

A new species of *Indigofera* L. (Fabaceae) from the eastern Cape

P.B. Phillipson

Department of Botany, Rhodes University, P.O. Box 94, Grahamstown, 6140 Republic of South Africa

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A new species of the genus *Indigofera* L. is described that occurs in the mountains of the eastern Cape (including the Ciskei and the Transkei). It is only known from a few collections in and around the Amatole Mountains and one collection from Ongeluk's Nek. The description given is based on an examination of living plants in the field and herbarium specimens. The new species is closely related to *Indigofera cuneifolia* Eckl. & Zeyh. and the diagnostic features of both species are discussed.

'n Nuwe spesie van die genus *Indigofera* L., wat in die berge van die Oos-Kaap (insluitende Ciskei en Transkei) voorkom, word beskryf. Dit is slegs van 'n paar versamelings in en naby die Amatoleberge en een versameling van Ongeluksnek bekend. Die beskrywing wat gegee word, is gegrond op 'n ondersoek van die lewende plante in die veld asook herbariummonsters. Die nuwe spesie is nou verwant aan *Indigofera cuneifolia* Eckl. & Zeyh. and die diagnostiese kenmerke van beide spesies word bespreek.

Keywords: Africa, Afromontane region, Fabaceae, *Indigofera*, taxonomy.

Introduction

In the course of field work in and around the Amatole Mountains in the Winterberg Range and neighbouring areas of the eastern Cape Province of South Africa, plants belonging to the genus *Indigofera* L. were discovered that closely resembled the well-known *I. cuneifolia* Eckl. & Zeyh. The plants were growing near examples of this species, but were clearly distinct in a number of ways. Subsequent examination of herbarium specimens revealed that the plants belonged to an undescribed species. A description of the plant based on the preserved material available, augmented by observations of living plants at the type locality, is given below.

Indigofera elandsbergensis P.B. Phillipson sp. nov., *I. cuneifoliae* affinis, a qua imprimis differt caulibus glabris, foliis sub-glabris, foliolis plus parvis obovatis vel sub-rotundis, racemis minus densis glabris, stipulis et bracteis minus acuminatis glabris et floribus plus parvis.

TYPE:— South Africa, eastern Cape Province, Amatole Mountains, Elandsberg, *Phillipson 3378* (RUH holotype! B, BOL, E, GRA, J, K, MO, NU, P, PRE, UPS, isotypes!).

Indigofera amatolensis P.B. Phillipson, *Bothalia* 17: 237 – 256 (1987), *nomen nudum*.

Shrub to about 1.5 m. Entire plant except flowers somewhat glaucous. *Stems* erect, densely branched distally, glabrous, grey-green when young, becoming dark red-brown. *Leaves* distichous, evenly and closely spaced, digitately trifoliolate; petioles 3 – 10 mm long, glabrous, or very sparsely appressed-pubescent; leaflets sub-equal, obovate to sub-rotund, 5 – 14 × 3 – 9 mm, green; apices rounded to truncate, mucronate; bases cuneate; adaxial surface glabrous or sparsely appressed-pubescent, especially towards the margins; abaxial surface glabrous; midrib and secondary veins somewhat pellucid; petiolules about 0.5 mm, with paired subulate stipels up to 1 mm long. *Stipules* ovate to elliptic, 4 – 8 × 2.5 – 5 mm, as long or longer than the correspond-

