845; Ooststr. in Steenis, Fl. Males. 1, 4 : 485. 1953. *I. carnea* Jacq. Enum. Pl. Carib. 13. 1760; Cooke, Fl. Pres. Bombay 2: 321. 1958 (Repr.). 'BESHARAM.'



Scandent shrubs; stems and branches terete, fistular, glabrous. Leaves ovate-oblong, cordate at the base with rounded lobes, entire, acute to acuminate at apex, minutely pubescent. Flowers in axillary and terminal dichasial cymes. Sepals subequal, pubescent outside. Corolla infundibuliform, pink, dark in throat. Stamens included, filaments hairy at the base. Capsules ovoid, mucronate, brown. Seeds 4, black, villous.

Common along road side of villages and in water lodged areas. Fls. & Frs. Almost throughout the year. Rengepar (Kotha), 178.

Leaf extract is said to be effective against insects and pests; also it is mild purgative.

Ipomoea eriocarpa R. Br. Prodr. 484. 1810; C. B. Cl. in Hook. f. Fl. Brit. India 4: 204. 1883; Cooke, Fl. Pres. Bombay 2: 312. 1958 (Repr.); Ooststr. in Steenis, Fl. Males. 1, 4: 462, f. 35. 1953; Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126: 41, f. 6, A-B. 1979. 'RANBHORI'.

Twining herbs; stems and branches terete, hirsute. Leaves oblong lanceolate, cordate at the base with rounded lobes, acute or acuminate at apex, hairy. Flowers 2-6 in axillary sessile heads. Sepals subequal, hairy, slightly enlarged in fruit. Corolla funnel shaped, pink. Stamens included. Ovary densely hairy. Capsules globose, hairy. Seeds 4, glabrous, brown.

Common in waste places, also on forest floors. Fls. & Frs. Aug.-Dec. Koka, 183; Kurza, 1260.

Plants are used to cure rheumatism, headache, epilepsy, leprosy and ulcers.

Ipomoea hederifolia L. Syst. Nat. ed. 10. 925. 1759; Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126: 43. 1979. *I. coccinea* auct. non L. 1753; C.B.C1. in Hook. f. Fl. Brit. India 4: 199. 1883. *Quamoclit coccinea* Moench. Method. 453. 1795; Cooke, Fl. Pres. Bombay 2: 330. 1958 (Repr.). 'DIWALI'

Twining herbs; stems and branches, terete, glabrescent. Leaves ovate, cordate at the base with deep sinus, angular or coarsely dentate along margins, acuminate, glabrous. Flowers in very long peduncled cymes. Sepals oblong, obtuse. Corolla hypocrateriform, scarlet. Stamens and styles exerted. Capsules globose, glabrous. Seeds 4, densely pubescent, black.

Common on hedges near villages, it was earlier grown in gardens, naturalized in all the parts of the district.. Fls. & Frs. Sept.-Jan. Somalwada, 121; Kinhi / Ekodi, 768.

Note: Flowers are commonly used to decorate the 'Gondan' made of dung, placed in front of houses on occasion of 'Diwali', hence the common name. This species is commonly found with scarlet flowers, but I have collected one specimen from Ekodi (Kinhi) with yellow flowers.

Ipomoea marginata (Desr.) H. Manitz in Feddes Repert. 85 (9-10) : 638. 1974; Verde, in Kew Bull. 42: 658. 1987; Nicols. et al. Interp. Hort. Malab. 91. 1988. *Convolvulus marginatus* Desr.



in Lam. Encycl. 3:558. 1792. *Ipomoea sepilaria* Koen. ex Roxb. Fl. Ind. 2: 90. 1824; C.B.C1. in Hook. f. Fl. Brit. India 4 : 209. 1883; Cooke, Fl. Pres. Bombay 2: 315. 1958 (Repr.); Shah & Badrinath in J. Econ. Tax. Bot. 6: 131. 1985. *I. maxima* sensu Ooststr. & Hoogl. in Steenis, Fl. Males. 1, 4:472. 1953 non (L. f.) G. Don ex Sweet, 1830; Naik, Fl. Marathwada 1: 590. 1998.

forma **candida**; Naik et Zate

Prostrate or twining herbs; stems and branches more or less hairy or glabrescent. Leaves broadly ovate, base cordate, apex acuminate or shortly cuspidate, glabrous, purple along margins and midrib region. Flowers 4-many in long peduncled subumbellate cymes. Sepals unequal, elliptic oblong. Corolla salver shaped, pure white. Stamens included, filaments hairy at the base; anthers and stigma pink. Capsules globose, glabrous. Seeds 4, tomentose, greyish-brown.

