

Fissidens semperfalcatus (Fissidentaceae): New to Peninsular India from the Western Ghats

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फिस्सीडेन्स सेम्परफाल्केटस (फिस्सीडेन्टेसी): पश्चिमी घाट से प्रायद्वीपीय भारत के लिये नवीन अभिलेखन

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सारांश

फिस्सीडेन्स सेम्परफाल्केटस एक एशियाई जाति है, जो अंडमान द्वीप, हिमालय, गंगा दोआब के मैदान एवं पूर्वोत्तर भारत से ज्ञात है। इसे प्रथम बार भारतीय उपमहाद्वीप के प्रायद्वीपीय भाग के लिये अन्नामलाई, पश्चिमी घाट से अभिलेखित किया गया है। शोध पत्र में इसका विस्तृत विवरण रेखा चित्रों एवं छायाचित्र प्लेट के साथ दिया गया है।

ABSTRACT

Fissidens semperfalcatus Dixon an Asiatic species, was known from the Andaman Island, Himalaya, Gangetic Plain and the Northeast in India. The present report from Anamalais in the Western Ghats is new to the Peninsular part of the subcontinent. A detailed description with figures and a photo plate is provided.

INTRODUCTION

Fissidens semperfalcatus Dixon is an Asiatic species so far known to be distributed in the south and southeast part of the continent. In India it was so far known from the Andaman islands, Himalaya, Gangetic Plain and NE. India (*vide* Gangulee, 1971; Lal, 2005 & Dandotiya & al., 2011). The present record from Anamalais in the Western Ghats is new to the Peninsular region thereby extending its distribution to the southern end of the subcontinent. The species is described in detail with figures and a photo plate.

Fissidens semperfalcatus Dixon, J. Siam Soc., Nat. Hist. Suppl. 10: 2. 1935; Gangulee, Moss. E. India 1(2):

501, f. 234. 1971. - Type: Siam (Thailand), *Rāchāsīmā*. Pū Kio, Chaiyapūm, on rock in evergreen forest, c. 1000 m, 23 Feb., 1931, *A.F.G. Kerr* 584 (BM). (Plate-1; Fig-1)

Plants autoicous, 5–10 mm tall, caespitose. Stems simple, erect, c. 0.13 × 0.12 mm in cross section, with 7 or 8 cells across, ovate, with a faint central strand. Leaves 6–17 pairs, falcate, with apex inflexed downwards when dry, 1–1.5 × 0.2–0.25 mm, oblong-lingulate, crenulate, acuminate; dorsal laminae narrowing down to base, almost reaching insertion, mostly rounded; vaginant laminae closed to almost closed, acute to acuminate at apex; cells quadrate-hexagonal, thin-walled, with an acute, high papilla each, a few smooth, translucent near costa at base; apical and median cells 4–6 × 3.8–5 mm; basal ones 6–16

