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Dipcadi goaense (Hyacinthaceae), a new species from the foothills of the Western Ghats, India

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Summary. A new species of *Dipcadi* (Hyacinthaceae) that is allied to *D. concanense* (Dalzell) Baker but differs in its small flowers (13 – 18 mm long vs 35 – 47 mm long) and funnel shaped perianth tube (5 – 6 × 5 – 6 mm vs 18 – 27 × 4 – 5.5 mm) is described as *D. goaense*. The new species is apparently endemic, because it is known only from the type locality in Goa state of India. The type locality is at the foothills of Western Ghats and the habitat is a soil covered, lateritic, open area.

Key Words. Endemic, lateritic, new species, taxonomy.

Introduction

The genus *Dipcadi* Medik. (subfamily *Ornithogaloideae* Speta; family *Hyacinthaceae*) with about 30 species is distributed in the Mediterranean region, Africa and South West Asia (Mabberley 1997). In India the genus is represented by nine species including four varieties (Deb & Dasgupta 1981; Karthikeyan *et al.* 1989) of which six species are present in Maharashtra state alone (Lakshminarasimhan 1996) inhabiting lateritic plateaus and table lands. Manning *et al.* (2004) considered it congeneric with *Ornithogalum* L. However, Manning *et al.* (2009) resurrected the genus, because it differs from other genera in *Ornithogaloideae* by the following combination of features: "Flowers nodding, usually secund; tepals fused for at least half their length into a tube; stamens inserted at top of tube, included; capsules quadrate, as broad or broader than high; seeds discoid" (J. C. Manning, pers. comm.).

During floristic studies in the state of Goa, a large population of *Dipcadi* was located along the lateritic gravelly area at the foothills of Western Ghats. The characters of the population were distinct from all other species described. Among the Indian species, *D. concanense* (Dalzell) Baker is morphologically very close to the population; both share very similar vegetative characters. The size and shape of the bulbs and channelled leaves are so similar that it is very difficult to distinguish them in the vegetative condition. They are also distinct from all other Indian species in their shiny white flowers and brownish-black seeds, whereas the other Indian species have a green to brown perianth and pitch black seeds. All other Indian species differ in their smaller flowers (8 – 14 mm vs 13 – 18 mm in the new species and 35 – 47 mm in *D. concanense*) and shorter styles (3 – 6 mm vs 9 – 13 mm in the new species and 20 – 33 mm in *D. concanense*). Hence, the population is considered very similar to *D. concanense* but with discontinuous characters that warrant specific status being given to the entity (see Table 1) that is being described and illustrated here as *D. goaense*.

Dipcadi goaense *A. Prabhugaonkar, U. S. Yadav & Janarth.*, **sp. nov.** *Dipcadi concanensi* similis, floribus parvis (13 – 18 mm versus 35 – 47 mm longis), perianthii tubo infundibuliformi (versus cylindrico) differt. Typus: India, Goa, Rivona, Kevan, 11 Aug. 2007, *Ashish Prabhugaonkar & M. K. Janarthanam* A40 (holotypus CAL; isotypi BSI, MH).

A bulbous scapose herb, 150 – 400 mm high. Bulbs spherical, 10 – 19 mm in diameter, profusely rooting from the base. Leaves in a rosette, 4 – 7 per bulb (1 – 4 at the end of the season), linear, 50 – 250 × 3 – 4 mm, deeply channelled, green, slightly broader and white at base, entire along margins, narrowed at apex, indumentum absent. Scape 1.5 – 4 cm × 2 – 3 mm, terete, glabrous, sterile bracts absent; raceme 40 – 100 mm long, 2 – 8-flowered; floral bracts broadly ovate, scarious, 5 – 8 × 4.5 – 7 mm, acuminate at apex. Flowers pedicellate, shining white, 13 – 18 mm long, 14 – 19 mm in diam. when fully opened; pedicel 5 – 10 × 1 mm, 8 – 15 × 1.5 mm in fruit, terete to elliptic

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Table 1. Differences between *Dipcadi concanense* and *D. goaense*.

