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A New Species of *Diplycosia: D. coii* Argent (Ericaceae) is Described in Honour of Leonardo Co

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A new species *Diplycosia coii* (Ericaceae) is described from Mt Halcon, Mindoro, in the Philippines. A brief history of the genus in the Philippines is presented together with notes on the particular difficulties in studying this genus. A key to identify the accepted Philippine species is given.

Key Words: New species, *Diplycosia*, Ericaceae, Philippines

Diplycosia was established as a genus in the Ericaceae by Blume in 1826 with just three species (two as presently accepted) from Java and *D. heterophylla* Blume was established by Sleumer (1957) as the type species overruling Copelands (1932) implied selection of *D. pilosa* Blume.

Bentham & Hooker (1876) had divided the genus into two subgenera, but this was not followed by either Copeland (1932) or Sleumer (1957) in their monographic or revision studies and there is presently no meaningfully way to subdivide the genus. Powell & Kron (2001) in their molecular analysis demonstrated that *Diplycosia* was monophyletic, but nested within *Gaultheria*. This study, however, was based on only five species and none from the Philippines. Merrill in his Enumeration of Philippine Flowering Plants (1923) listed 12 species of *Diplycosia*. Copeland (1932) in his revision of Philippine Ericaceae recognised 8 species from the Philippines in *Diplycosia* which he clearly distinguished from *Gaultheria* with characters used in the concept of the genus followed by Sleumer. Sleumer (1967) reduced this number further to 6, although recognising *D. calelanensis* Elmer and *D. merrittii* Merr. as varieties of *D. luzonica* (A.Gray) Merr., an indication that he was not entirely sure of the status of these taxa.

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Little progress has been made since the Flora Malesiana account in understanding of this genus with its small insignificant flowers which grow mostly in the mid-mountain mossy forests above 1000m and presently just 8 species are considered valid. Several of these Philippine species are only known from one or a very few collections. Only *D. luzonica*, has been considered widespread within the Philippines and indeed the genus is characterized by its endemicity with many of the species in the genus as a whole being known from only a single collection, or just one location (Sleumer 1957, 1967). Only a single species of *Diplycosia* has been described from the Philippines in the nearly half a century since the Flora Malesiana account (Ferreras & Argent 2011). All the Philippine species are considered to be endemic except for the record of *D. heterophylla* Blume of which it is not certain that the Philippine material is of this species. Field studies and observations from cultivated material of *Diplycosia* indicate that there is potentially a lot of variation and that several more species almost certainly await discovery.

Variation in many plant groups in the Philippines is bedevilled by the complex of islands and the island effect on the many volcanic mountains. Add to this the plasticity of many species in growing at a range of altitudes with variable exposure and it often becomes difficult to select apparent usable characters to distinguish spe-

cies. The general uniformity of the flowers in *Diplycosia* and their propensity for disappearing from herbarium specimens means vegetative characters have always been important in the delimitation of species. Sleumer in his earlier revision of the genus (1957) established the precedent of working mainly with the indumentum of stems, leaves and flowers. The emphasis of collectors in collecting flowering stems often makes it difficult to discern accurately the pristine state of the indumentum. This degrades quickly in many species and the flowers are generally borne on older, mature stems. As has been suggested before (Argent 2002) it is very important to collect young growth with the flowering stems of *Diplycosia* species and to place some flowers in capsules to prevent the corollas being lost in the processing of herbarium specimens. Also useful for identification are pedicel characters. Pedicels can elongate considerably after flowering, often doubling their length, but they often persist after the fruit has fallen, retaining the typical 'cupule' of bracteoles at their apex. The persistence of this 'cupule' of bractoles at the apex of the pedicel together with the fasiculate inflorescence is often the best way to identify a plant as a *Diplycosia*. Allowance should be made for the differences between the pristine state of pedicels at anthesis and characters measured when these are old.

The following list is the presently recognized species of *Diplycosia* in the Philippines. The numbers in brackets refer to the numbered sequence of descriptions in Flora Malesiana (Sleumer 1967).

1. *D. coii* Argent
2. *D. loheri* Merr. (11)
3. *D. parvifolia* Merr. (27)
4. *D. apoensis* Elmer (40)
5. *D. trinervia* Elmer (47)
6. *D. luzonica* (A.Gray) Merr. (50)
   var. *pubens* Sleumer
   var. *merrittii* (Merr) Sleumer
   var. *calenanense* (Elmer) Sleumer
7. *D. bartelomei* Ferreras & Argent, Edin. J. Bot. 2011. 68 (1): 39-42. Fig. 3
8. *D. heterophilla* Blume var. *latifolia* (Blume) Sleumer (96)

Key to the accepted species of *Diplycosia* in the Philippines

1a. Young stems lacking a covering of brown bristles, although they may possess occasional scattered bristles (more than their own length apart and rarely overlapping); some glandular hairs 2

1b. Young stems laxly to densely bristly, the bristles always overlapping each other 4

2a. Leaves without a prominent terminal gland. Young stems entirely without bristles, with only glandular hairs when very young *D. heterophylla*