Occasional in wet situations on waste places. Fls. & Frs. Oct.-Feb. Palandoor, 532; Lakhni, 698.

Ipomoea nil (L.) Roth, Cat. Bot. 1: 36. 1797; Ooststr. in Steenis, Fl. Males. 1, 4: 465. 1953; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 332. 1980. *Convolvulus nil* L. Sp. Pl. ed. 2. 219. 1762. *Ipomoea hederacea* auct. non Jacq. 1786; C.B.C1. in Hook. f. Fl. Brit. India 4: 199. 1883; Cooke, Fl. Pres. Bombay 2: 321. 1958 (Repr.).

Twining herbs; stems and branches hairy. Leaves broadly ovate, 3-lobed, cordate at the base, entire, acuminate at apex, hairy on both surfaces. Flowers in 1-few flowered axillary cymes. Sepals lanceolate, acuminate, hairy on the back near the base. Corolla funnel-shaped, dull-blue, magenta on fading. Stamens included, filaments hairy at the base. Capsules globose, mucronate, glabrous. Seeds 4-6, pubescent, black.

Common on hedges near villages. Fls & Frs. Sept.-Dec. Somalwada, 119.

Seeds are used as purgative, vermifuge, anti-inflammatory, carminative and thermogenic. They are useful in inflammations, constipation, skin diseases, leucoderma, scabies, dyspepsia, flatulence, bronchitis and fever.

Ipomoea obscura (L.) Ker-Gawl. Bot. Reg. 3, t. 239. 1837; C.B.C1. in Hook. f. Fl. Brit. India 4: 207. 1883; Cooke, Fl. Pres. Bombay 2:317. 1958 (Repr.); Naik, Fl. Marathwada 1: 591. 1998. *Convolvulus obscurus* L. Sp. Pl. ed. 2: 220. 1762. *Ipomoea curassavica* All. Auct. Syn. 10. 1773; Dandy in Taxon 19: 622. 1970. 'PUNGARI'.

forma **obscura**; Clarke loc. cit.; Naik loc. cit.

Twining herbs; stems and branches hairy or glabrescent. Leaves broadly ovate or orbicular, deeply cordate at the base, entire, acuminate at apex, minutely pubescent or glabrous. Flowers in 1-3 flowered axillary cymes. Sepals subequal, oblong, acute and mucronate. Corolla



infundibuliform, white with a purple eye. Stamens included, filaments hairy at the base. Capsule globose, glabrous. Seeds 4, velvety, black.

Common along the hedges and waste land around villages. Fls & Frs. Sept.-Feb. Somalwada, 190.

Leaves are locally applied on lesions with castor oil. Toasted and powdered leaves are boiled in ghee and are applied in aphthous affections.

Ipomoea pes-tigridis L. Sp. Pl. 162. 1753; C. B. Cl. in Hook. f. Fl. Brit. India 4:204. 1883 (incl. var. *hepaticaefolia*); Cooke, Fl. Pres. Bombay 2: 320. 1958 (Repr.); Ooststr. in Steenis, Fl. Males. 1, 4:467, f. 40. 1953.

Twining herbs; stem and branches distinctly pubescent. Leaves orbicular in outline, deeply palmately 5-9-lobed, patently hairy on both sides. Flowers 3-many in long peduncled heads; bracts large hirsute. Sepals unequal, linear-lanceolate, acute, hairy. Corolla funnel shaped, white or dull sky blue. Stamens included; filaments glabrous. Capsules ovoid, glabrous. Seeds 4, pubescent, black.

