



## Lectotypification of *Jatropha nana* (Euphorbiaceae) with notes on its threats, and the status of *Jatropha nana* var. *benghalensis*

ASHISH N. NERLEKAR<sup>1</sup>

<sup>1</sup>Department of Biodiversity, MES's Abasaheb Garware College, Karve Road, Pune, Maharashtra 411004, India. Email: ashishadmirer-officis@gmail.com

### Abstract

*Jatropha nana* is an endemic and threatened taxon with restricted distribution. A lectotype for this name is designated in the present communication. *Jatropha nana* var. *benghalensis* was recently described as a new variety based on stipule morphology and size of the root. On examining specimens from the type locality, these characters were found to be present but also variable. Hence, *J. nana* var. *benghalensis* is proposed now as a synonym of *J. nana*. A critical taxonomic treatment for this species is provided along with notes on anthropogenic threats to the species in and around the type locality.

### Introduction

The genus *Jatropha* Linnaeus (1753: 1006) (Euphorbiaceae) shows a pantropical distribution (Sabandar *et al.* 2013) and is represented by 11 species and 7 varieties in India (Balakrishnan *et al.* 2012, Rahaman & Mondal 2012). The species *Jatropha nana* Dalzell (in Dalzell & Gibson 1861: 229) is an endemic and threatened taxon that shows a restricted distribution in western Maharashtra and probably in western Madhya Pradesh states (Mishra & Singh 2001, Balakrishnan *et al.* 2012, Nayar *et al.* 2014).

For his *Jatropha nana*, Dalzell did not cite any specimens within the protologue. He mentioned the locality as 'Rare, in waste, stony places near Poona'. The types of Dalzell's new taxa are known to be at K, with duplicates at CAL, DD, W and drawings at BM.

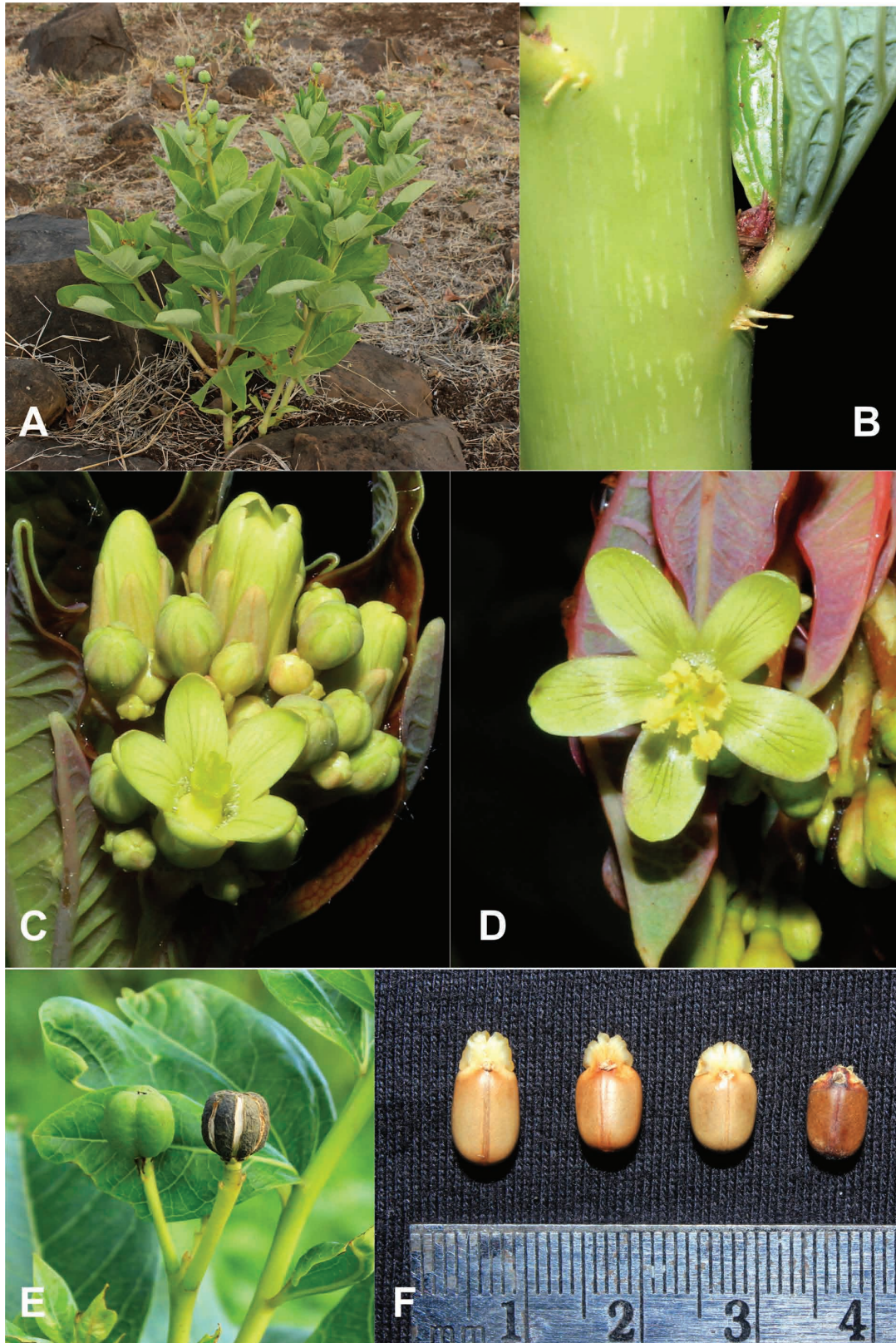
Correspondence with DD, W and BM herbaria revealed that they do not have any original material for this species. The Royal Botanic Garden Edinburgh has one watercolour painting [which is also published in Noltie (2002)] that has this species name written in Dalzell's hand but lacking other information. The protologue, however, does not indicate if any illustration was used, hence the painting being part of the original material is doubtful.

