



## ***Achyranthes coynei* Santapau, 1949 (Amaranthaceae) - an addition to the flora of Karnataka, India**

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During exploratory surveys for medicinal plants from the Western Ghats of Belgaum region, an interesting plant species belonging to the genus *Achyranthes* (Amaranthaceae) was collected. After critical investigation, it was identified as *Achyranthes coynei* Santapau, 1949. The voucher specimens have been deposited at the Herbaria of Regional Medical Research Centre (RMRC), Belgaum.

The family Amaranthaceae is circumscribed with 850 species belonging to 71 different genera worldwide, out of which India is endowed with 60 species under 20 genera and an infraspecific taxa (Mishra & Singh

2001). The genus *Achyranthes* has about 15 species distributed in tropical and subtropical regions in the world (Shu 2003) of which 2 species (*A. aspera* L. and *A. bidentata* Blume) have been reported from Karnataka, India (Sharma et al. 1984).

*Achyranthes coynei* was first reported by Santapau in 1949 from Khandala, Maharashtra (Santapau 1949). Subsequently, the species was recorded from Raigad, Sindhudurg, Thane and Amaravati districts of Maharashtra, making it endemic to Maharashtra State (Singh et al. 2000; Mishra & Singh 2001). This species was categorized as rare in the Red Data Book of Indian Plants (Sharma & Kulkarni 1987) and in ENVIS Centre on floral diversity (2009) and as endangered by Mishra & Singh (2001). The species was earlier reported only from four locations in Maharashtra State, with an estimated distribution range of ca. 5,000km<sup>2</sup> (Mishra & Singh 2001). The present investigation reports the extended distribution of *A. coynei* to Karnataka State. The repeated random sampling during the present study, resulted in the recording of this plant at three different localities, namely Madanabhavi of Bailhongal Taluka, Pachapur and Godachinmalki of Hukkeri Taluka in Belgaum District along the road side and on canal bunds.

The collected specimens have been identified with the help of 'Flora of Maharashtra State' (Singh et al. 2000) and confirmed with the original description of the plant in 'Flora of Khandala' (Santapau 1967). The detailed descriptions of the plant with photographs are provided to enable its easy identification (Image 1a–h and Image 2).

### ***Achyranthes coynei* Santapau, 1949**

Sant. in Kew Bull. 1948: 488. 1949 et in Rec. Bot. Surv. India 16 (1), Fl. Khandala 224. 1967 (3<sup>rd</sup> Rev. ed.); Raghavan & Singh in Jain & Sastry (eds.), Pl. Cons. Bull. 3:4. 1983 et in J. Econ. Tax. Bot. 5 (1): 161. 1984; Singh & Raghavan ibid. 8(1): 34. 1986; Sharma & Kulkarni in Nayar & Sastry (eds.), Red Data Book Indian Pl. 2: 8, f. 1987; Almeida in J. Econ. Taxa. Bot. Addl. Ser. 8 (1), Fl. Savantwadi 1; 351. 1990; Kothari & Moorthy, Fl. Raigad 338, 1993; Almeida Fl. Maharashtra 2: 194, 1996; Anon., India Glob. Threat. Taxa 2. 1996; Yadav in Pokle et al. (eds.),

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Image 1. *Achyranthes coynei* Santapau (Amaranthaceae).

a - habit; b - inflorescence; c - flower; d - flower bud; e - bract; f - androecium; g - gynoecium; h - fruits

Flow. Pl. Syst. Diver. Pt. 1: 44. 1997. Singh et al. Fl. Maharashtra State. Dicot Vol.2 779, 2000. Mishra & Singh End. Threat. Fl. Pl. MH. 196, 2001. Uttarani, Kempu Uttarani (Kannada), Lal Aghada (Marathi).

**Material examined:** 10.xii.2010 and 03.i.2011, Godachinmalki, Pachapur and Madanabhavi in Belgaum District, Karnataka, India, coll. Sandeep Pai, Vinayak Upadhyaya and Harsha Hegde (RMRC 784,

785 & 790).