Common on waste land, hedges and also along cultivated fields. Fls & Frs. Sept.-Dec. Mundipar/Sadak, 54; Chichal, 1632.

Leaves employed in form of poultice to boils, sores, pimples and carbuncles. Roots are said to be used in local medicines.

Ipomoea quamoclit L. Sp. Pl. 159. 1753; C.B.Cl. in Hook. f. Fl. Brit. India 4: 199. 1883; Naik, Fl. Marathwada 1: 593. 1998. *Quamoclit vulgaris* Choisy in Mem. Soc. Phys. Hist. Nat. Geneva 6: 434. 1883; Cooke, Fl. Pres. Bombay 2: 331. 1958 (Repr.). 'GANESH PUSHPA'.

Twining herbs; stems and branches terete, glabrous. Leaves pennatifid to the midrib. Flowers in 1-few flowered axillary cymes. Sepals subequal, oblong, glabrous. Corolla hypocrateriform, scarlet. Stamens exerted; filaments hairy at the base. Capsules ovoid, glabrous. Seeds 4, minutely hairy, brown.

Ornamental plant; escaped and found rarely in the district. Fls. & Frs. Sept.-Dec. Usgaon, 293.

Pounded leaves are applied in hemorrhoids; also used for carbuncles. Powdered roots are used as a sternutatory.

Ipomoea sinensis (Desv.) Choisy in Mem. Phys. Soc. Geneve 6: 459.1834. *Convolvulus chinensis* Desv. in Lam. Encycl. 3: 557. 1791. *Ipomoea calycina* C. B. Cl. in Hook. f. Fl. Brit. India 4: 201. 1883; Cooke, Fl. Pres. Bombay 2: 311. 1958 (Repr.).



Twining herbs; stems and branches clothed with spreading hairs. Leaves ovate, cordate at the base, entire, acute at apex, hairy on both sides. Flowers in 1-3 flowered axillary cymes. Sepals unequal, lanceolate-sagittate with obtuse auricles, ciliate. Corolla tubular, white, limbs acute or subacute. Capsules ovoid, mucronate, glabrous. Seeds 4, villous, black.

Rare on hedges in waste places. Fls. & Frs. Oct.-Dec. Madgi Lake side, 222.

Ipomoea triloba L. Sp. Pl. 161. 1753; Ooststr. in Steenis, Fl. Males. 1, 4: 468, f. 41. 1953; Fernandes et al. in J. Bombay Nat. Hist. Soc. 52: 661. 1954; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 341. 1980.

Twining herbs; stems and branches glabrous. Leaves ovate, 3-lobed, glabrous, base cordate with rounded lobes, entire, apex acute or subacute. Flowers in many flowered axillary long peduncled cymes. Sepals unequal, elliptic-oblong, mucronulate, glabrous. Corolla funnel shaped, pink. Stamens included, filaments hairy at the base. Capsules globose, mucronate, glabrous. Seeds 4, glabrous, black.

Common on hedges, also in waste places. Fls. & Frs. Sept.-Dec. Somalwada, 118; Bhandara, 1390.

Ipomoea violacea L. Sp. Pl. 161. 1753; Verde, in Kew Bull. 33: 167. 1978. *I. tuba* (Schlecht.) G. Don, Gen. Syst. 4:271. 1837-38. *Convolvulus tuba* Schlecht. in Linneaea 6: 735. 1831. *Ipomoea longiflora* R. Br. Prodr. 1: 484. 1810 non Willd. 1809; Cooke, Fl. Pres. Bombay 2: 315. 1958 (Repr.). *I. grandiflora* sensu C.B.C1. in Hook. f. Fl. Brit. India. 4: 198. 1883 p. p. non Lam. 1791, non Roxb. 1832. *I. macrantha*. R. & S. Syst. Veg. ed. Nov. 4: 251. 1819.

