

***IMPATIENS PACHYCAULON*
(*BALSAMINACEAE*), A NEW
SPECIES FROM LAOS**

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A new species of *Impatiens* (*Balsaminaceae*), *Impatiens pachycaulon* M.F.Newman, is described and illustrated.

Keywords. *Balsaminaceae*, *Impatiens*, Laos.

INTRODUCTION

From 2004 to 2007, the Royal Botanic Garden Edinburgh, the Forestry Research Center of the National Agriculture and Forestry Research Institute and the National University of Laos ran a training project entitled ‘Taxonomic training in a neglected biodiversity hotspot in Lao PDR’ with funds from the Darwin Initiative.

Plants were collected in Khammouan Province, an area which has hardly been explored by botanists. Khammouan Province, in central Laos, runs from the Lao–Thai border along the River Mekong to the Lao–Vietnamese border in the Annamite Mountains. Much of the flat land east of the river is characterised by karst limestone formations which are particularly well-formed in Gnommalat and Mahaxay Districts.

The people of Laos rely heavily on the forest for their livelihood and it is common to see small markets by the road for the sale of foods, medicines and ornamental plants gathered in the forest. In 2006 a number of plants of a succulent *Impatiens* were seen at one of these markets in Mahaxay District, close to the border with Gnommalat District. Two of these plants had been bought previously by botanists from the Department of Biology, Faculty of Science, National University of Laos and were being cultivated in the greenhouses of the Department. When specimens taken from one of these plants were studied, they proved to belong to a new species in *Impatiens* section *Microcentron* Warb.

***Impatiens pachycaulon* M.F.Newman, sp. nov. Fig. 1.**

Herba perennis pachycaulis *Impatiens kerriae* Craib affinis, sed foliorum laminis minoribus 9–10 × 2.5–3 (non 13 × 6.5) cm, petalis lateralibus connatis brevioribus 2.8 (non 3.8) cm longis, calcaribus longioribus 11 (non 5) mm differt. – Type: Cultivated at Department of Biology, Faculty of Science, National University of

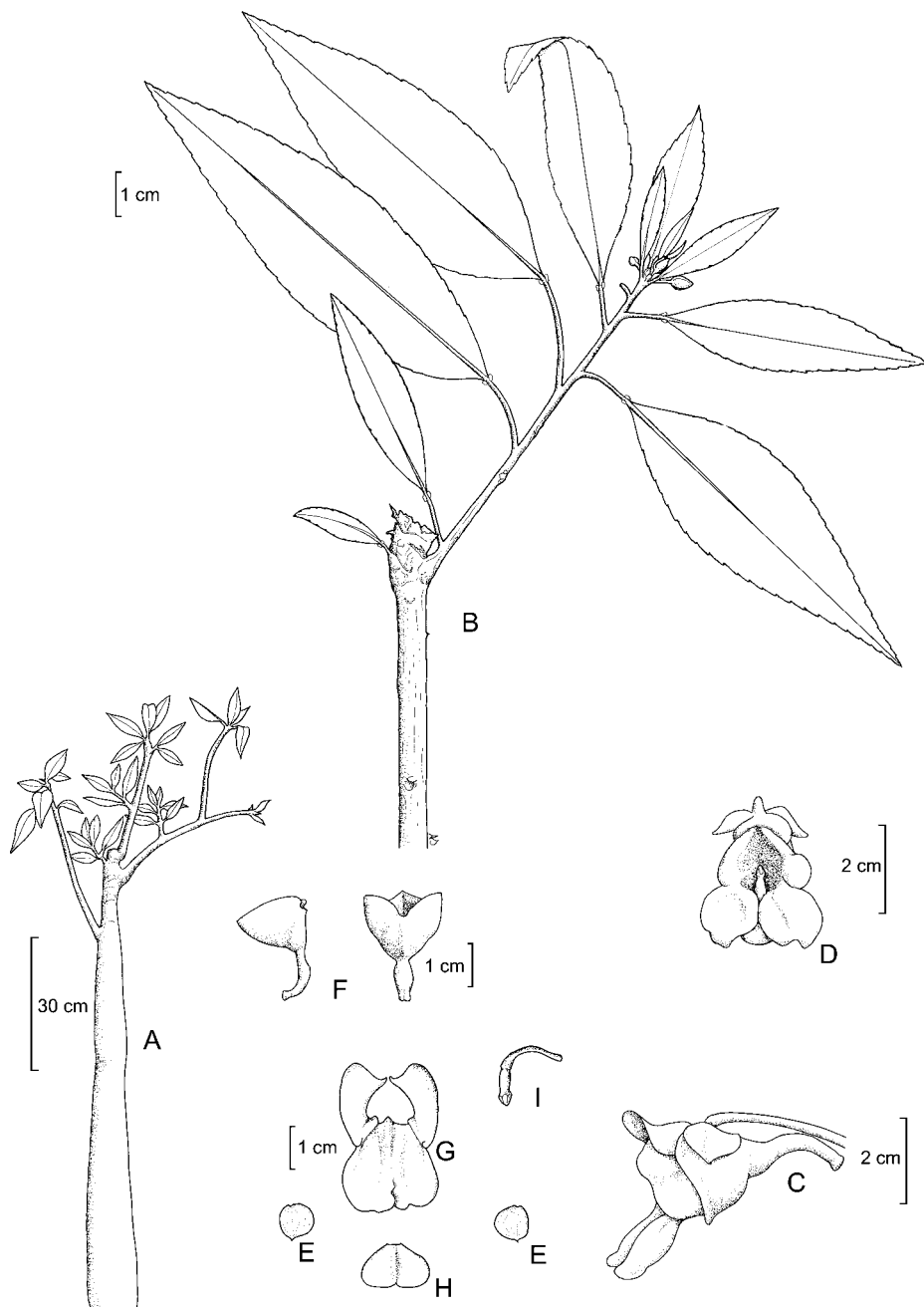


FIG. 1. *Impatiens pachycaulon* M.F. Newman. A, habit; B, upper shoot; C, flower, lateral view; D, flower, front view; E, lateral sepals; F, lower sepal, lateral and dorsal views; G, lateral united petals; H, dorsal petal; I, androgynoecium.

