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Smilax sailenii (Smilacaceae) - a new species from Assam, North East India

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ABSTRACT: *Smilax sailenii* sp. nov. (Smilacaceae) is described from Assam, north east India based on morphological characteristics observed in the field. *Smilax sailenii* closely resembles the widespread species *Smilax orthoptera* A. DC. The detailed morphological features including botanical illustration, photograph, conservation status and key to *Smilax sailenii* with and related taxa in Assam are provided.

KEY WORDS: India, New species, Smilacaceae, *Smilax.*

INTRODUCTION

Smilax L. is the type genus of family Smilacaceae, with c. 350 species (Takhtajan, 1997) or c. 200 species (Qi *et al* 2012). These are widely distributed across mostly in tropical and subtropical areas, but also confined to temperate, regions in the Southern and Northern Hemispheres (Chen *et al* 2006, Qi *et al* 2013). Out of 33 species reported by Hooker (1892) only 24 are from the present political boundary of India which includes five species from South India and 17 from northeast India (Baruah and Borthakur, 2013). Koyama (1963,1971,1975), Noltie (1994) and Baruah *et al* (2011, 2017) have reported many species respectively from Eastern Himalayan region and contributed some important taxonomic findings of this genus. However, like other monocots of NE India the Smilacaceae is yet to be properly documented and studied.

During the botanical exploration trips in Upper Assam districts the authors collected a peculiar species belonging to the genus *Smilax*. Critical examination revealed that the specimens are quite distinct from hitherto known species of *Smilax,* and is described and illustrated here as a new species. The specimens on which the present study is based have been preserved following standard herbarium techniques (Jain and Rao, 1977) and the voucher specimens are deposited in the Herbarium of Botany Department, Gauhati University (GUBH).

TAXONOMIC TREATMENT

1a. Male flower slightly 6-angled, scarcely open, outer tepals cucullate and abaxially channelled …… ***S. glabra***
1b. Male flower non angler, fully open, outer tepals neither cucullate nor abaxially channelled 2
2a. Umbel solitary; filaments proximally connate ……. ***S. ocreata***
2b. Umbels 1-or few, sub-whorled, filament free 3
3a. Stem terete, densely granulates with many small warts and bristles, recurved prickle present or absent ..... ***S. aspericaulis***
3b. Stem round, non granulate, smooth, short recurved prickles usually absent 4
4a. Leaves three nerved, remain dark green on drying ..***S. arisanensis***
4b. Leaves more than three nerved become brown on drying ….. …5
5a. Tepals of male flowers greenish to yellowish green ..... ***S. china***
5b. Tepals of male flowers green .....……..…….. ***6***
6a. Inflorescence of 3 or fewer umbels inserted singly along with inflorescence axis …… ***S. perfoliata***
6b. Inflorescence of 2, umbels arranged in whole ……..…… 7
7a. Leaves ovate-oblong, pale, becoming brown on drying 8
7b. Leaves lanceolate, becoming dark green and sometimes tinged black when dried ..... ***S. lanceifolia***
8a. Leaves large, broadly ovate, base cuneate or rounded …… …….. ***S. ovalifolia***
8b. Leaves comparatively small, ovate –oblong, base rounded ….. 9
9a.Inflorescence of 40–60 flowers per umbel, tepals pinkish, auriculate with 2 long cirrhi ..... ***S. orthoptera***
9b.Inflorescence of 20–35 flowers per umbel, tepals greenish, narrowly auriculate with 2 short cirrhi …….. ***S. sailenii***

Smilax sailenii Sarma, Baruah & Borthakur***, sp. nov.***
Figs. 1 & 2

Type: **INDIA**. Assam: Digboi R F under Digboi Forest Division, Tinsukia district, 27°25′54.5″N, 95°21′54.9″E, 312 m a.s.l., 30 March 2012, *S. Baruah & J. Sarma 555, 532* (♂) (holotype: GUBH, isotype: GUBH).