Perennial extensive climbers; stems and branches terete, glabrous. Leaves large, broadly ovate, deeply cordate at the base, apex acuminate or shortly cuspidate, glabrous; petioles much longer. Flowers 1-3 in axillary long pedunculate cymes. Sepals subequal, elliptic-ovate, mucronate, glabrous. Corolla hypocrateriform, white or cream white; tube narrow, long. Stamens included, hairy at the base. Capsules globose, mucronate, pale brown. Seeds 2-4, hairy along margins, black.

Rare on bushes near villages. Fls. & Frs. Sept.-Dec. Lakhni, 535; Tadgaon, 1352.

JACQUEMONTIA Choisy.

Jacquemontia pentantha (Jacq.) G. Don, Gen. Syst. 4: 283. 1838; Ooststr. In Blumea 3: 278. 1939. *Convolvulus pentanthus* Jacq. Coll. 4: 210. 1790.

Twining herbs; stem sparsely hairy. Leaves ovate, cordate at the base, entire, acuminate at apex, glabrous. Flowers in sub-umbelliform, axillary long peduncled cymes. Sepals unequal, ovate-



lanceolate, acuminate, sparsely hairy. Corolla campanulate or shortly funnel shaped, blue with white centre.

Occasional in hedges for ornamentation. Fls. & Frs. Sept.-Jan. Dhop, 1056; Warthi, 1517.

MERREMIA Dennst.

1. Leaves simple:
 2. Plants prostrate, stems more or less hairy **M. gangetica**
 2. Plants twining, stems more or less glabrous or tubercled **M. hederacea**
1. Leaves palmately compound (3-7-foliolate):
 3. Corolla white with purple throat; seeds glabrous **M. dissecta**
 3. Corolla faint yellow; seeds hairy **M. quinquefolia**

Merremia dissecta (Jacq.) Hall. f. in Bot. Jahrb. Syst. 16: 552. 1893. *Convolvulus dissectus* Jacq. Obs. 2: 4. 1767. *Ipomoea sinuata* Ort. Hort. Matr. Dec. 7: 84. 1798; C. B. Clarke in Hook. f. Fl. Brit. India 4: 214. 1883.

Perennial, extensive twining herbs; stems and branches hirsute. Leaves palmately dissected into 5-7 lobes, divided almost to the base; lobes oblong-lanceolate, narrowed at both the ends, irregularly lobulated along the margins, acuminate at the apex, glabrous on both the surfaces. Flowers in axillary few-flowered cymes. Sepals unequal, broadly-ovate or elliptic-ovate, acute or acuminate, glabrous. Corolla white with pinkish-purple throat, glabrous. Stamens included; filaments hairy at the base; anthers twisted. Capsules globose, glabrous, 4-valved. Seeds black, glabrous.

Rarely grown in hedges for its beautiful flowers. Fls. & Frs. May-Dec. Chandrapur, 751.

Merremia gangetica (L.) Cufod. in Bull. Jard. Bot. Brux. Suppl. 31: 743. 1961. *Convolvulus gangeticus* L. in Tomer, Cent. Pl. 2:9. 1756. *Ipomoea reniformis* Choisy in Mem. Soc. Phys. Geneve 6: 446. 1833; C. B. Cl. in Hook. f. Fl. Brit. India. 4: 206. 1883. *Merremia emarginata* (Burm. f.) Hall. f. in Bot Jahrb. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 305. 1958 (Repr.); Naik, Fl. Marathwada 1: 598. 1998. 'UNDIRKANI'.

Prostrate herbs; stems and branches terete, sparsely hairy or glabrous, rooting at the nodes. Leaves reniform, cordate at the base with broad rounded lobes, apex emarginate. Flowers solitary or 2-3 in axillary clusters. Sepals subequal, ovate, mucronate, hairy. Corolla campanulate,



yellow. Stamens slightly exerted; filaments hairy at the base. Capsules subglobose, glabrous. Seeds 4, glabrous, greyish-brown.

Common in water lodged waste lands. Fls. & Frs. Sept.-Jan. Pimpalgaon, 238; Asoli, 1420.