2b. Leaves with a prominent terminal gland. Young stems sometimes with occasional bristles (these mostly then more than their own length apart) 3

3a. Leaves broadly pointed to rounded with the terminal gland forming a short mucronate point the largest leaves up to 5 cm long . . . . . *D. luzonica* var. *calelanensis*

3b. Leaves acuminate, with a narrowly acute apex, the largest leaves more than 6 cm long … *D. luzonica* var. *merrittii*

4a. Young stems with bristles only, without a cover of short white hairs (use lens!) 5

4b. Young stems with bristles and a minute covering of short white hairs (use lens!) . . . . . *D. coii*

5a. Calyx covered all over with long spreading bristle-like hairs . . . . . *D. loheri*

5b. Calyx glabrous, or shortly fine hairy except sometimes for the margins of the lobes 6

6a. Leaves up to 12mm wide . . . . . *D. parvifolia*

6b. Leaves more than 15mm wide 7

7a. Flowers mostly 1-2 per axil 8

7b. Flowers mostly 3 or more per axil 9

8a. Pedicels more than 8mm; stem bristles up to 5mm *D. bartelomei*

8b. Pedicels less than 5mm; stem bristles up to 3.5mm *D. apoensis*

9a. Leaf margin entire; pedicels setose only 10-15mm *D. trinervia*

9b. Leaf margin serrulate in the distal half; pedicels setose and shortly hairy 4—8mm 10

10a. Calyx glabrous *D. luzonica* var. *luzonica*

10b. Calyx distinctly covered with short hairs *D. luzonica* var. *pubens*

Diplycosia coii Argent ***sp. nov*.**

Diagnosis: Similar to *D. apoensis* but differing in the smaller, narrower leaves and the much shorter appressed bristles on the young stems. The indumentum on the pedicels also differs being of short white and scattered glandular hairs not the bristles and crisped, brown hairs of *D. apoensis*. Differing from all known Philippine species in the genus by the ovary protruding from the calyx in the mature fruit.

Type: 19972480. Philippines, Mindoro, Mindoro Oriental, Mt. Halcon. (*c.* 13° 16' N. 120° 55' E.). Original collection: *Argent P30*, 15 Mar, 1997, Cultivated specimen collected 25th Jan. 2012. (holo, PNH; iso, E, L).

