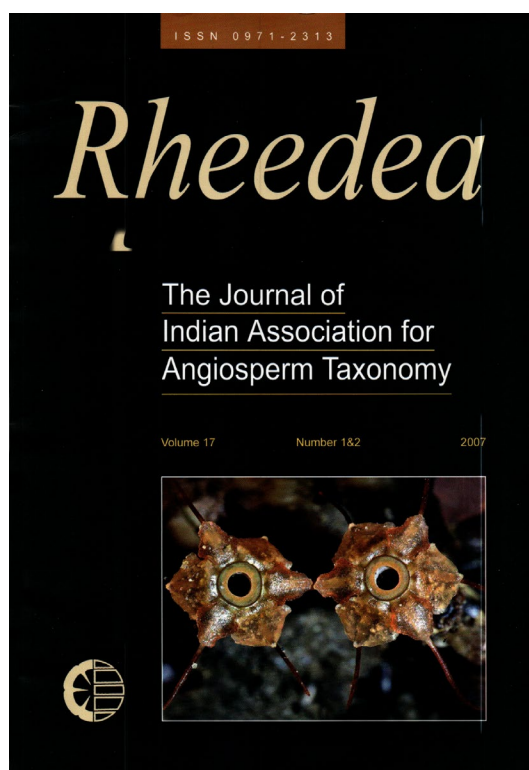




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# A New Species of *Piper* L. (Piperaceae) from Arunachal Pradesh, India

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## Abstract

*Piper nirjulianum* Gajurel, Rethy et Kumar, a new species from Arunachal Pradesh, North East India is described and illustrated. This species is most allied to *P. arunachalensis* Gajurel et al. but differs in having coriaceous leaves, three mucilage canalled stem, ditheous anthers and two stamens.

Keywords: *Piper nirjulianum*, New species, Dioecious

## Introduction

The North East India and the Western Ghats are two important centres of species diversity of Indian *Piper*. About 65 species have been recorded from north-east India (Gajurel et al., 1999). We have undertaken a thorough taxonomic investigation of the genus *Piper* in the north east since 1998 and as a part of this, we have published two new species *P. haridasanii* Gajurel, Rethy et Kumar (2001a) and *P. arunachalensis* Gajurel, Rethy et Kumar (2001b). We located a small population of a species of *Piper* at Nirjuli forest, which initially looked similar to *P. arunachalensis*. Critical observations made on both the male and female plants of this species grown together in the experimental garden of the North Eastern Regional Institute of Science and Technology (NERIST) and subsequent study of literature and herbarium specimens helped us confirm the novelty of the species. It is described here as a new species.

***Piper nirjulianum* Gajurel, Rethy et Kumar, sp. nov.**

**Figs 1 & 2 a, b**

*P. arunachalensis* Gajurel et al. affinis sed differt foliis coriacis, venulis disticis ad 2-3 cm suprabasis, caulibus canalibus mucis 3; staminibus 2, antheris bilocularis.

Very much allied to *P. arunachalensis* Gajurel et al. but differs in its coriaceous leaves, superior pairs of veins

arising 2-3 cm above the base, stem with 3 mucilage canals, two stamens with ditheous anthers.

**Type:** INDIA, **Arunachal Pradesh**, Nirjuli forest, 200 m., 27°6'N latitude and 93°49'E longitude, opposite NERIST campus about 3 km from the NH 52A along the Nirjuli river, *P. R. Gajurel*, 95 (Holotype, CAL; Isotypes, ASSAM, Arunachal Pradesh Forest Herbarium).

*Climbing shrubs*, dioecious, 2-3 m. high, slender, woody, glabrous. Branching dimorphic with orthotropic climbing or creeping vegetative shoots and plagiotropic lateral aerial reproductive shoots; young emerging vegetative shoots pink in colour. *Stem* 3-4 mm across, terete, green, glabrous, internode with 3 mucilage canals, one central and two peripheral, young emerging shoots of the vegetative branches finely pubescent. *Leaves* in vegetative branches ovate, 2.5-5 x 2-4 cm, glabrous, acuminate, round or sub-cordate at base; petiole 1-3 cm long, finely pubescent; leaves in fertile branches narrowly lanceolate, 8.5-14.0 x 3.5-5.5 cm, glabrous, acuminate at apex, cuneate to slightly asymmetric at base; petiole 5-9 mm long; veins prominent, lateral veins in 2 pairs, the anterior pair arising nearly 2-3 cm above the base in leaves of fertile branch; stipules minute, membranous, 3-5 mm long; prophylls green, membranous, 5-7 mm long. *Spikes*: leaf opposed,

erect, pale green; flowers densely arranged, achlamydeous, bracteate, unisexual; rachis hairy. *Male spikes*: filiform, 3-4 cm long on 2-3 mm long peduncle; stamens 2, anther cells 2 on short thick

filaments, just exerted above the bract during anthesis. *Female spikes*: subglobose, 4-6 x 2-3 mm on 6-10 mm long peduncle, carpel one, ovary oblong, stigmas 3, sessile, lobed, small, round, bracts in both