The K Herbarium has one specimen [barcode K000246805 (photo!)] with the label showing 'BOMBAY Herbarium of the late N. A. Dalzell, Presented by Mrs. Dalzell, April 1878', but lacks locality information. In contrast, the CAL Herbarium has two specimens [barcodes CAL0000026112 (photo!), CAL0000026113 (photo!)], each with a label showing 'Herb. of N. Dalzell Bombay; purchased 1878'. Furthermore, CAL0000026112 shows the location as 'Hills south of Peth' while CAL0000026113 has no location. It is noted here that "Peth" refers to the locality Navi Peth near Pune city. Although all the three specimens (K & CAL) correspond well with the protologue, only the CAL0000026112 specimen sheet has the locality datum, and it is therefore designated here as the lectotype of the name *J. nana*.

### Taxonomic status of *Jatropha nana* var. *benghalensis*

*Jatropha nana* var. *benghalensis* was recently described as a distinct variety on the basis of stipule morphology and size of the root (Rahaman & Mondal 2012). Even though the protologue of the type variety mentions 'stipules minute', field examination of several specimens from the type locality (Pune) reveals that the stipules in *J. nana* are variable. Stipules were more prominent in early pheno-phases with 1 to 3 processes each (of 1.0–10 mm length). When the

specimens were fully mature, stipules were minute or even absent. Similarly, with respect to root morphology, several specimens from the type locality were found to have tuberous main root (the largest was about  $25 \times 8$  cm) (see figure 1). Both of these findings contradict the taxonomic status of *J. nana* var. *benghalensis* as a distinct variety. Hence, it is proposed that *Jatropha nana* var. *benghalensis* should be merged with the type variety, as the two characters considered as diagnostic for this variety by the authors are actually variable and also observed in specimens from the type locality.



**FIGURE 1.** *Jatropha nana*. A. Habit. B. Filiform stipules. C. Female flower. D. Male flower. E. Fruits at different maturity phases. F. Size variability in seeds. Photos by the author.

## Taxonomic treatment

*Jatropha nana* Dalzell in Dalzell & Gibson (1861: 229)

Lectotype (designated here):—INDIA. Maharashtra State: Hills south of Peth (Pune), s.d., *Anonymous s.n.* [CAL0000026112 (photo!)].

