New record of *Iochroma arborescens* (Solanaceae) for India, a potential invasive plant from America with notes on its typification

Santhosh Nampy*, Divya K. Venugopal, Dani Francis & Vishnu Mohan

*Department of Botany, University of Calicut, Malappuram P.O., Kerala– 673 635, India.
*Email: santhoshnampy2019@gmail.com

Abstract: *Iochroma arborescens* (L.)J.M.H.Shaw (Solanaceae), a potential invasive species from America, is authentically recorded for the first time in India. Perusal of relevant literature revealed that the name has yet to be typified. Details of the taxonomy, distribution and invasive nature of this species with notes on its typification are provided here.

Keywords: Allelopathy, Idukki district, *Iochroma*, Kerala, Maharashtra, Typification.

INTRODUCTION

While documenting the angiosperm diversity of the floristically rich Idukki district in Kerala, the authors collected some interesting specimens of the family Solanaceae. Detailed examination revealed its identity as *Iochroma arborescens* (L.) J.M.H. Shaw, a species so far not reported from India. The genus *Iochroma* Benth. includes nearly c. 26 species worldwide (Mabberley, 2017; but IPNI records 98 names under *Iochroma*), ranging from Mexico to Tropical America. *Iochroma arborescens* is an invasive weed distributed in American countries such as southern Mexico, central and South America (Shaw, 2018). The occurrence and distribution of this species in India is yet to be resolved, and this species has not been included in the list of invasive plants/weeds in India. A perusal of relevant literature also revealed that the name is yet to be typified. The present paper discusses the taxonomy, distribution, invasive nature and typification of *Iochroma arborescens* in India.

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税onomic treatment

*Iochroma arborescens* (L.)J.M.H.Shaw, Plantsman 17(3): 200. 2018. *Atropa arborescens* L., Cent. Pl. II: 10. 1756. *Acnistus arborescens* (L.) Schltdl., Linnaea 7: 67. 1832. Neotype (designated here): Plumier, Pl. Amer. fasc. 2. t. 46. f. 1. 1756. Figs. 1 & 2

Unarmed shrubs or small trees, up to 2 m tall, glabrous throughout. Stems terete, branched, greyish-white. Leaves simple, alternate; petioles 1–2 cm long, glabrous; lamina elliptic, 18–24 × 6–9 cm, acute to attenuate at base, acute at apex, entire at margins, both surfaces glabrous, pale green. Inflorescence a many flowered fascicle, cauliflorous. Flowers bisexual, actinomorphic, c. 2 × 1 cm; pedicels c. 1 cm long. Calyx 5-lobed cupular; lobes c. 3 × 1 mm, hairy outside, acute at apex, green. Corolla 5-lobed; tube c. 4 × 1 mm; lobes c. 8 × 1 mm, nearly elliptic, greenish-white with yellow tinge on inner surface, papillate along margins. Stamens 5, equal, exserted; filaments c. 5.1 mm long, epipetalous, glabrous, cream coloured; anthers oblong, c. 2 × 2 mm, dithecous, dorsifixed, yellow coloured. Ovary 2-celled, ovoid, c. 2 × 1 mm; ovules many; styles slender, c. 7 × 1 mm; stigma capitale. Berries globose, c. 5 mm long.

Flowering & fruiting: April–June.

Distribution: South and central America (Brazil, Peru, Ecuador, Colombia, Venezuela, Costa Rica and Nicaragua), southern Mexico and now in India.

Habitat: Road side (damp areas); as fencing material at elevations around 1200 m.

Specimen examined: INDIA, Kerala, Idukki district, Painavu, 04.04.2018, Divya K. Venugopal & Santhosh Nampy 158483 (CALI).
New record of *Iochroma arborescens* for India

**Figure 1.** *Iochroma arborescens* (L.) J.M.H. Shaw: a. Habit; b. Flowering twig; c. Flower; d. Bud; e. Sepal; f. Flower opened; g. Corolla opened; h. Stamen; i. Carpel.
Notes: This species is usually found growing well in open sunny locations. It produces large number of cauliflorous flowers and fruits.

Typification

*Iochroma arborescens* was originally described as *Atropa arborescens* by Linnaeus (1756) in *Centuria II Plantarum* as “*Atropa (arborescens) caule frutescens, pedunculis confortis, corollis limbo revolutis, foliis ovato-oblongis. Belladonna frutescens, flore albo, nicotianae foliis. Plum spec.1*”. The ‘Plum spec. 1’ refers to the species 1 in *Catalogus Plantarum Americanarum, Nova Plantarum Americanarum* of Plumier (1703), in which only the phrase-name (nomen specificum legitimum) cited by Linnaeus (1756) appears. Later, in Plumier’s *Plantarum Americanarum*, in which Burman presented details of plants from Islands of Antilles once seen and drawn by Charles Plumier, included “*Bella Donna frutescens, flore albo, Nicotianae foliis. Plum. Cat. pl. Amer p. 1. Tourn. Inst. P. 77.*” along with a description and illustration [fascicle 2, p. 34, t. 46, figure 1]. This set was seen by Linnaeus during his stay in Holland for the description of *Atropa arborescens* in *Centuria II plantarum* (Stafleu & Cowan, 1983). According to Jarvis (2007), the type of this name has not yet been designated as per Linnaean typification databases. Although Howard (1989) attempted to typify the name in the *Flora of Lesser Antilles* by referring to *Plum. Spec. 1* as type, this is ineffective as he failed to indicate the illustration in *Plantarum Americanarum* (f.46. f.1). Moreover, Linnaeus also, did not refer to this illustration, and so as noted in the Linnaean typification database no original material has been traced. Since no original material is present, the illustration t.46. f. 1 can be considered as a neotype (Art 40.3) as per *Shenzhen Code* (Turland et al., 2018).

Notes on invasive nature

The species is native to America and is commonly called Wild tobacco, Gallinero, Hollow heart etc. (Chimera, 2012). It is an edible non-crop plant, actively managed in home gardens as an ornamental plant and also for chicken fodder (berries), hedging and as a honey shrub in American countries (Eynden, 2004). It is a rapid growing plant propagated through seeds and stem cuttings and has some medicinal properties (Kupchan et al., 1965, 1969; Barata et al., 1970).

How this plant got introduced in India is still a question unresolved. The name is not included in any of the Floras of India (Roxburgh, 1795; Clarke 1885; Gamble, 1921; *e-flora India*, 2014). It is also not included in *Invasive plants of India* (Reddy et al., 2008), *Invasive Alien Plant Species of Tamil Nadu* (Narasimhan et al. 2009), *Handbook on Weed identification* (Naidu, 2012) and *Weeds and weed management in India* (Rao & Chauhan, 2015). Even though this plant is reported as a cultivated species by Reema Kumari (2004, unpublished), based on a specimen collected from Pune, Maharashtra (D.K. Kulkarni s.n., AHMA), it has not been reported in any of the subsequent floras (Sharma et al., 2000). Hence this is the first report of this species from India.

Chimera (2012) reported that, the plant is allelopathic in nature and has the ability to inhibit the growth of nearby plants and to colonize in a newly introduced area. In India, this species is planted as a fencing material and ornamental plant.
So there is a chance for this species to become massive in population in near future due to its rapid growth and allelopathic nature.

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