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REVISION ON GENUS CULLEN MEDIK (FABACEAE) FROM MAHARASHTRA STATE, INDIA

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ABSTRACT

While working on genus *Cullen* from Maharashtra. Author have an opportunity to collect live specimens from different locality of Maharashtra State. The *Cullen* is genus of tribe Galegeae of family Fabaceae represent, four species in India. It accounts two species namely *Cullen corylifolium* (L.) Medik and *C. plicatum* (Delile) C. H. Stirt from Maharashtra. Among two species *Cullen plicatum* (Delile) C. H. Stirt is rare in Maharashtra and India. The Present paper deals with revision of *Cullen* which contains systematic positions, citation, brief descriptions; key, illustration and incorporate a note on *C. odoratum* Blatt. & Hallb. are presented.

KEYWORDS: *Cullen*, Revision, Maharashtra, *Cullen plicatum*, rare.

INTRODUCTION

The genus *Cullen* Medik. Contains ca. 100 in all over the world species more prominent in Cape and North American. *Cullen corylifolium* (L.) Medik is known as Bowchi in Maharashtra. *Cullen corylifolium* (L.) Medik. and *C. plicatum* (Delile) C. H. Stirt are medicinally important and used for cure leucoderma and in many Ayurvedic medicines. From India about 4 species has been diagnosed (Gamble 1935; Hooker 1879; Roxburgh 1832; Sanjappa, 1993). Whereas Hooker (1879) recognized 2 species.

As per Cooke (1958 Repr.ed.) *Cullen plicata* (Delile) C. H. Stirt (= *Psoralea plicata*) is very rare in Sindh but Naik (1998) has recorded it from Marathwada region of Maharashtra. It is surprising that it has not been reported by recent workers (Almeida, 1996; Kothari in N. P. Singh et al., 2000),

MATERIAL AND METHODOLOGY:

The plant specimens were collected from different locality of Maharashtra state. Identified with available literatures and after comparing to protologue and images of type specimens available at LINN and MPU, the species identification has confirmed. All the enumerated species are compared with accepted botanical name with help of two websites- www.plantlist.org and www.tropicos.org. and it was revealed that many variation found in spelling of species epithets and author citation, which is followed here for its correct and updated citations. An effort is made to rectify it in present paper.

Table.1. List of species of Cullen Medik. recorded by different authors from Maharashtra State.

Publication	No. of species of genus Cullen
Cooke (Repr.1958)	2
Almeida (1996)	1
Naik (1998)	2
Kothari in N. P. Singh et. al., (2000)	1
Present Records	2

Key to species of Genus *Cullen* Medik in Maharashtra State.

1a Leaves three foliolate and pod ovate-oblong.....*C.plicatum*

1b Leaves one foliolate and pods ellipsoid.....*C.corylifolium*

In recent revisionary work on genus *Cullen* Medik. Author has collected common species *Cullen corylifolium* (L) Medik from various localities of Maharashtra and rare species *Cullen plicata* (Delile) C. H. Stirt from Nakshatrawadi, Aurangabad. So present collection of rare species *Cullen plicatum* (Delile) C. H. Stirt. reconfirming the occurrence of two species of genus *Cullen* Medik. in flora of Maharashtra State.

Cullen corylifolium (L) Medik., Vorles. Churpf. Phys.-Oek. Ges. 2: 381. 1787; Sanj. Legumes of India .132. 1993; Kothari in N.P. Singh et al., Fl. Mah.1: 652. 2000. Yadav & Sardesai, Fl Kolhapur 144. 2002; Bhagat et al., Fl Baramati 92. 2008. [Fig.no.1]

Type: as *Psoralea corylifolia* L.

Psoralea corylifolia L. Sp. Pl. 746. 1773; Graham, Cat. Bombay Pl. 25. 1839; Dalz. & Gibs., Bombay Fl. 60. 1861; Baker in Hook. f. Fl. Brit. India 2: 103. 1876; Woodrow in J. Bombay Nat. Hist. Soc. 11: 422. 1897; Cooke Fl. Pres. Bombay 1: 341. 1958 (Repr.); Santapau Fl. Khandala ed. 3: 55. 1967; Naik, Fl. Osmanabad 93. 1979; Ugemuge, Fl Nagpur Dist. 1986; Kamble & Pradhan Fl. Akola Dist. 69. 1988; Karthikeyan & Anand Kumar, Fl. Yavatmal Dist. 77. 1993; Naik, Fl. Marathwada 1: 294. 1998; Diwakar & Sharma Fl. Buldhana 117. 2000; Kshirsagar & Patil, Fl. Jalgaon 117. 2008. 'Bawchi'.