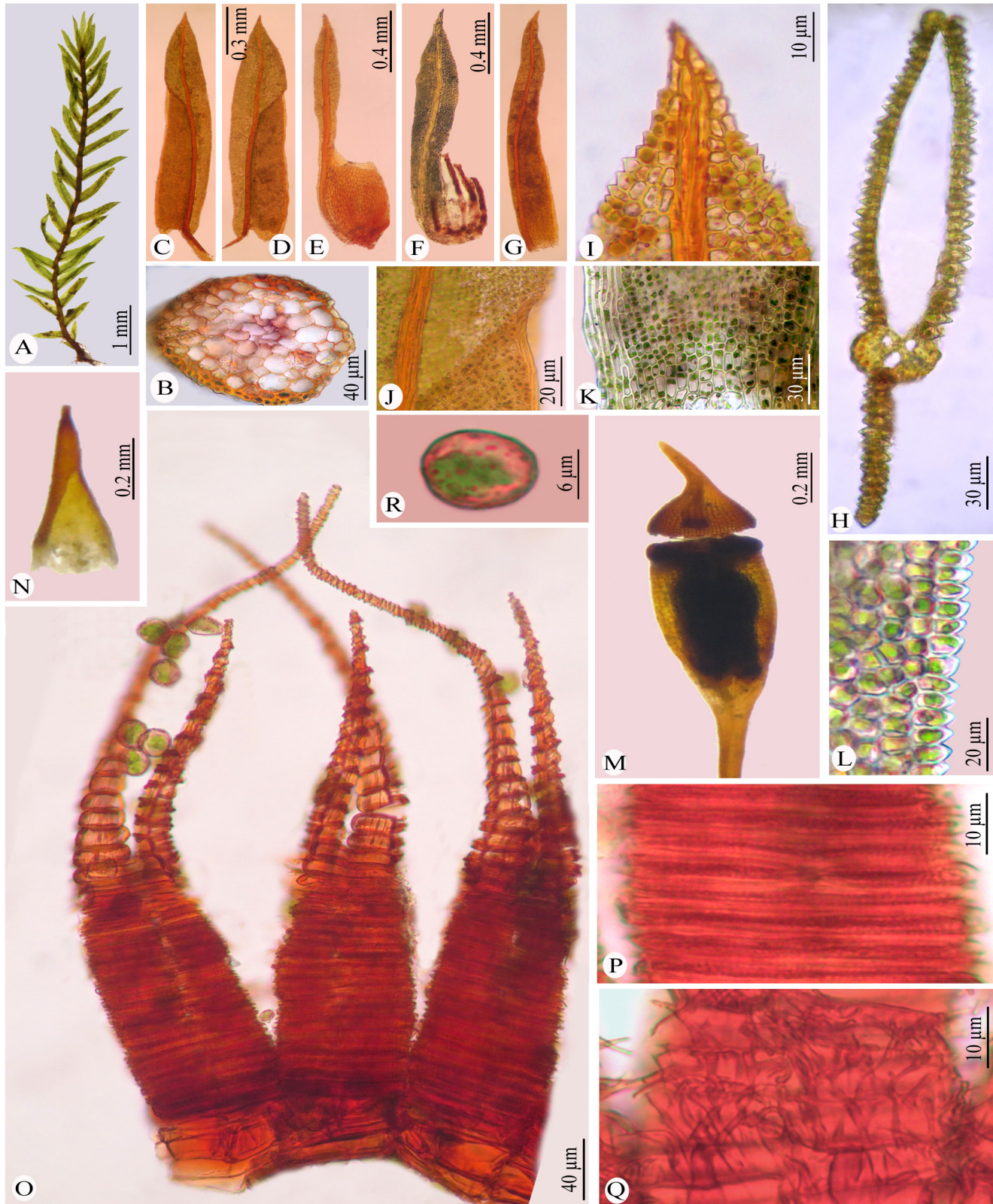


Plate -1: *Fissidens semperfalcatus* Dixon A. Plant; B. Cross section of stem; C & D. Leaves; E. Perigonial leaf; F & G. Perichaetial leaves; H. Cross section of leaf; I. Leaf apex; J. Ending of limbidium; K. Leaf basal cells; L. Leaf marginal cells; M. Capsule with operculum; N. Calyptra; O. Peristome teeth; P & Q. Outer and Inner surfaces (Daniels & Kariyappa 8781).