Plant is used in nephropathy, uropathy, pneumonosis, cardiac diseases, gastropathy, metropathy, fever, anaemia, leucoderma, strangury, otalgia, rat bite and rheumatism. Also tender leaves are used as vegetable by tribal people. The leaves are also useful in sexual weakness and in earache.

Merremia hederacea (Burm. f.) Hall. f. in Bot. Jahrb. Syst. 18: 118. 1894; Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126: 55. 1979; Austin in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 1: 350. 1980. Convolvulus hederaceus Burm. f. Fl. Ind. 77, t. 30, f. 2. 1768. Merremia chryseides (Ker-Gawl.) Hall. f. in Bot. Jahrb. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 307. 1958 (Repr.). Ipomoea chryseides Ker-Gawl. Bot. Reg. t. 207. 1818; C.B.C1. in Hook. f. Fl. Brit. India 4: 206. 1883.

Twining herbs; stems and branches glabrous or minutely tubercled. Leaves shallowly or deeply 3-lobed, ovate, base deeply cordate, entire or crenate margins, apex acute or acuminate, glabrous. Flowers many in axillary long peduncled cymes. Sepals unequal, oblong, glabrous. Corolla campanulate, bright yellow. Stamens slightly exerted; filaments hairy at the base. Capsules ovoid, glabrous. Seeds 4, velvety pubescent, black.

Occasional on hedges, along roadside near villages. Fls & Frs. Sept.-Jan. Khedepar, 137; Kesalwada, 710.

Merremia quinquefolia (L.) Hall. f. in Engl. Bot. Jahrb. 16: 552. 1893; Naik, Fl. Marathwada 1: 598. 1998. Ipomoea quinquefolia L. Sp. Pl. 162. 1753.

Perennial, extensive twining herbs; stems and branches nearly glabrous. Leaves alternate, pinnately compound, 3-5 foliolate; leaflets elliptic-oblong or lanceolate, narrowed and acute at both the ends, entire or coarsely dentate, glabrous on both surfaces. Flowers in axillary 1-5 flowered cymes. Sepals unequal, oblong-ovate, mucronate, glabrous. Corolla infundibuliform, faint yellow, glabrous. Stamens included; filaments hairy at the base; anthers twisted. Capsules globose, glabrous, 4-valved. Seeds 4, brownish-black, hairy.

Naturalized in most of the places of the district. Fls. & Frs. Oct.-Jan. Gangalwada, 813; Bhuyar, 1139.

The plants are used as diuretic, deobstruent and antirheumatic. The seeds produce vasoconstrictor, uterotonic, neurohormonic, sympathicolytic and sedative effects. The leaves are useful in burns, scalds and sores.



OPERCULINA Silva Manso.

1. Stems and branches winged; corolla glabrous outside **O. turpethum**
1. Stems and branches not winged; corolla with hairy bands outside **Operculina** sp.

Operculina turpethum (L.) S. Manso, Enum. Subst. Bras. 16. 1836; Ooststr. in Steenis, Fl. Males. 1, 4: 456, f. 32. 1953; Cooke, Fl. Pres. Bombay 2: 309. 1958 (Repr.); Naik, Fl. Marathwada 1: 601. 1998. *Convolvulus turpethum* L. Sp. Pl. 155. 1753. *Ipomoea turpethum* (L.) R. Br. Prodr. 485. 1810; C.B.C1. in Hook. f. Fl. Brit. India 4: 212. 1883. *Merremia turpethum* (L.) Shah & Bhatt in Shah, Fl. Gujarat 1: 450. 1978 et J. Bombay Nat. Hist. Soc. 74: 567. 1978. 'NISHOTTAR'.

Twining herbs; stems winged, sparsely pubescent or glabrescent. Leaves ovate-lanceolate, base cordate, acute or acuminate at apex, glabrous or sparsely pubescent. Flowers 1-few in axillary peduncled cymes. Sepals subequal, deeply concave, outer pubescent and inner glabrous. Corolla infundibuliform, cream white, yellow in the centre. Stamens included, anthers twisted. Capsules depressed globose. Seeds 2-4, glabrous, black.