Diagnosis: Morphologically similar to *Smilax orthoptera* A. DC. With pale green leaves and prominent veins the species closely resembles *S. orthoptera* A. DC. (Table 1), from which it differs in its fruit size which is up to 3 cm and found to be the largest among the species recorded in this study. Further, the umbels of female flowers are comprised of 18–22 flowers, while in *S. orthoptera* they are 20–40 flowered. The immature fruits of *S. orthoptera* are white but in the new species, they are green.

A large woody climber bearing minute prickle on stem, branches mostly terete. Leaves blade coriaceous alternate to ovate-oblong 7–15 × 4–8 cm; apex mucronate and shortly acuminate; base usually rounded, sheaths with narrowly auriculate and coriaceous; petioles

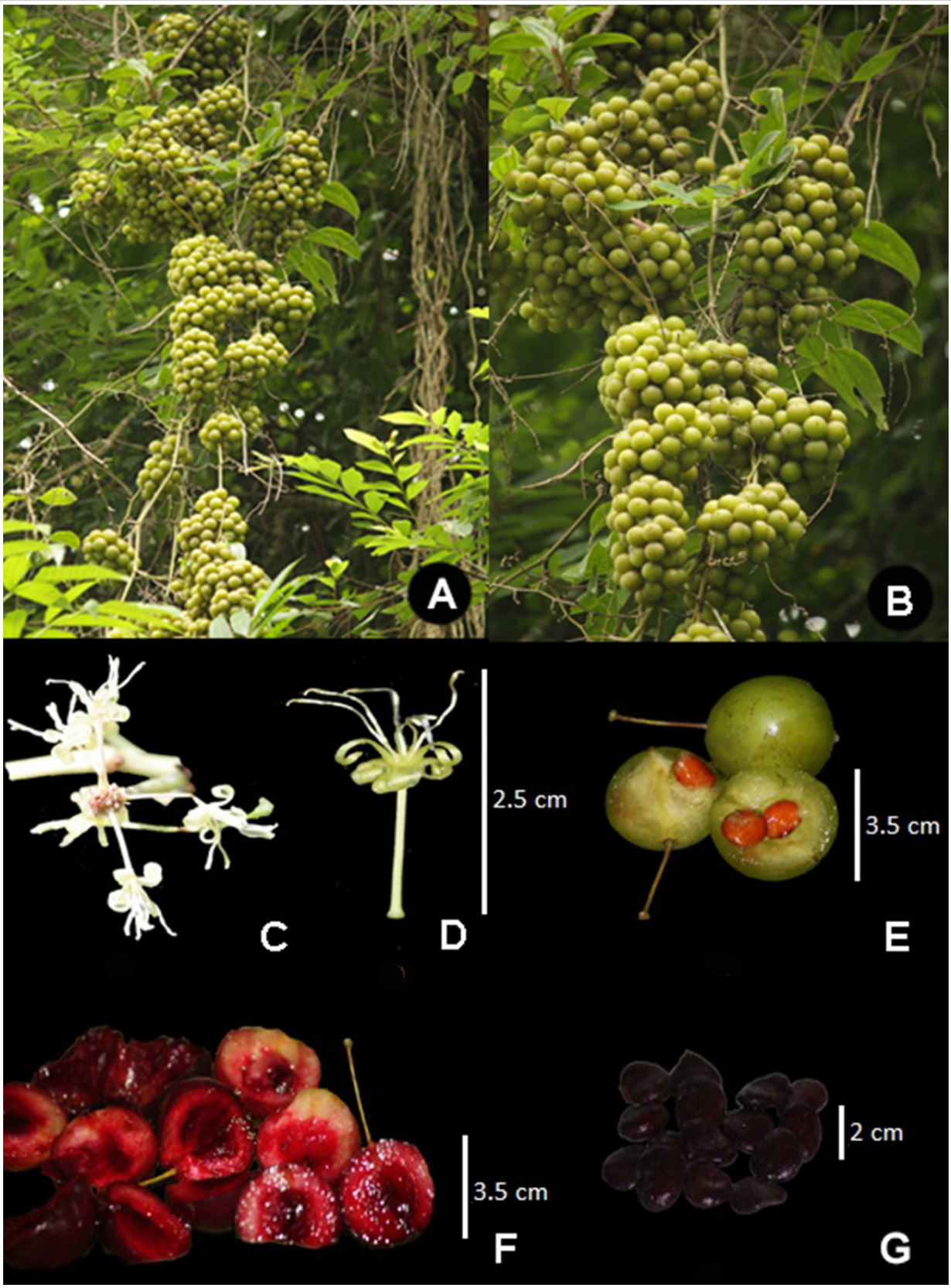

Fig. 1. ***Smilax sailenii*** Sarma, Baruah & Borthakur. **A & B.** Fruiting branch. **C.** Flowering branch. **D.** Single flower. **E.** Mature fruit. **F.** Ripe fruits. **G.** Seeds.