Type: India, Herb. Linn. 928.24 (LINN).

Erect, annual herb, 25-110 cm tall, stem and branches grooved, conspicuously gland dotted and with few appressed, spreading white hairs or puberulous. Leaves 1-foliate; petioles 0.6-2.5 cm long, hairy, gland dotted, stipules subulate-lanceolate 5-6 mm long, persistent. Leaflets broadly ovate-orbicular, lanceolate or elliptic, 3.5-9.5 x 2.5-7 cm, obtuse, cuneate or rounded at base, incised-dentate, mucronate or rounded at apex, hairy and gland dotted, nigro-punctate on both surfaces, strongly 5-nerved beneath, 4-6 pair of lateral nerves. Bract ovate, ca. 3 x 2 mm. Flowers white, blue or pink, in dense 10-30 flowered or solitary, short, axillary racemes, peduncle 2-6 cm long, pedicels very short. Calyx 3-5 mm long, glandular, glabrous to hairy on ribs outside, upper teeth linear lanceolate, lower one ovate, twice as long as upper. Corolla twice as long as calyx or slightly exerted, standard 3-5 mm, orbicular, wing petal c. 4-4.5 x 2.5 mm long, keels c. 4 x 2 mm, staminal sheath c. 3-4 mm long, style c. 2-2.5 mm, ovary oblong, c. 2-1.5 mm. Pod ovate-oblong or globose to subglobose, 6-7 x 3-5 mm, compressed, black, glandular-punctate, glabrous, mucronate, pubescent, black, indehiscent. Seeds solitary, smooth, glabrous, reniform, adhering to pericarp. 3-4 x 2 mm. Fls & Frts.: Aug. to Jan..

Illus: Matthew, Illus. Fl. Tamilnadu Arnetica 2: t. 215. 1982.

Distribution and Habitat: Common in around waste, cultivated fields and weedy in experimental fields of Agricultural colleges and Universities.

Specimens Examined: Aurangabad, Himayat Bag, Nanded SRTMU Campus, Bhandara, Koka village, ;Gondia, Amgaon, Kolhapur, Gaganbawda, Satnavri, Nagpur.

Note: Colour of Petals has been shown different variation like pink, white, yellow by different authors (Naik, 1979; Kshirsagar & Patil, 2008) but my specimens shown white to purple petals.

Uses: Roots, leaves, fruits and seeds are used in Ayurvedic medicine (Naik, 1996).

Cullen plicatum (Delile) C. H. Stirt, Bothalia 13(3–4): 317. 1981. *Psoralea plicata* Delile Fl. Egypte 252, t. 37. f.3.; Baker in Hook. f. Fl. Brit. India 2:103. 1876; Cooke Fl. Pres. Bombay 1: 342. 1958 (Repr.); Naik, Fl. Marathwada 1: 294. 1998. **[Fig.no.2]**

Holotype: Foot of mountain between Qournah and Medynetabou, *Delile*, (MPU006987)

Psoralea odorata Blatt. & Hallb. in J. Bomb. Nat. Hist. Soc. 26:238. 1918.

Syntype Designated : Jodhpur: Barmer, Sand (No. 7005), Near Kotda (No. 7008), Jaisalmer : Devikot (7004), Near Bap (70021), Rajasthan, India (BLAT)