A perennial, profusely branching shrub, sub-erect, 2–4.5 m high. Stem terete, branches many, woody, younger ones pubescent, green or with purple patches, older ones glabrous or glabrescent, brown to purple in colour; nodes swollen. Leaves deciduous; dimorphic, lower ones big 15–23 x 7–10 cm; upper leaves gradually decreases in size, elliptic or lanceolate,



**Image 2. a - Herbarium of *Achyranthes coynei*; b - Inflorescence: Flowers first erect, later patent, finally deflexed and appressed to the rachis; c - Bractioles.**

acute or acuminate; subglabrous above, pubescent beneath especially on the mid rib, primary nerves and margins; margins entire; petiole 1–3 cm long, channeled, pink above, green beneath. Flowers in spikes, densely arranged on rachis; rachis thick, 35–60 cm long, densely pubescent, whitish. Flowers first erect, pointing towards tip of the inflorescence (mostly buds), later patent, finally deflexed and appressed to the rachis; opened flowers spreading, up to 1.5cm in dia.; rosy or purplish in colour. Bract single, persistent,

linear, membranous with distinct midrib, smaller than the longest tepal, up to 5mm long, with rosy tinge; bractioles two, linear, with thin papery wing like structure beneath, rosy or purplish. Tepals five, in two whorls, up to 8mm long, 1mm broad, glabrous, green with rosy to pink tinge, ribbed, margins scarious. Stamens five, filaments fused at base; staminodes fimbriate, alternatively placed with fertile anthers, fused together, rosy-pink-purple in colour, half the length of the filaments; antheriferous filaments and

lobes rosy-pink when young. Ovary truncate, one celled; style and stigma rosy pink; style 0.4cm long, filiform, stigma capitellate. Capsule ca. 5mm, styles persistent; capsule enclosed with persistent hardened sepals. Seed one, cylindrical, smooth, brown.

**Flowering and fruiting:** September to March.

**Habitat:** Found along the road side and canal bunds under the shade, growing in association with *Achyranthes aspera* L. and *Alternanthera sessilis* (L.) R. Br. ex. DC., *Azadirachta indica* Juss., *Acacia nilotica* (L.) Willd., *Jatropha curcas* L., *Vitex negundo* L., *Alternanthera sessilis* (L.) R. Br. ex. DC., *Peristrophe paniculata* (Forssk.) Brummit., *Cassia tora* L., *Lantana camara* L., *Agave americana* L. and *Cardiospermum helicacabum* L.

**Distribution:** Endemic: Raigad, Amravati, Pune, Sindhudurg and Thane districts in northern Western Ghats of Maharashtra (Mishra & Singh 2001) and Belgaum District of Karnataka.

**Status:** Endangered: its distribution in all the reported locations is rare and populations are severely fragmented, which needs immediate attention (Mishra & Singh 2001). In the present localities only few individuals have been found in Madanabhavi, while fairly good, fragmented populations were observed between Pachapur to Godachimalki villages, along a stretch of nearly 10km. Most of these populations are along the road sides, while a few are on the canal bunds in the agricultural lands. As both habitats are prone to maximum human interference, the development of conservation strategies for these populations is needed urgently.

**Medicinal use:** The other species of *Achyranthes*, especially *Achyranthes aspera* L. locally known as 'Uttarani' or 'Bili Uttarani' is widely used by local traditional practitioners and Ayurvedic physicians in treating several disorders (Hebbar et al. 2004; Harsha et al. 2004; Upadhyaya et al. 2009). It was found during the study, that *A. coynei* is also named 'Uttarani' or 'Kempu Uttarani' by the local community who are using it for purposes similar to *A. aspera* L. Hence it is worthwhile to work on the phytochemical and medicinal investigations of *A. coynei*.

**Notes:** As pointed out by Santapau, *A. coynei* is similar in appearance to *A. aspera* var. *porphyristachya* from which it differs in profusely branched shrubby habit (3.0–3.5 m tall); first erect, later patent, finally deflexed nature of flowers on the inflorescence;

opened flowers spreading up to 2.0cm in diameter and their rosy-purplish colour (Santapau 1967). However, the diagram and the description of *A. coynei* given by Bhogaonkar & Devarkar (1999) did not match with Santapau's description. It is interesting to note that all earlier localities of collection (Pune, Raigad, Sindhudurg and Thane, excluding Amravati) fall on or near the same longitude as of the present locality.

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