Character	*D. concanense*	*D. goaense*
Bract (mm)	5 – 6 × 3 – 4	5 – 8 × 4.5 – 7
Flower (mm)	35 – 47	13 – 18
Perianth tube (mm)	18 – 27 × 4 – 5.5	5 – 6 × 5 – 6
Outer lobes of perianth (mm)	17 – 22 × 5 – 6	9 – 11 × 5 – 6
Inner lobes of perianth (mm)	17 – 22 × 4 – 5	9 – 11 × 4 – 6
Filaments (mm)	4 – 8 × 0. 7	4 – 6 × 0.5
Stipe of pistil (length)	2 – 4	1 – 1.5
Ovary size (mm)	3 – 4 × 2.5 – 3.5	2.5 – 4 × 2.5 – 3.5
Style length (mm)	20 – 33	9 – 13
Number of ovules in each locule	10 – 12	5 – 7

in outline. Perianth tube 5 – 6 × 5 – 6 mm; lobes of the outer whorl oblong to elliptic, 9 – 11 × 5 – 6 mm, 9-nerved, acute to rounded at apex; inner lobes constricted in the middle, 9 – 11 × 4 – 6 mm, coherent to form a flask-shaped structure with apical parts spreading, exposing tips of anthers when fully opened in the night, acute at apex, 7 (– 8)-nerved. Stamens 6 – 10 mm long; filaments 4 – 6 mm long, strap-shaped, originating at the mouth of the perianth tube, adnate to inner lobes throughout their length; anthers 3 – 4 × 1 mm, yellow. Pistil 13 – 17 mm long; stipe 1 – 1.5 mm long; ovary 2.5 – 4 × 2.5 – 3.5 mm, ovules 5 – 7 per locule; style 9 – 13 × 1 mm; stigma trifid, but appearing simple to begin with, papillate. Capsule distinctly 3-lobed, 8 – 11 × 11 – 13 mm; seeds 2 – 5 per locule, ovate to elliptic, rarely semicircular, middle ones discoid with rim, upper and lower ones plano-convex to concavo-convex, 4.5 – 8 × 3 – 5 × 1.0 – 1.5 mm, brownish-black in colour. Fig. 1.

DISTRIBUTION. India.

INDIA. Goa, Rivona, Kevan, 15°08'34.14"N, 74° 08'03.66"E, ±50 m above msl, 11 Aug. 2007, *Ashish Prabhugaonkar & M. K. Janarthanam* A40 (holotype CAL; isotypes BSI, MH).

HABITAT. Open lateritic area with gravelly soil; ± 50 m. Associated plants include *Bhidea burnsiana* Bor, *Danthonidium gammiei* (Bhide) C. E. Hubb., *Eriocaulon* spp., *Glyphochloa* spp., *Murdannia semiteres* (Dalzell) Santapau, *Neanotis foetida* (Hook. f.) W. H. Lewis, *Scilla hyacinthiana* (Roth) McBride and *Utricularia praeterita* P. Taylor.

CONSERVATION STATUS. Known only from a single large population of several hundred individuals in the type locality. Assessed here as Data Deficient (DD) pending further study.

PHENOLOGY. Flowering and fruiting June – August.

ETYMOLOGY. The species is named after Goa state wherein the species was collected.

NOTE. The species is closely allied to *Dipcadi concanense* but differs in its small flowers (13 – 18 mm long against 35 – 47 mm long) and funnel-shaped perianth tube (against cylindrical tube). The two species are further compared in Table 1. Among the Indian species of the genus, *D. concanense* and *D. goaense* are distinct in their shiny white flowers and brownish-black seeds, whereas other species have green to brown perianth and pitch black seeds. Moreover, both the species share the same chromosome number (2n = 12) (S. R. Yadav pers. comm.). These night blooming species are sweet scented and can be seen flowering from June to August with a peak in July in the midst of the monsoon. The flowers last well over three days and the perianth is seen enclosing the ovary for several days as it develops into a capsule. At the end of the season most of the plants in the population are seen with 1 – 4 leaves though plants during peak growing season are seen with 4 – 7 leaves. This species is apparently endemic to the type locality.