ing internode, glabrous or with a few appressed trichomes on the adaxial surface; apices mucronate to acuminate; margins fused together at the base along the leaf-opposed edges to form a short annular sheath fused to the base of the petiole. *Annular sheath* persistent on old stems. *Margins* of stipules and leaflets cartilaginous, pink-tinged. *Racemes* usually solitary on the branches, in the axils of the upper leaves, up to 80 mm long, at least 3 times as long as the subtending leaves, moderately densely flowered; axis glabrous; peduncles equal or slightly shorter than the subtending leaves. *Flowers* about 10 mm long; pedicels about 2 mm long; bracts ovate, cucullate, shortly acuminate, about 5 × 3 mm, glabrous, pale green to yellow, becoming purple-brown, early caducous. *Calyx* obliquely campanulate, 3 – 4 mm long; teeth more or less equalling the tube, narrowly triangular; pedicel and calyx glabrous, dark purple. *Petals* deep pink. *Standard petal* sub-rotund, about 9 × 9 mm, tapering rapidly at the base to a short claw, glabrous; apex rounded to emarginate; central blotch hyaline, radiating from the base along the veins, with a feint pink-purple areola. *Wing petals* about 10 × 4 mm, glabrous; blade deeper pink than the standard; apices obtuse. *Keel petals* about 8.5 × 2.5 mm, shading to deep magenta in the distal half (especially pronounced on the inside in the region of the anthers), glabrous except for a fringe of hyaline trichomes along the upper margins; fringe denser towards the base; upper margin with two distinct regions of curvature; lower margin strongly curving upwards to nearly erect; apex rounded-obtuse; lateral spurs to 2 mm long, tapering to the apex. *Anthers* with a tuft of hairs at the base; staminal sheath 7 – 8 mm long, pale below, shading to magenta above. *Pods* cylindrical, about 30 × 2.5 mm, green-brown becoming brown with blackish-blue upper surface, glabrous, patent or slightly deflexed, only a few maturing on each raceme; ovules 6 – 8. *Seeds* separated in the pods by persistent oblique pithy septa, rather rectangular in section with slightly oblique ends, about 2 × 1.5 × 1.5 mm, brown-green with a yellow-green ring around hilum and a black