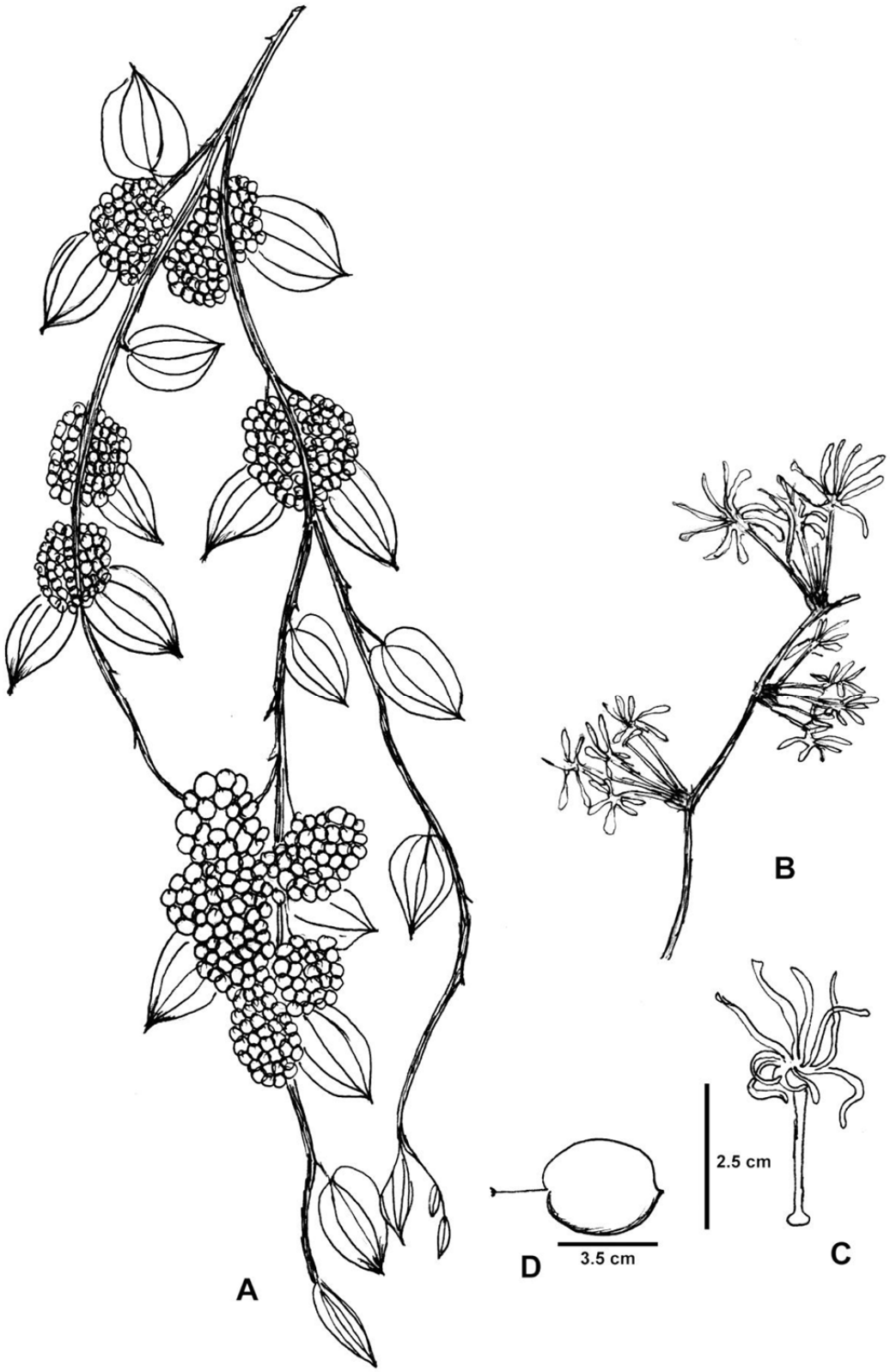

Fig. 2. ***Smilax sailenii*** Sarma, Baruah & Borthakur. **A.** Habit. **B.** Inflorescence. **C.** Single flower. **D.** Fruit.

Table 1: Comparison of morphological characters between ***Smilax orthoptera*** and ***Smilax sailenii***.

Characters	*Smilax orthoptera*	*Smilax sailenii*
Leaves	Broadly elliptic, ovate-oblong 15–25 × 5–8 cm, apex acuminate.	Ovate-oblong 7–15 × 4–8 cm, in size; apex mucronate or shortly acuminate.
Auricle	Auriculate, with two long cirrhi.	Narrowly auriculate with 2 short cirrhi.
Male flowers	40–60 flowers per umbel. Peduncles 2.5–3 cm. long; pedicels 1.2–1.5 cm long.	20–35 flowers per umbel. Peduncles 1 cm in length. Peduncles 2–3.5 cm. long; pedicels 1–1.5 cm long.
Female flowers	20–40 flowers per umbel. Peduncles 2.5–4 cm. long, pedicel 1-1.4 cm. Outer tepals 4–6 × 1–2 mm., inner tepals 4–6 × 0.1–1 mm.	18–22 flowers per umbel greenish. Peduncles 2–3.5 cm. long, pedicel 1–1.4 cm. Outer tepals 5–6 × 1–2 mm., inner tepals 5–6 × 0.1–1.5 mm.
Fruits	Fruits are whitish at young stage.	Fruits are dark green.
	Berries greenish white at immature stage, becoming red when ripe.	Berries fleshy, greenish in colour becoming red when ripe.
	The diameter of the fruits in 0.4–0.6 cm	The diameter of the fruits is 2.5–3 cm.
Seeds	Slightly triangular.	Round and flat.

