

Actinostachys wagneri (Schizaeaceae), a new record for Thailand

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ABSTRACT. *Actinostachys wagneri* (Selling) C.F.Reed, a new record for Thailand, is described and illustrated.

KEY WORDS: *Actinostachys*, Schizaeaceae, fern, Thailand.

INTRODUCTION

Actinostachys Wall. ex Hook. is a small pantropical genus of ferns with about 20 species. For most of its history the genus has been included within *Schizaea* Sm., but in recent literature the genera have been treated as distinct (Smith et al., 2006, 2008; Jaman & Umi Kalsom, 2010; Christenhusz et al., 2011) and as the only two genera in Schizaeaceae (the rest having been moved to Lygodiaceae - see Smith et al., 2006, 2008; Christenhusz et al., 2011).

The only species of *Actinostachys* previously recorded from Thailand is *Actinostachys digitata* (L.) Wall. ex C.F.Reed, which is widely distributed in Southeast and Peninsular Thailand (Tagawa & Iwatsuki, 1979; Lindsay & Middleton, 2012 onwards). Recently a specimen was collected in Phangnga that has been identified as *Actinostachys wagneri* (Selling) C.F.Reed, a new record for Thailand. This species is described and illustrated here. It differs from *Actinostachys digitata* in having shorter fronds (up to 20 cm long vs. 20–35 cm long), narrower fronds (up to 0.7 mm wide vs. more than 1 mm wide), stomata widely spaced in a single row on each side of the midrib and close to it (vs. almost end-to-end in a single row on each side of the midrib and at some distance from it),

sporangia mostly in 2 rows (vs. sporangia mostly in 4 rows), and long soral paraphyses between sporangia (vs. no soral paraphyses).

Actinostachys wagneri (Selling) C.F.Reed, Bol. Soc. Brot. 21: 131. 1947; Jaman & Umi Kalsom, Fl. Pen. Malaysia, Ser. I, Ferns & Lycoph. 1: 111, map 1. 2010.— *Schizaea wagneri* Selling, Svensk Bot. Tidskr. 40: 278, f. 8–11. 1946; Holttum, Rev. Fl. Malaya ed. 1, 2: 52. 1955 [‘1954’]; Holttum, Fl. Males., Ser. II, Pterid. 1: 44, f. 4e–g. 1959; Holttum, Rev. Fl. Malaya ed. 2, 2: 52. 1968. Type: Papua New Guinea, Admiralty Islands, Manus Island, Summit of Mt Tjajiak, *Grether & Wagner 4177*, November 1945 (holotype: **UC!** [barcode UC701236]; isotypes; **K!** [barcode K000408661], **S**).— *S. paucijuga* Holttum, Gard. Bull. Singapore 11: 267. 1947. Type: Malaysia, Kedah Peak, *Haniff SFN 1098* (holotype: **SING**, n.v.). Fig. 1.

Terrestrial or sometimes appearing to be epiphytic at base of trees; rhizome short-creeping, producing fronds close together, less than 1 mm diameter, with a few thick, stiff, wiry roots c. 0.2 mm diameter; root hairs to 3 mm long; apex of rhizome densely covered in coarse brown multiseptate hairs up to 1.5 mm long. *Fronds* monomorphic, erect, simple, linear, (3–)7.5–16.5(–20) cm long, less