Laos, originally from limestone cliffs, Mahaxay District, Khammouan Province, 28 v 2006, *M.F. Newman, P. Thomas, K.E. Armstrong, K. Sengdala & V. Lamxay* LAO 1525 (holo E; iso National University of Laos, Faculty of Science herbarium).

Perennial, pachycaul herb, 1.3 m high. *Stem* hollow, conical, green, producing a few, short, perennial branches in the upper quarter, these bearing leafy, terminal branches; leaf and inflorescence scars clearly visible as warty excrescences. *Leaves* spiral, petiolate, petiole slender, 1.4–2.7 cm long with two shortly stalked, fusiform glands at the apex; lamina 9–10 × 2.5–3 cm, elliptic, glabrous below, minutely strigose towards apex above, base cuneate, somewhat decurrent to the point of attachment of the glands, apex acuminate, slightly asymmetric, main veins 13–14 pairs, margin finely glandular dentate. *Inflorescences* axillary, subtended by two subulate, keeled bracts, 1.5–2 mm long, two-flowered in bud, one bud aborting long before anthesis leaving only one flower to mature; pedicel slender, 1.9 cm long at anthesis; sepals 3, lateral sepals green, concave, slightly gibbous, 8 × 8 mm with a pronounced subapical mucro, lower sepal funnel-shaped, pale pink with reddish venation, 1.2 × 1.5 cm, constricted into a thick, bilobed, curved, greenish brown spur, 11 × 4 mm; petals 5; dorsal petal green outside, brownish pink inside, erect, 1.1 × 1.6 cm, keeled along midline and profoundly concave; lateral united petals 2.8 cm long, united along the inner margin of the lower lateral petals into a single, large lip, leaving an access slit below the androgynoecium, proximal petal of each pair pale pink with yellow at throat, oblong, clawed, 13 × 11 mm, distal petal of each pair darker pink, ovate, 15 × 11 mm, emarginate, free from other distal petal in distal 7 mm, the proximal 6 mm of the seam with the other distal petal forming a keel 3 mm high directed towards the androgynoecium which is dark yellow, ovary cylindrical, glabrous, 6 × 2 mm with 5 fused anthers, 2 mm long, at apex, pollen violet. *Fruit* unknown.

Distribution. Known only from the type, said to have been collected in Mahaxay District, Khammouan Province.

Habitat and ecology. Limestone karst in an area of monsoonal climate.

Proposed IUCN conservation status. Data Deficient (DD) as it is known only from the type, the precise collection locality for which has not been confirmed. It is unlikely to be threatened, however, since the limestone habitat in the district it is believed to be from is extensive and relatively undisturbed, and the plant is not highly sought after.

Pachycauly is known to occur in the genus *Impatiens*, having been first observed in *Impatiens mirabilis* Hook.f. in 1891. Several such species have been described in the meantime, one of them being *Impatiens kerriae* Craib from 1800–2175 m altitude on Doi Chiang Dao, a limestone mountain in northern Thailand. *Impatiens pachycaulon* is similar but smaller in all leaf and flower dimensions, except its longer spurs. It too

grows on limestone but is known only from cultivated material; the altitude range of wild populations is unknown but is likely to be considerably lower than that of *Impatiens kerriae* since the Khammouan limestone karst reaches only c.1200 m in altitude.

Tardieu-Blot, in the supplement to the *Flore générale de l'Indochine* (Tardieu-Blot, 1945–46), placed *Impatiens kerriae*, as *I. kerrii*, in synonymy under *I. verrucifer* Hook.f. Craib's species was correctly named *Impatiens kerriae* for Mrs Kerr, not her husband. The syntypes of *Impatiens verrucifer* are *Bon* 2879 (Dịch Lộng, Ninh Binh) and *Balansa* 1131 (Tan Keun, near Quang Yen), both at P. These collections have been examined and differ from *Impatiens pachycaulon* by their larger, closer warty scars on the stems, fleshier leaves with coarsely serrulate margin and very long petioles, much shorter spur, and narrower proximal petal of the lateral united petals.

The only infrageneric classification of *Impatiens* is that of Warburg & Reiche (1895) which is considered to be unnatural and impractical (Grey-Wilson, 1980). In this classification *Impatiens pachycaulon* would be placed in *Impatiens* section *Microcentron* but that may not tell us much about its relationships. Yuan *et al.* (2004), in their phylogenetic study of the *Balsaminaceae*, sampled only *Impatiens kerriae* among the pachycaulous species under consideration here. *Impatiens kerriae* resolved in a basal polytomy sister to most of the remaining species. Thus, a consideration of the relationships of *Impatiens pachycaulon* and the other pachycaulous species must await further investigation.

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