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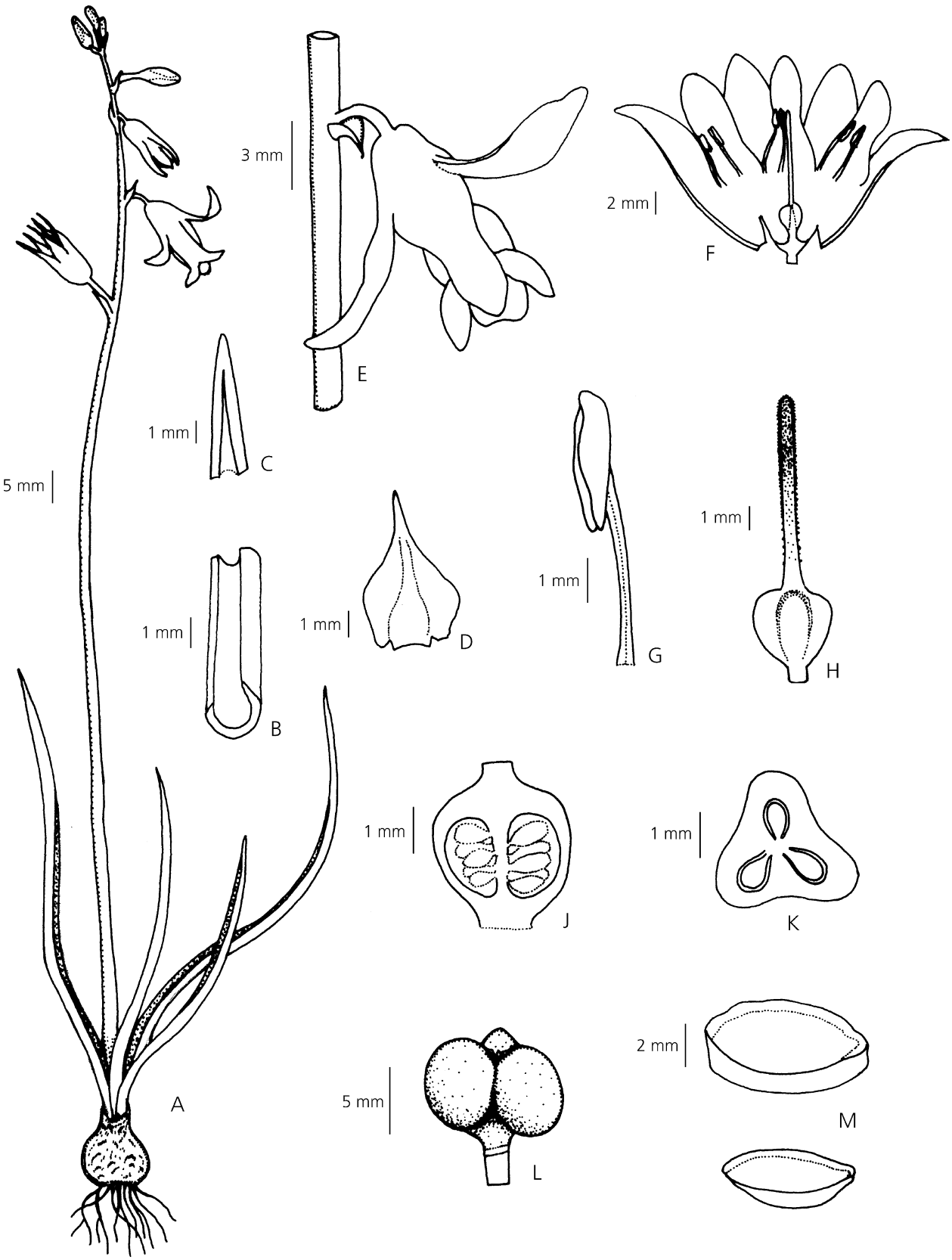

Fig. 1. *Dipcadi goaense*. **A** habit; **B** leaf — middle portion; **C** leaf apex; **D** bract; **E** flower; **F** flower with perianth split open; **G** stamen; **H** pistil; **J** ovary v.s.; **K** ovary t.s.; **L** capsule; **M** seeds. DRAWN BY JYOSNA R. N. DESSAI.

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