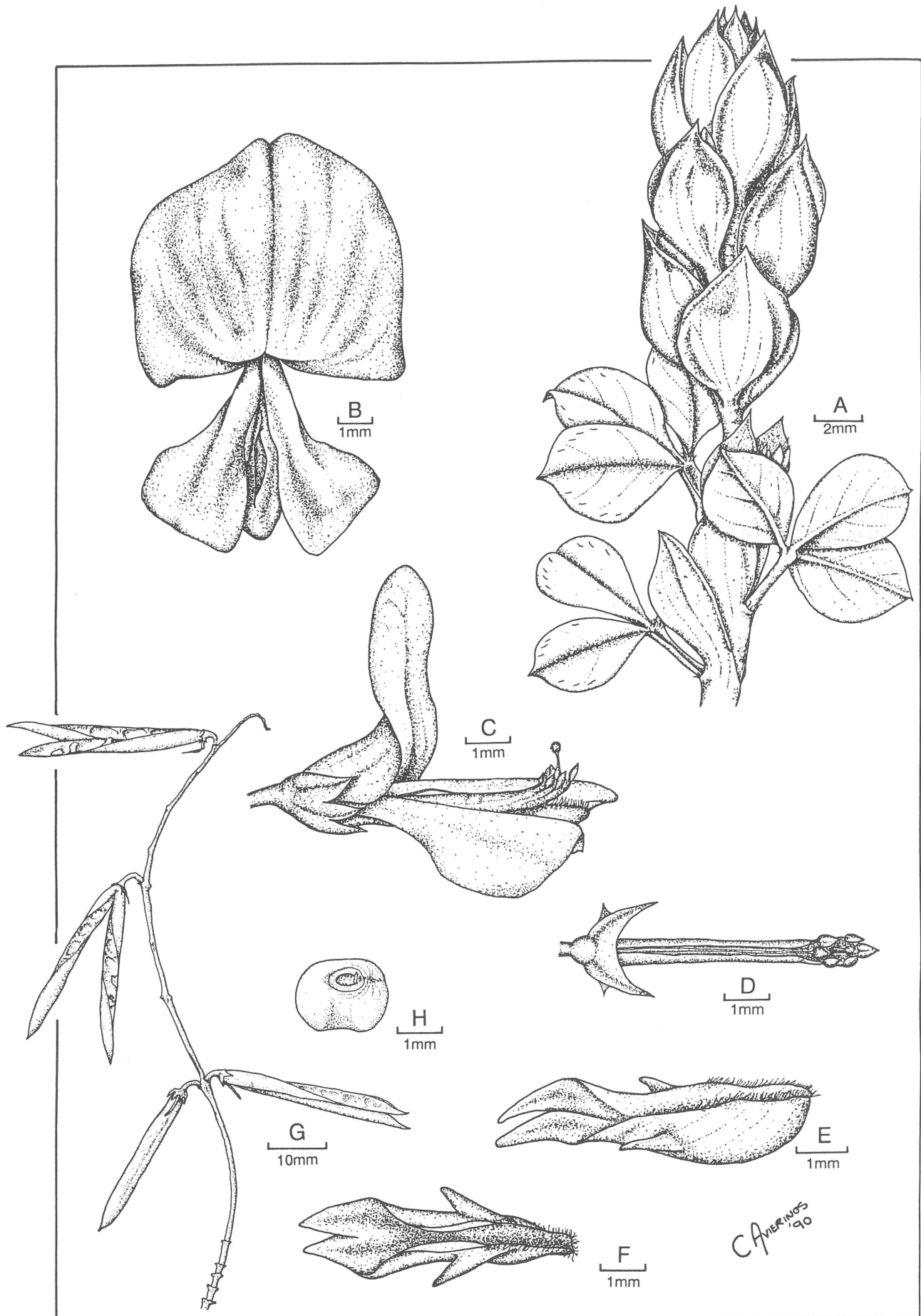


Figure 1 *Indigofera elandsbergensis*: (A) young stem with leaves and inflorescence in bud; (B) front view of flower before pollination; (C) side view of flower after pollination; (D) top view of flower with petals removed; (E) side view of keel petals; (F) top view of keel petals; (G) infructescence; (H) seed. (A – F, Phillipson 3378, RUH; G & H, Phillipson 3389, RUH.)

mark from hilum to anterior end; hilum just below the centre, slightly depressed, oval, grey-brown (Figure 1).

Distribution and ecology

Indigofera elandsbergensis occurs on Elandsberg in the Amatole Mountains and neighbouring peaks of the eastern Cape and Ciskei in Afromontane grassland above about 1500 m, and in the southern Drakensberg Mountains at Ongeluk's Nek in Transkei at about 2000 m (Figure 2). On Elandsberg the species forms dominant patches in some places on south-east facing slopes. The main flowering period is October to November, and seeds ripen in January.

Additional specimens studied

—3028 (Matatiele): Ongeluk's Nek (-AD), Hilliard & Burt 18662 (KEI).

—3226 (Fort Beaufort): Stockenström, Readsdales (-BC), Von Gadow 468 (GRA); Fort Beaufort to Queenstown Highway (-BD), Gibbs Russell & Hermann 4400 (UFH); Gaika's Kop (-DB), Phillipson 3389 (MO, PRE, RUH), Phillipson & Hutchings 9 (KEI, MO, PRE, UFH); Elandsberg (-DB), Phillipson & Hutchings 139 (KEI, MO, UFH), Phillipson 427 (K,

MO, PRE, UFH, UPS).

—3227 (Stutterheim): Cata Forestry Station (-CA), Story 3669 (GRA); Perie summit (-CC), Flanagan 2146 (GRA).

Discussion

Indigofera elandsbergensis is closely related to *I. cuneifolia* Eckl. & Zeyh., which occurs in the same area but also extends south to Grahamstown, west along the Winterberg and north into Natal (Ross 1972). The major differences between the two species are given in Table 1.

In addition to characters given in Table 1, *I. elandsbergensis* has petals of a deeper pink colour than those of *I. cuneifolia*, and tends to have a less robust raceme.

The habit of *I. elandsbergensis* is notable for its intricate sympodial branching pattern. In the spring the upper branches of mature plants produce numerous lateral branches. The branches all normally terminate with an inflorescence.