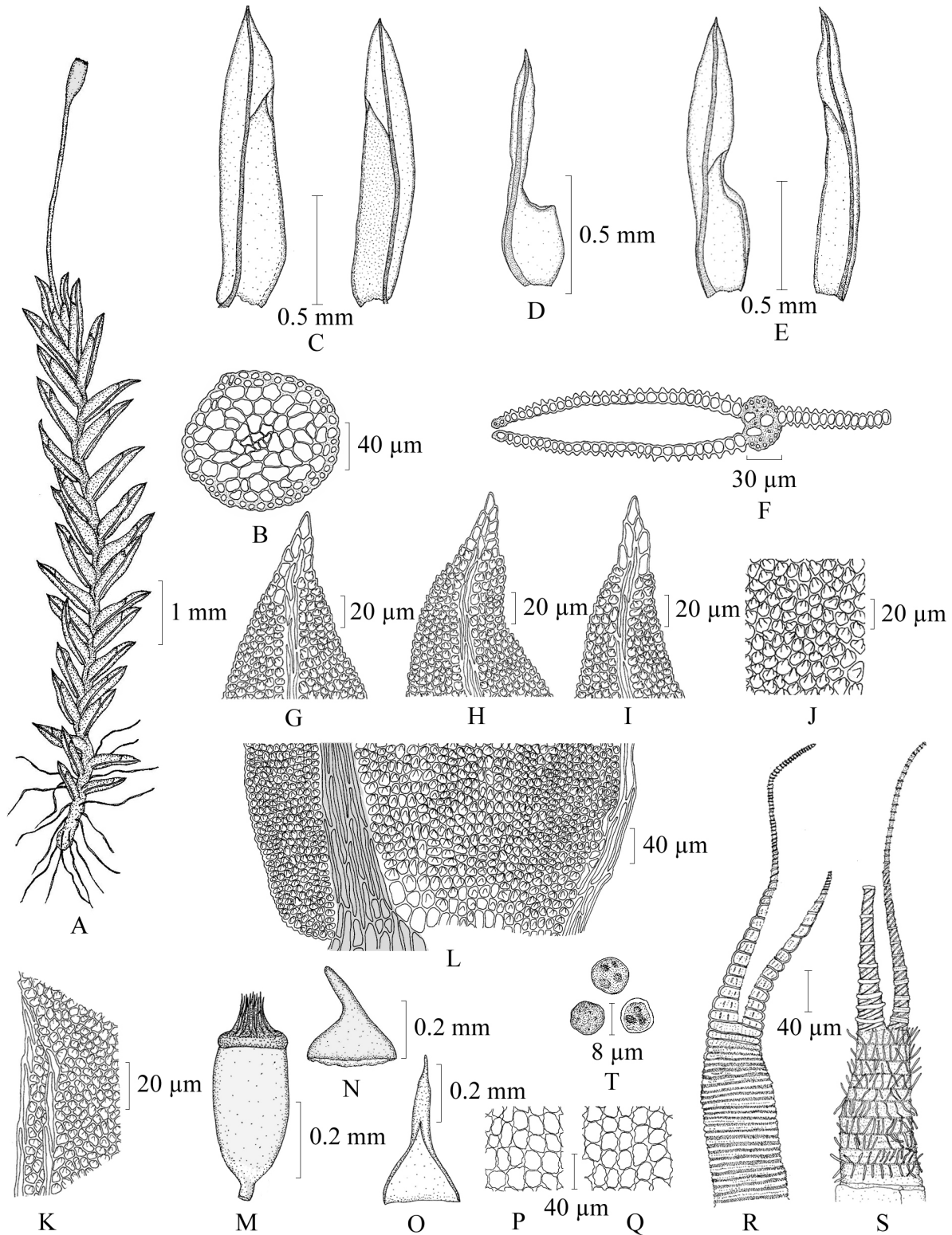


Fig -1: *Fissidens semperfalcatus* Dixon **A.** Plant; **B.** Cross section of stem; **C.** Leaves; **D.** Perigonal leaf; **E.** Perichaetial leaves; **F.** Cross section of leaf; **G - I.** Leaf apices; **J.** Leaf median cells; **K.** Ending of limbidium; **L.** Leaf base; **M.** Capsule; **N.** Operculum; **O.** Calyptra; **P & Q.** Capsule outer and inner wall cells; **R & S.** Peristome teeth - outer and inner surfaces; **T.** Spores (Daniels & Kariyappa 8781)

× 5.8–12 mm; limbidium at vaginant laminae only, 3- or 4-stratose, with narrow, elongated, 25–100 × 5–6 mm, cartilaginous, yellowish cells becoming uni-stratose and ending below apex; costa percurrent to short-excurrent, with both dorsal and ventral stereid bands and 3 guide cells in cross section. Perigonal leaves oblong below, with a distinct constriction, suddenly tapering into a linear-lanceolate apical portion, 0.7–0.9 × 0.2–0.28 mm, faintly limbate at base of vaginant laminae; androecia terminal, sometimes on terminal branches. Perichaetial leaves oblong-lingulate, with a distinct constriction a little below apex, 1.4–1.5 × 0.18–0.2 mm, limbate on vaginant laminae; archegonia terminal. Sporophytes terminal. Setae 4–5 mm tall, slightly sinuate when dry, suberect when wet, reddish-brown. Calyptrae 0.5–0.65 × 0.24–0.28 mm, cucullate. Capsules 0.4–0.5 × 0.2–0.23 mm, ovoid-cylindric, brown. Operculum inclined-rostrate, 0.4–0.5 × 0.23–0.26 mm, reddish-brown. Peristome teeth scariosus-type, 0.28–0.3 × 0.04–0.06 mm, orange-red. Spores 6–8 mm, globose, faintly papillose, pale brown.

Habitat: Terricolous, in tea plantations, c. 870 m.

Distribution: Indonesia, Myanmar, Nepal, Thailand and India: Andaman Island, Gangetic Plain, Himalaya, NE. India and Western Ghats of Tamil Nadu (Coimbatore), rare.

Specimens examined: Western Ghats, Tamil Nadu, Coimbatore District, Anamalais, Valparai Taluk, Anali Estate, c. 870 m, 12.8.2012, A.E.D. Daniels & K.C. Kariyappa 8778, 8779, 8781 (SCCN); N.E.F.A. (Arunachal Pradesh), Dharibati, Aka Hills, on moist soil, Nov. 1934, N.L. Bor 208 (CAL - (3/1) 56-1!).

DISCUSSION

The present material matches better with the description given in the protologue than with that of Gangulee's (*l.c.*) particularly in the description of the papillae in leaf cells, and the sexuality of the plant which Gangulee has not mentioned. It also agrees with the type of peristome as given by Bruggeman-Nannenga and Berendsen (1990) in being scariosus-type.

It resembles *F. crenulatus* Mitt. var. *crenulatus* which can be readily separated by its mamillate-papillate cells

and bryoides-type of peristome. *Fissidens semperfalcatus* has cells with acute, high papillae and scariosus-type of peristome. The type collection is from evergreen forests at an elevation of c. 1000 m. Earlier Indian collections might have been from natural forests too. However, the present collections are from tea plantations at an elevation of c. 870 m. This might indicate that this species is not habitat specific but an opportunist.

Tea plantations are generally open and receive direct sunlight. However, the base of the tea bush is usually shady and moist providing a micro-climatic niche favouring the growth of bryophytes especially mosses owing to regular irrigation during unfavourable conditions. On the other hand, regular use of fertilizers in the plantations may also promote the growth of bryophytes.

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