*Jatropha nana* var. *benghalensis* Rahaman & Mondal (2012: 477, as ‘*benghalense*’), *syn. nov.*

Lectotype (designated here):—INDIA. West Bengal State: Birbhum district, Rajnagar, near Kurulmitiya hillock, 16 May 2012, *C. H. Rahaman & S. Mondal 270* [CAL0000025102 (photo!)].

Shrub, 30–50 cm tall. Root tuberous or woody, branched, with tubers reaching up to ca. 25 × 8 cm. Stem terete, occasionally branched, glabrous, ca. 2.0 cm in diameter. Leaves glabrous, sessile or with 0.5–3.0 cm long petioles, leaf blade up to 10 × 12 cm, broadly ovate, entire or trilobed from above the middle with the middle lobe being the largest, underside pale, young leaves frequently reddish, base cuneate with three prominent nerves arising from base, margins entire, apex acute-acuminate; stipules with ca. 1–3 filiform processes each, 1.0–10 mm long and 1.0 mm wide, stipules absent or reduced in specimens approaching senescence. Inflorescence a terminal compound cyme. Flowers pedicellate, pedicels ca. 3 mm long, bracteate; bracts lanceolate-subulate, acute, eglandular. Male flowers: calyx lobes 3.0–4.0 mm long, ovate, divided up to half way down with acute apex, glabrous; corolla lobes free, ca. 6.0–8.0 mm long, oblong-obovate, veined, glabrous outside, densely glandular-hairy at the base inside, 5 minute disc glands present at base of flower; stamens 8, filaments united at base. Female flowers: calyx lobes 3.0–4.0 mm long, lanceolate, divided almost to the base, glabrous with acute apex; corolla lobes free, ca. 7.0–9.0 mm long, ovate-oblong, veined, glabrous outside, glandular inside; ovary ovoid, glabrous, ca. 2 mm in diameter, surrounded by 5 minute glands; style ca. 3.0 mm long, connate at base, divided into 3 stigmatic branches, these further divided into two lobes at the apex; stigmas bilobed. Capsules ca. 2.0 × 1.5 cm, sulcate, obovoid-oblong, flattened at top, splitting into 3 cocci and 2 valves, with 3 seeds. Seeds oblong-ellipsoid, up to 1.0 × 0.5 cm, testa uniformly brown, ventral surface with groove, caruncle lobes light brown with roughly 2 lobes.

## Threats

A part of the range of this species includes human habitation and a few isolated urban wildscapes around Pune city (Mishra & Singh 2001). The most immediate form of threat which has risen in the recent years in these urban hills is unplanned afforestation, either by the citizens or governmental projects. Great numbers of pits and continuous contour trenches are dug for planting before every monsoon with the aid of machines or manually that destroy the underground tubers of *J. nana*. Such plantations have also adversely affected multiple sympatric herbaceous species which were once abundant. Inappropriate choice of cultivation of species has also resulted into habitat degradation; exotics, such as *Gliricidia sepium* (Jacq.) Kunth and *Leucaena leucocephala* (Lam.) de Wit, (Leguminosae) rapidly invade the landscape and dominate the native flora (Punalekar *et al.* 2010) resulting in loss of natives (Nerlekar & Kulkarni 2015). It is tremendously important to understand and convince the planters that the original forest type of the hills in and around Pune city is dry deciduous (Champion & Seth 1968) and that grasslands along with scrub are an important component of this ecosystem where *J. nana* thrives. Other anthropogenic threats include changing land-use in form of construction activities around the hills, utilizing potential habitat for recreational activities and trampling by regular visitors. There have been no recent collections from localities like Peth ghat, 8 August 1961, *K. P. Janardhanan 71979* (BSI!); Ghod nadi, 14 August 1956, ‘*S.B.R. 16005* (BSI!), and Sinhadgad, 1 July 1956, *V. D. Vartak 7227* (AHMA!) for over 5 decades. The other localities such as Katraj ghat face threats in form of fires and overgrazing.

Due to its severely fragmented populations and limited area of occurrence, *J. nana* has been considered endangered regionally (Mishra & Singh 2001). Because of lacking baseline ecology knowledge in form of demographical, geographical distribution data and studies on reproductive biology, this species has not been listed in the IUCN red list.

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