Common in Pauni Tahsil while infrequent in other places of the district. Fls & Frs. Sept.-Apr. Rawanwadi, 523, Bhandara, 612; Wasera, 1099.

Roots are said to be useful in treatment of muscular pain. They are also in colic, constipation, dropsy, bronchitis, obesity, gastropathy, inflammations, intermittent fever, leucoderma, pruritus, ulcers, tumours and jaundice.

Operculina sp.

Perennial, twining sub-shrubs; stems and branches terete, not winged, finely brown pubescent when young afterwards become glabrescent. Leaves alternate, ovate, elliptic-oblong, or often lanceolate towards the ends of branches, rounded or subcordate at the base, entire, rounded or acute with short mucro at apex, glabrous above, finely pubescent beneath at least on nerves (sometimes all together glabrescent). Flowers in few-many flowered axillary cymes crowded towards apex of the branches. Calyx unequal, broadly ovate, acute, glabrous. Corolla whitish to faint yellow, infundibuliform with hairy bands outside. Stamens included; anthers twisted. Stigmas-2, globose. Capsular globose, glabrous. Seeds broadly ovate, brownish-black.

Rare in the deciduous forests on small trees and shrubs. Fls. & Frs. Oct.-May. Kesalwada, 383; Khursipar, 803.

RIVEA Choisy.

1. Peduncles usually 1- flowered, (rarely 2-3) sepals acute **R. hypocrateriformis**



1. Peduncles usually 2-7 flowered, sepals obtuse

R. ornata

Rivea hypocrateriformis (Desr.) Choisy in Mem. Soc. Phys. Geneve 6: 408. 1834; C. B. Cl. in Hook. f. Fl. Brit. India 4: 184. 1883; Cooke, Fl. Pres. Bombay 2: 323. 1958 (Repr.); Austin & Ghazanfar in Nasir & Ali, Fl. W. Pak. 126: 60, t. 8, D-E. 1979. *Convolvulus hypocrateriformis* Desr. in Lam. Encycl. 3: 561. 1792. 'PHANGYEL'.

Climber herbs; stems and branches silky pubescent. Leaves broadly ovate, sometimes as broad as long or broader than long, base cordate with broad rounded lobes, entire, acute at the apex, glabrous above, appressed hairy beneath. Flowers mostly solitary, rarely 2-3 together, axillary; peduncle short, sometimes 5-8 cm long. Sepals unequal, elliptic-ovate, obtuse, villous. Corolla hypocrateriform, white. Stamens included; filaments hairy at the base. Capsules globose, mucronate, glabrous. Seeds 2-4, glabrous, blackish-brown.

Rare in the district, on bushes and trees. Fls. & Frs. Aug.-Nov. Khedepar, 671.

The roots are given after parturition.

Rivea ornata Choisy, *Convolv. Orient.* in Mem. Soc. Phys. Genev. 6: 409. 1834; Ooststr. In Blumea 8: 525, f. 1. 1957; Naik, Fl. Marathwada 1: 602. 1998. *R. ornata* sensu C.B.Cl. in Hook f. Fl. Brit. India 4: 183. 1883; Cooke, Fl. Pres. Bombay 2: 323. 1958 (Repr.).

Climber herbs; stems finely pubescent. Leaves orbicular or reniform, base deeply cordate with rounded lobes, entire, apex obtuse, glabrous above, white silky pubescent beneath. Flowers in long pedunculate axillary cymes. Sepals ovate, pubescent. Corolla hypocrateriform, dull white. Capsules subglobose, mucronate, glabrous. Seeds 2-4, blackish-brown.

Rare in the district, on bushes and trees. Fls. & Frs. Aug.-Nov. Khedepar, 473, Chikhli, 652.

VOLVULOPSIS Roberty.

Volvulopsis nummularia (L.) Roberty in Candollea 14: 28. 1952; Raiz. in Indian Forester 4: 453. 1968; Srivastava, Flora Gorakhpurensis 215, f. 26. 1976. *Evolvulus nummularius* (L.) L. Sp. Pl. ed. 2, 391. 1762; C.B.C1 in Hook. f. Fl. Brit. India 4: 734. 1885 (in additions). *Convolvulus nummularius* L. Sp. Pl. 157. 1753. 'MAGAR VEL'.