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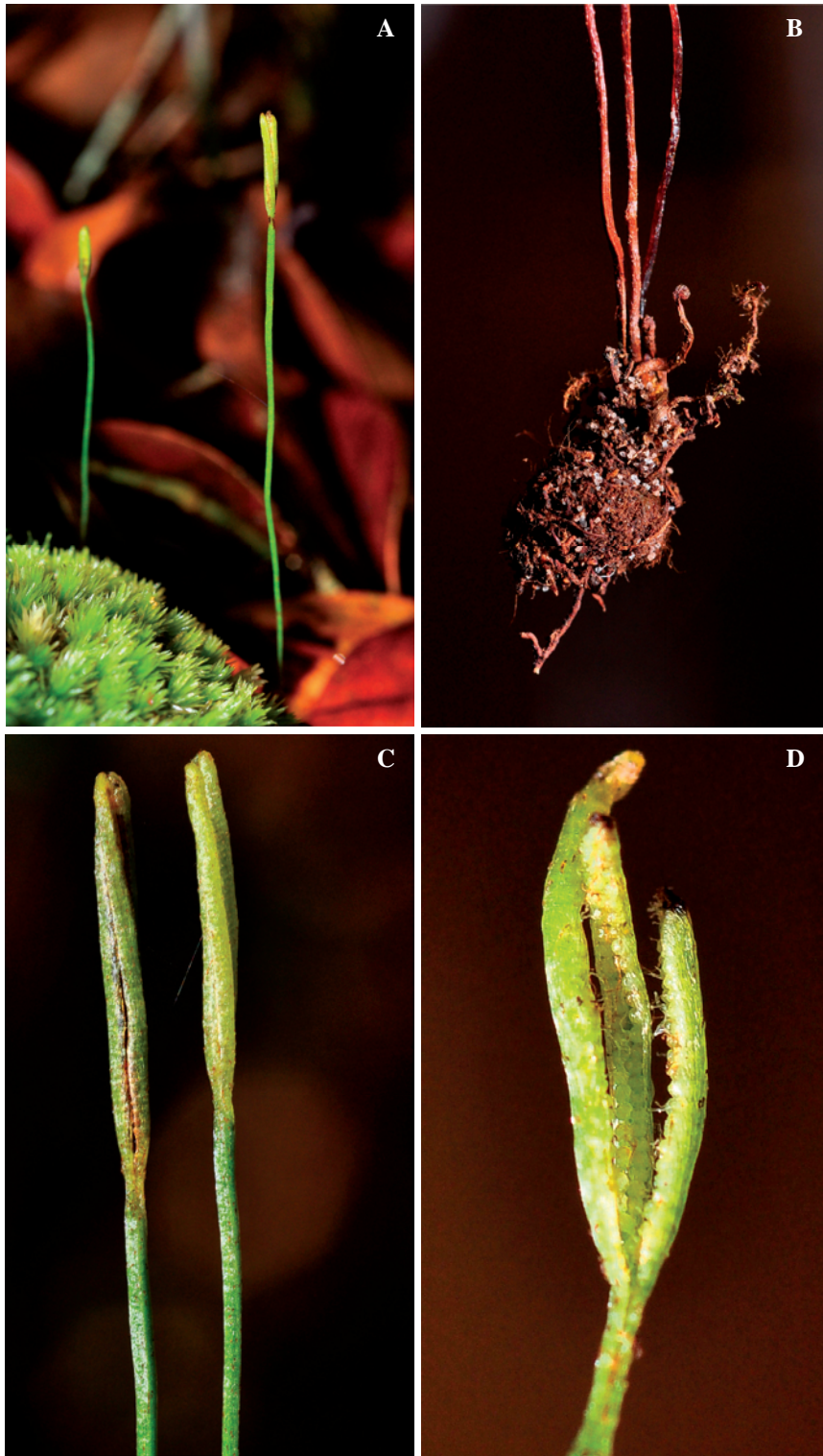


Figure 1. *Actinostachys wagneri* (Selling) C.F.Reed: A. Habit; B. Rhizome and stipe bases; C. Young fertile lobes; D. Fertile lobes showing sporangia in two rows.

than 0.7 mm wide, reddish brown and terete or triquetre at base, gradually becoming green and very narrowly winged above the base (therefore, no distinct stipe); basal portion sometimes sinuous and/or horizontal (especially if growing through leaf litter or moss); midrib rather broad and slightly to prominently raised on lower surface of winged portion but indistinct above, other venation, if any, obscure; with 2-celled dark glandular hairs sparse throughout; stomata on the lower surface only, widely spaced, in 1 row on each side of the midrib and close to it. Sporangia produced only at the frond apex in a digitate cluster of (2–)3–4(–5) fertile lobes; fertile lobes linear, slightly twisted together when young but untwisting as they mature and separate, (3.5–)7–15(–19) mm long, less than 0.7 mm wide, with entire margins, venation of each lobe a single broad medial vein slightly raised below but indistinct above, with 2-celled dark glandular hairs above. *Sporangia* ovoid, sessile, each with a large apical annulus, usually arranged in 2 rows (very rarely with short sections of 3 rows) the entire length of the lobes; long filiform transparent reddish-brown paraphyses protruding between sporangia, 2–4 times longer than sporangia, flat, twisted, ribbon-like with rounded ends and all originating from the vein. *Spores* monolete, bilateral, finely verrucose.

Thailand.— PENINSULAR: Phangnga [Thai Muang, Khao Lampi-Hat Thai Muang National Park, 17 Feb. 2011, *Phutthai, Sridith & Chantanaorrapint 247 (PSU)*].

Distribution.— Peninsular Malaysia, Singapore, Borneo, Moluccas, New Guinea, NE Australia.

Ecology.— In Thailand, *Actinostachys wagneri* is only known from beach forest at sea level but elsewhere it has been reported from a range of forest types and altitudes (eg. to 440 m in Peninsular Malaysia and to 1600 m in New Guinea). Plants are usually terrestrial in leaf litter or humus, in moss or on rotten logs but they can sometimes appear to be epiphytic in moss at the base of trees. *Actinostachys*

wagneri is reported to grow with *Actinostachys digitata* in New Guinea and with both *Actinostachys digitata* and *Schizaea dichotoma* in Peninsular Malaysia and Singapore.

IUCN Conservation Status. — Least Concern (LC). Although this species has been collected only once in Thailand and is known from relatively few localities in Peninsular Malaysia (Kedah, Perak and Johor) it is very widespread and not under any known threat.

Note.— Following Holttum (1955) we place *Schizaea paucijuga* Holttum in synonymy of *Actinostachys wagneri* although we have not seen the type material.

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