Perennial under shrub, 60-90 cm tall, stem teret, striate, copiously branched, glabrous or minutely pubescent or verucose, whitish, gland-dotted. Leaves 3-foliate; petioles 5-15 mm long; stipules linear-oblong, acute, nerved. Leaflets sub-coriaceous, dull green, oblanceolate, rounded, slightly apiculate at apex, clothed with closely appressed white hairs or pubescent on both surfaces, gland-dotted beneath, irregularly sinuate or subserrate, acute at base, 0.5-4.5 mm long; petiole short, terminal longer than lateral ones, Bract 1.5-2 mm x 1 mm long, ovate. Flowers solitary or clustered along axillary racemes 5-10 cm

long; pedicels short, deflexed; bracts ovate, acute, small. Calyx accrescent, 3-4 mm long, much enlarging or accrescent in fruits, white or silver hairy outside; teeth triangular, shorter than tube, lowest teeth longer. Corolla yellow or purple to white, slightly exerted. Standard 3-4 x 2.5-3 mm, wing petal c.4 mm long, keels c. 4-4.5 x 2 mm, stamina sheath c.4- 4.5 x 1 mm long, style c.2 mm, ovary oblong, c. 2x1 mm Pods, ellipsoid, 5x2 mm, densely hairy, completely enclosed within the accrescent calyx, indehiscent. Seeds solitary, adhering to the pericarp, smooth,

Fls & Frts: Aug. to Dec.

Illus: *Delile op. cit*

Distribution: Rare, along sandy river banks.

Specimens Examined: Nakshatrawadi, Aurangabad, 12.7.2009 VAP 5741.

Note: The rare distribution of above species reveals that and it needs further study to assess its present status as per guideline of IUCN Red List Criteria for state of Maharashtra.

Uses: Fruits and seeds are used in Ayurvedic medicines.

DISCUSSION:

C. corylifolium (L) Medikis common in all the district of Maharashtra, which shows white, pink, purple and Yellow (Hooker, 1879) colour variation in petals, while the *C. plicatum* (Delile) C. H. Stirt is very rare to Maharashtra and known by only some handful collections, which shows variation in degree of pubescence, length of petiole and leaf, colour of flowers varies from white, purple and yellow (Hooker, 1879) probably, this changes in colour is due to soli types and climatic conditions.

According to Blatter & Hallberg *op. cit.* the *C. odorata* (= *Psoralea odorata*), differs from *Cullen plicatum* (Delile) C. H. Stirt (= *Psoralea plicata* Delile) by colour of the corolla, longer petiole, hairiness of stem and shape of stipules.

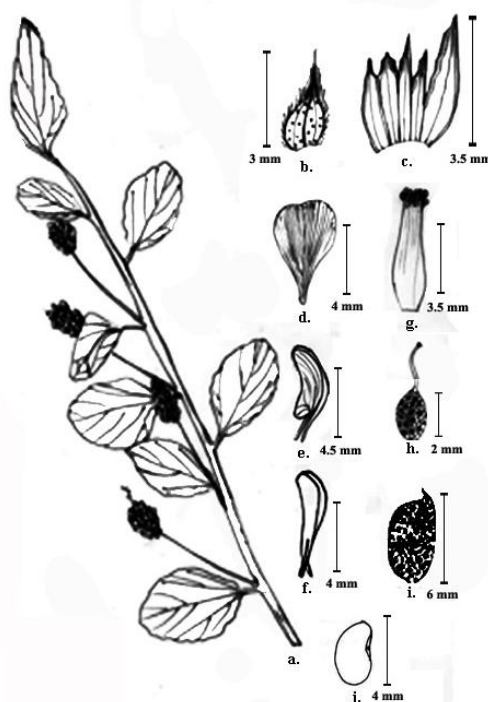
After studying holotype (image) of *C. plicatum* and protologue, it appear that most probably a form of *Cullen plicata* (Delile) C. H. Stirt which was adapted to drier parts of Jodhpur, Jaisalmer, India and need the further population study for its correct taxonomic status.

Blatter & Hallberg *op. cit.* cited four specimens in protologue, but not cited holotype due to that we are considered it as syntype.

Present study indicate that the occurrence of two species of *Cullen* Medik. from Maharashtra and are helpful in better understanding of Morphology, nomenclature, distribution of genus *Cullen* Medik. In Maharashtra state.



Fig. No. 2. *Cullen plicatum* (Delile) C. H. Stirt. a. Habit, b. Bract, c. Calyx, d. Standard, e. Wing, f. Keel, g. Staminal Sheath, h. Ovary, i. Pod, j. Seed.



No. 1. *Cullen corylifolium* (L.) Medik., a. Habit, b. Bract, c. Calyx, d. Standard, e. Wing, f. Keel, g. Staminal Sheath, h. Ovary, i. Pod, j. Seed.

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