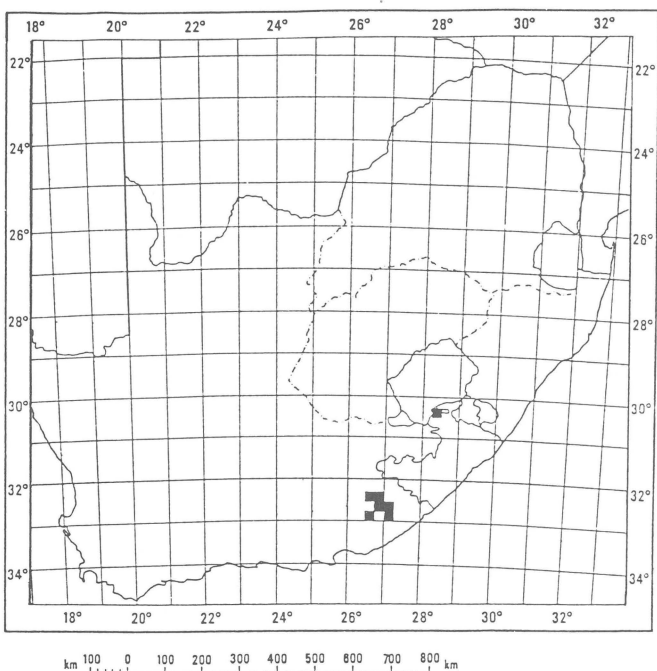


Figure 2 Distribution of *Indigofera elandsbergensis*.

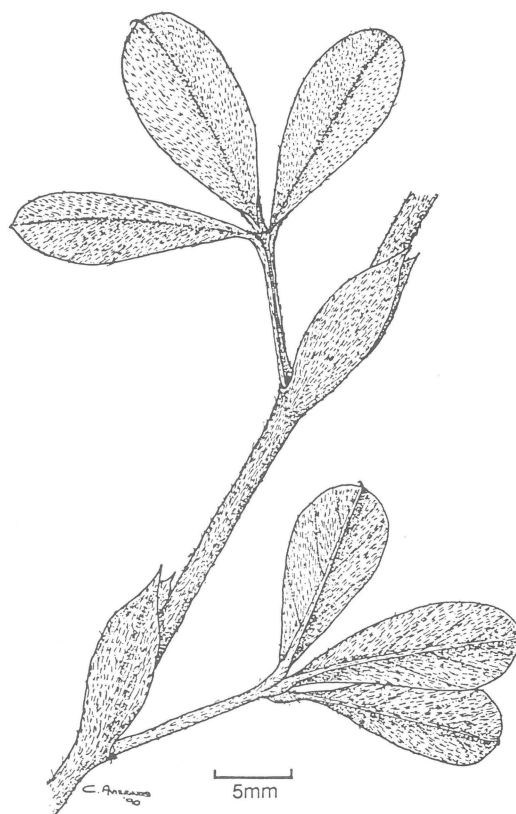


Figure 3 *Indigofera cuneifolia*: young stem with leaves (van Rooyen sine numero, RUH).

Table 1 Major differences between *I. elandsbergensis* and *I. cuneifolia*

	<i>I. cuneifolia</i>	<i>I. elandsbergensis</i>
Stem indumentum	appressed pubescent	glabrous
Leaf and stipule indumentum	appressed pubescent (both surfaces)	abaxial glabrous, adaxial glabrous or sparsely appressed-pubescent
Inflorescence axis and pedicel indumentum	appressed pubescent	glabrous
Trichome length (where present)	about 0.3 mm	about 0.75 mm
Leaflet shape	narrowly oblanceolate to obovate	obovate to sub-rotund
Leaflet length	usually > 14 mm	5 – 14 mm
Apices of stipules and bracts	strongly acuminate	mucronate to acuminate
Petal length (standard)	about 12 mm	about 9 mm
Petal colour	pink	deep pink

Although many of these fertile branches eventually die after producing seed, others continue to grow from lateral buds. The combination of this branching pattern and the persistence of old dead fertile branches gives older plants a rather gnarled appearance. Usually, plants of *I. cuneifolia* are much less densely branched, except old senescent individuals, but in any case they can be easily distinguished in the field by the more grey appearance of vegetative parts of *I. cuneifolia*, which is caused by their denser indumentum of finer trichomes (Figure 3).

On Elandsberg both species have been seen growing together, but here *I. elandsbergensis* tends to grow at higher altitudes. *Indigofera cuneifolia* has been recorded from forest margins and stream banks as well as grassy slopes. The name *I. elandsbergensis* was chosen to commemorate Elandsberg Mountain where the plant was first seen by the author. The name *I. amatolensis* P.B. Phillipson was used

by Phillipson (1987) for the same species in a checklist of plants of the Amatole Mountains, but this is a *nomen nudum*.

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