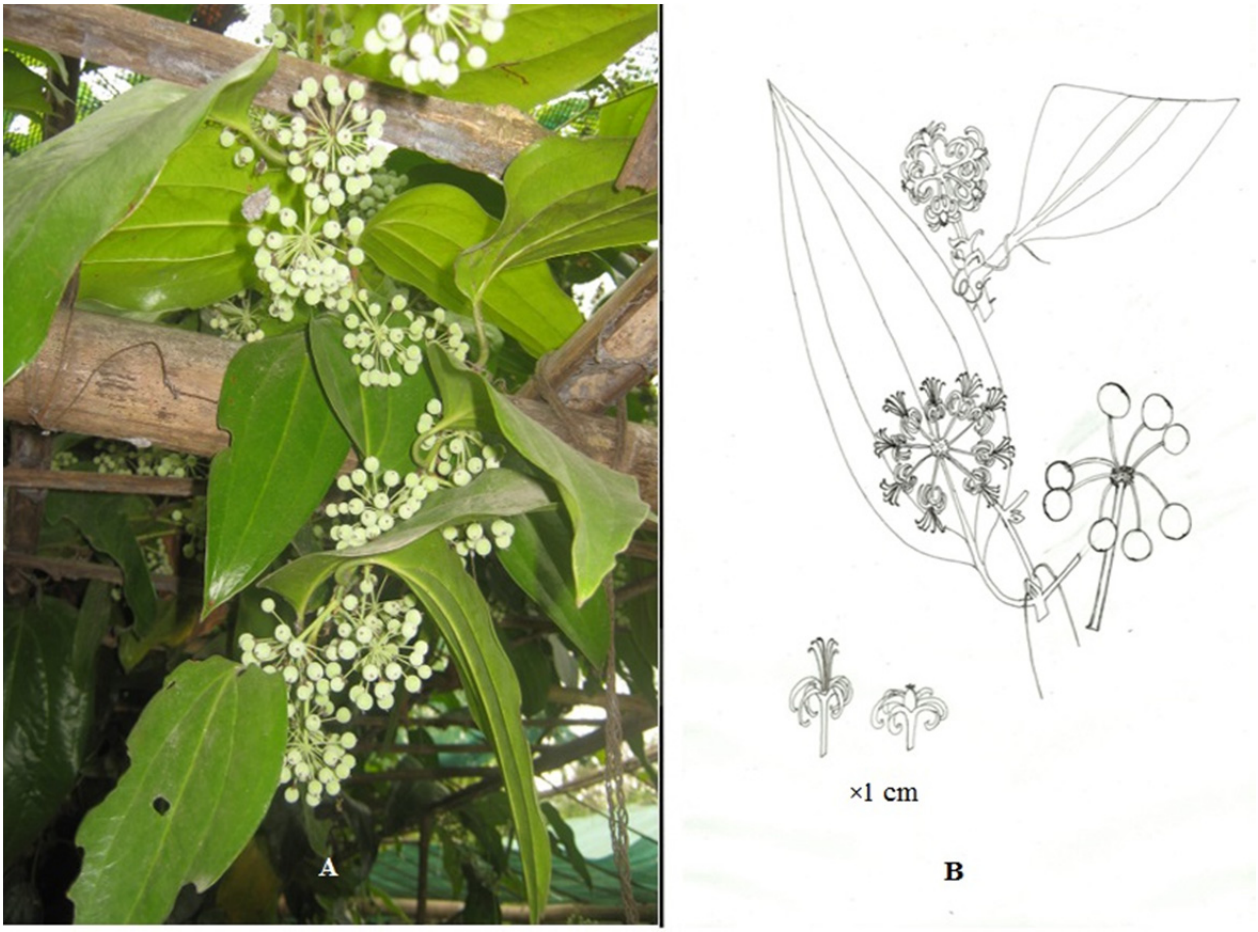

Fig. 3. *Smilax orthoptera* A. Photo in natural stage**, B.** Line drawing.

1–2 cm. long stout narrowly sheathing below the middle, 3 costate; tendrils long and strong. Flowers in pedunculate, many - flowered umbels; pedicels of both male and female flowers arising from an aggregation of numerous minute bracts. Male flowers –20–40 flowers per umbel, light greenish, 1–1.5 cm in length. Peduncles 2–3.5 cm. long; pedicels 1–1.5 cm long. Outer tepals broad 4–6 × 1–2 mm., inner tepals thin 4–6 × 0.1–0.5 mm. Stamens 6, 7–9 mm long, anther basifixed 1 - 2 mm and white. Female flowers 18–22 flowers per umbel greenish. Peduncles 2–3.5 cm. long, Pedicel 1–1.4 cm. Outer tepals broad 5–6 × 1–2 mm., inner tepals thin 5–6 × 0.1–1.5 mm; stigma 3-lobed, ovary 3-chambered. Berries fleshy, greenish in colour

becomes red when ripe, 2.5-3 cm; seeds-3, flat 4-5 mm.

Conservation status: The species is known only from sub-tropical forest in Assam at elevation of 300–400 m. Its geographic range (extent of occurrence) and the quality of habitat are declining continuously. *S. sailenii* is assessed as Critically Endangered (CR) road widening and rapid deforestation in the neighborhood may be a major threat to the habitat of the species in near future.

***Phenology*:** Flowering from September to October, and fruiting from June to December.

***Etymology*:** The species is named in the honour of late Dr. Sailendra Prasad Borah, Professor of Department of Botany, who expired while in harness struggling with cancer in 2012.

***Vernacular name(s)*:** *Assamiya angur* (Assamese), *Jangli guti* (Tea tribe).

***Distribution*:** The species is only known from its type locality Digboi Reserve Forest, Borjan area of Borjan - Bherjan-Padumoni Wild Life Sanctuary, Tinsukia district, Assam.

***Uses*:** The fruits become reddish and turning blackish when ripe. The fruits are sour-sweet when it is ripe.

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