Prostrate herbs; branches terete, rooting at nodes, clothed with short trichomes. Leaves elliptic-orbicular, subcordate at the base, entire, apex obtuse or emarginated, glabrous. Flowers solitary axillary. Sepals elliptic-ovate, pubescent. Corolla tubular-campanulate, white. Stamens exerted. Capsules globose, glabrous. Seeds 2-4, slightly muricate, blackish-brown.

Common in water lodged places in most of the areas of the district. Fls. & Frs. Sept.-Jan. Rengepar(Kotha), 78; Korambi (Pauni), 1604.



The plant is weak sedative and anthelmintic.

XENOSTEGIA Austin & Staples

1. Plants prostrate; never twining; stems not wiry

X. tridentata

1. Plants usually twining; stems wiry

Xenostegia sp.

Xenostegia tridentata (L.) Austin & Staples in Brittonia 32: 533. 1980. *Convolvulus tridentatus* L. Sp. Pl. 157. 1753. *Ipomoea tridentata* (L.) Roth in Room. Arch. Bot. 1, 2: 38. 1798; C. B. Clarke in Hook, f. Fl. Brit. India 4: 205. 1883. *Merremia tridentata* (L.) Hall. f. Bot. Jahrb. Syst. 16: 552. 1893; Cooke, Fl. Pres. Bombay 2: 306. 1958 (Repr.); Naik, Fl. Marathwada 1: 600. 1998. *Ipomoea angustifolia* Jacq. Ic. Pl. Rar. 2(10): t. 317. 1786-93; C. B. Clarke in Hook. f. Fl. Brit. India 4: 205. 1883. 'MORGA'.

Prostrate herbs, not twining; branches many from woody root stock, angular, glabrous. Leaves oblong-lanceolate, base toothed auricled, apex tridentate, glabrous. Flowers mostly solitary axillary, sometimes 2-3. Calyx glabrous outside; sepals broadly elliptic, mucronate, glabrous. Corolla campanulate, faint yellow with purple eye. Capsules globose, glabrescent. Seeds 2-4, glabrous, black.

Occasional in drying ditches and rice fields. Fls. & Frs. Sept.-Apr. Sipewada, 899.

The plant is bitter, astringent, thermogenic, calefacient, aphrodisiac, laxative, anodyne and tonic. It is used in hemiplegia, haemorrhoids, uropathy, inflammations and general debility.

Xenostegia sp.

Annual or biannual diffuse twining herbs; branches many form the woody root stocks, angular, glabrous. Leaves sessile, obovate or obovate-oblong, slightly constricted above the base, hastate, toothed and auricled at the base, entire, deeply emarginate, mucronate, tridentate at apex, more or less glabrous on both surfaces except few hairs on ventral side. Flowers mostly solitary axillary or 2-3 together; peduncles filiform; pedicels stout, angular, thickened towards top. Calyx divided almost down the base; sepals unequal, outer two elliptic, inner three ovate, longer than outer (often enlarged and obovate in fruits), all with membranous margins, mucronate, decurrent, glabrous. Corolla yellow, campanulate, with reddish or purple eye. Capsules globose, glabrous. Seeds 2-4, yellowish-brown, glabrous.

Rare among the grasses in forest floors. Fls. & Frs. Aug-Mar. Mohghata, 248.

Note: The habit and sepals of this species are similar to *Merremia hastata* Hallier (Cooke, op.cit.) but the leaves and other characters are alike to *M. tridentata* (L.) Austin & Staples.