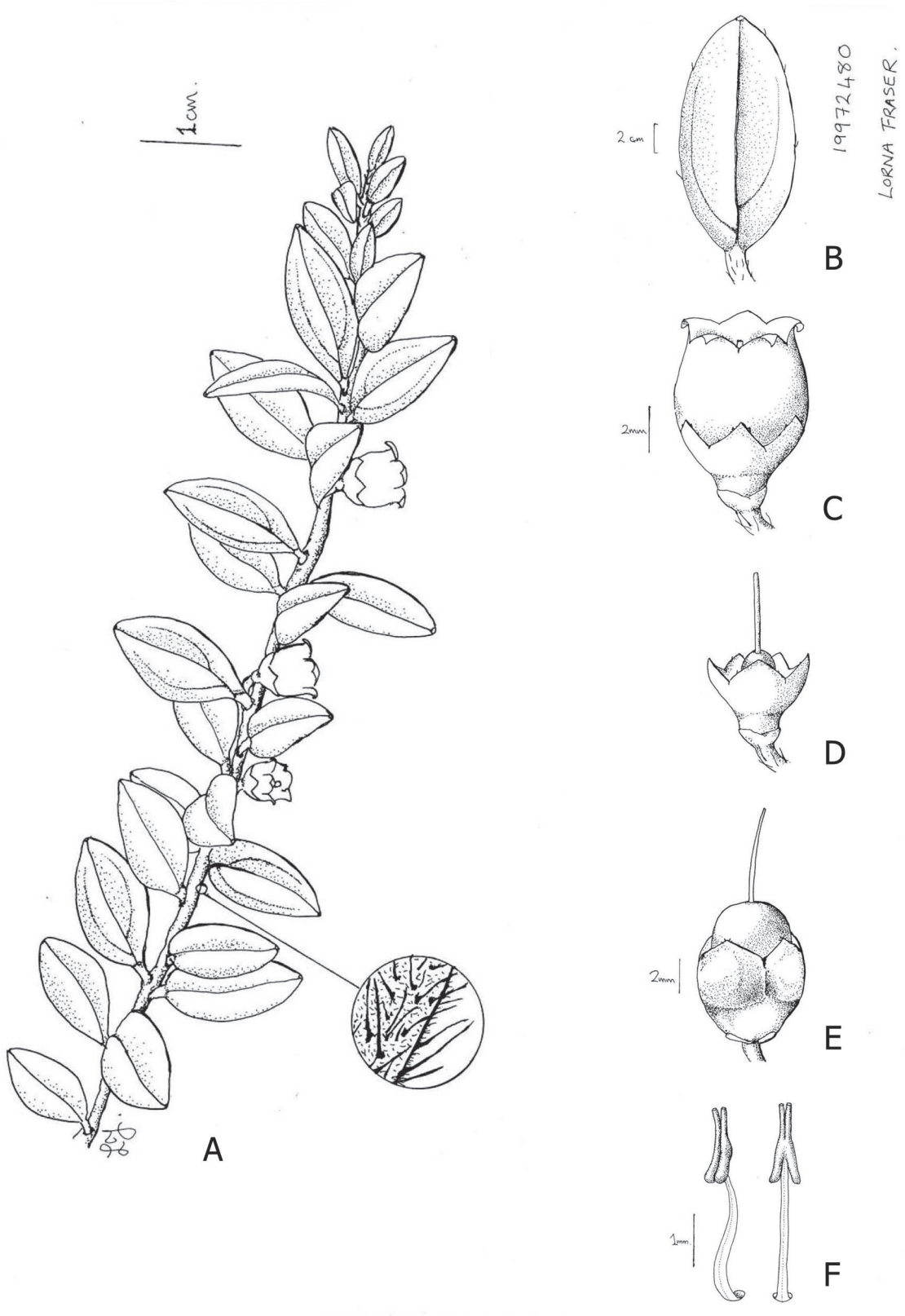

Figure 1. *Diplycosia coii* Argent: A. Flowering branch with closeup to show indumentum on the stem; B. single leaf to show venation; C. Flower; D. Pistil with calyx; E. fruit; F. stamens.

Description:
Spreading epiphytic shrub to *c*.30cm with a tendency to be stoloniferous. Stems brown, splitting and cracking vertically. Young branches pale brown, covered in very short patent white hairs and longer (up to 1 mm) appressed or sub-appressed setulose hairs. Leaves spirally arranged along the stems, elliptic, the apex acute with a distinctly protruding gland, the base narrowly to broadly tapering, the under-surface at first with short, brown, sub-appressed glands leaving a punctate surface when these have fallen off, the upper surface smooth, the margin flat, at first with coarse brown appressed hairs (to ca.1 mm) which when fallen leave it minutely and often obscurely denticulate. The blade 16—21 × 0.8—10 mm, the mid-vein slightly impressed both above and below. One pair of lateral veins visible from above only, arising from near the base, high arching ascending and disappearing near the apex, sometimes obscure. Petiole, without a groove, white, 2—3 × 0.5 mm, densely short, white, hairy and with a few brown bristles when young.

Flowers axillary, solitary. Pedicels ca. 6 × 1 mm, shortly white hairy or glabrous and sometimes with scattered short, brown, appressed, glandular hairs. Bracteoles ovate, obtuse, ca. 1.5 mm long, with a few brown glandular hairs otherwise glabrous except for the brown fimbriate margin. Calyx 4.2 × 4 mm, glabrous except for the brown fimbriate glandular margin to the lobes, limb ca. 2.3 mm, the lobes deltoid, 2 × 1.6 mm. Corolla, 5-lobed, sub-spherical campanulate, pale green to white, 5—5.5 × 4.8 mm, glabrous both outside and within, the lobes reflexed, 1.6 × 1.9 mm with erose margins. Stamens 10, 3.8 mm long, the filaments glabrous, white, the anthers brown, 1.4 mm, the cells 0.8 mm, the slightly divergent tubules 0.6 mm opening by oblique pores, both cells and tubules echinulate. Ovary sub-spherical, 1.2 mm in diameter, glabrous or with one or two long erect hairs, the style, glabrous, green, 3.2 mm. Fruit (with accrescent calyx) 7 × 6 mm pale blue, the true capsule forming a hemisphere ca. 2.5 × 3.5 mm protruding from the enlarged calyx.

Described in honour of Leonardo Co, the outstanding field botanist of his generation. *D. coii* keys out in Sleumer (1967) to *D. pseudorufescens* Sleumer from Borneo, however, this species has denser, spreading bristles on the stems, much shorter pedicels and an ovary which is densely greyish-pubescent (and probably immersed within the calyx when a mature fruit). Of the previously described Philippine species, it is closest to *D. apoensis* Elm. but differs in the smaller (especially narrower) leaves, the much shorter, appressed bristles on the young stems and the indumentum on the pedicels is also very different. While in *D. apoensis* the pedicels have bristles and crisped brown hairs, those of *D. coii* have very short, straight, white, and scattered brown glandular hairs. The fruit of this new species is strikingly different from the majority of the other species in the genus in having the ovary protruding from the accrescent calyx at maturity. This variation in 'fruits' was noted by Copeland (1932), but queried as possibly being different states of maturity. In cultivation this difference has been confirmed for at least two species (*D. coii* described here and *D. microphylla* Becc. from Borneo). Both have the ovary protruding from the accrescent calyx when the fruit is mature unlike the great majority of species where the true fruit (a semi-dry indehiscent capsule) is completely immersed, often deeply, in the overarching, fleshy, accrescent calyx. It is still not clear whether this characteristic is significant in the evolution of the group.

This new species has been growing in the Royal Botanic Garden Edinburgh, U.K. since it was first collected in 1997 and remains a low growing shrub with a tendency to spread by stolons.

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