CONCLUSION:

In India the family Convolvulaceae known for its bright coloured and showy flowers is represented by 20 genera and about 180 species. In Maharashtra 19 genera and 84 species (including cultivated sp.) have been reported. In Bhandara district 17 taxa (including *Cuscuta reflexa*) belonging to 7 genera have been reported by S. K. Malhotra & K. Madhusudan Rao in J. Econ. Tax. Bot. 2 (1981). During the course of floristic investigation 24 taxa belonging to 9 genera have been reported, out of which *Argyreia nervosa* (Burm. f.) Bojer, *A. sericea* Dalz. & Gibs, *Ipomoea eriocarpa* R. Br., *I. sinensis* (Desv.) Choisy, *I. triloba* L., *I. violacea* L., *Jacquemontia pentantha* (Jacq.) G. Don; *Rivea ornata* Choisy, *Volvulopsis nummularia* are **new additions** in the flora of the region.

REFERENCES

- Acharya, R. H. (1984). *Flora of Wardha District*, Ph.D. Thesis (Unpublished), Nagpur University, Nagpur.
- Alagesaboopathi, C. and Rajendran, K. (2009). Ethnomedicinal plants of Sirumalai hills of Dindigul District, Tamilnadu, India. *Ethnobotanical leaflets*. 13: 159-164.
- Almeida, M. R. (1996-2003). *Flora of Maharashtra*, Vol. 1-4. Blatter Herbarium, St. Xavier's College, Mumbai.
- Alvarado, J., Star M. and Heredia, J. (2001). Traditional uses and scientific knowledge of medicinal plants from Mexico and Central America. *J. Herbs, Spices and Medicinal plants*. 8(2/3): 37-89.
- Badhe, D. P. and Pande, V. K. (compld.) (1999). *Medicinal Plants of Nagpur and Wardha Forest Division*, Central Council for Research in Ayurveda and Siddha, New Delhi.
- Balick, M. J. and Cox, P. A. (1997). *Plants, People and Culture: the Science of Ethnobotany*, Scientific American Library, New York, NY.
- Bown, D. (1995). *Encyclopedia of herbs and their uses*. Dorling Kindersley, London.
- Chopra, R. N., Nayar, S. L. and Chopra, I. C. (1956) 1980. *Glossary of Indian Medicinal Plants*, CSIR, New Delhi.



- Cooke, T. (1958). *The Flora of the Presidency of Bombay*. Vol. I-III, (BSI reprint), Calcutta.
- Davis, P. H. and Heywood, V. H. (1963). *Principles of Angiosperms Taxonomy*, Oliver & Boyd, Edinburgh and London.
- Diwakar, P. G. and Sharma, B. D. (2000). *Flora of Buldhana District, Maharashtra*, Botanical Survey of India, Kolkata.
- Haines, H. H. (1916). *Descriptive list of Trees, shrubs and Economic herbs of Southern Circle, Central Provinces*, Allahabad.
- Jain, S. K. (1991). *Dictionary of Indian Folk Medicine and Ethnobotany*. Deep Publications, New Delhi.
- Jain, S. K. and Rao, R. R. (1983). *Ethnobotany in India: An overview*. Botanical Survey of India, Howrah.
- Karthikeyan, S. and Anand Kumar (1993). *Flora of Yavatmal District, Maharashtra*, Botanical Survey of India, Kolkata.
- Malhotra, S. K. and Madhusudan Rao, K. (1981c). A contribution to the flora of Bhandara district, Maharashtra state (India). *J. Econ. Tax. Bot.* 2: 107-136.
- Naik, V. N. (1998). *Flora of Marathwada*. Amrut Prakashan, Aurangabad.
- Prajapati, N. D., Purohit, S. S., Sharma, A. K. and Kumar, T. (2003), *A Handbook of Medicinal Plants*, Agrobios (India) Jodhpur.
- Radford, A. E., Dickison, W. C., Massey, J. R. and Bell, C. R. (1974). *Vascular Plant Systematics*, Harper & Row, New York and London.
- Singh, N. P. & Karthikeyan (eds.) (2000). *Flora of Maharashtra State (Dicotyledones)*, Vol-I, (BSI print), Calcutta.
- Singh, N. P., Lakshinarasimhan, P. & Karthikeyan S. (2000). *Flora of Maharashtra State (Dicotyledones)*, (eds.), Vol.- II, (BSI print), Calcutta.
- Ugemuge, N. R. (1986). *Flora of Nagpur District*. Shree Prakashan, Nagpur