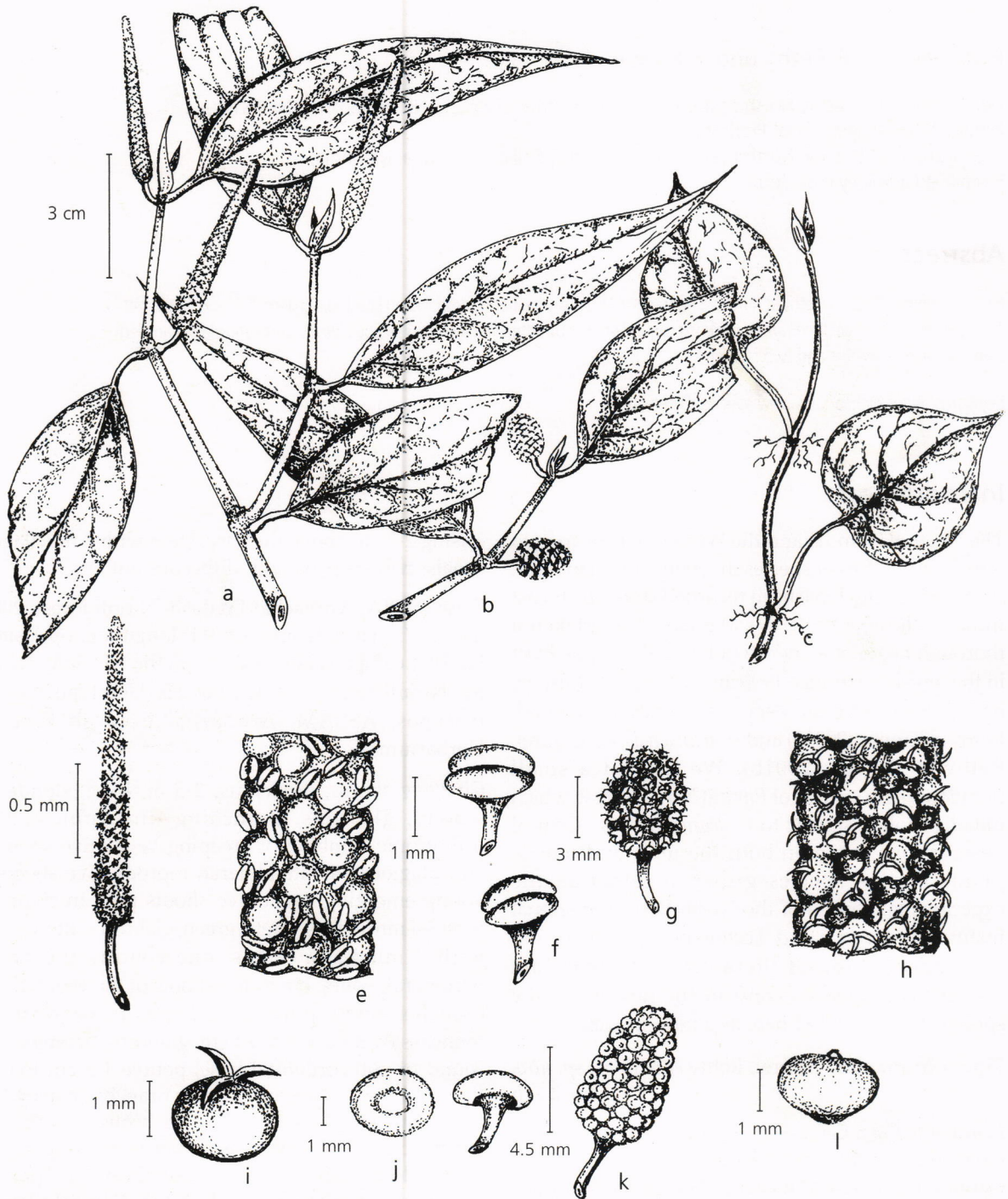


Figure 1. *Piper nirjulianum* Gajurel et al. – a. Male flowering twig; b. Female flowering twig; c. Vegetative twig; d. Male spike; e. Male spike – a portion enlarged; f. Stamen; g. Female spike; h. Female spike – a portion enlarged; i. Carpel; j, k. Bract; l. Fruiting spike; m. Fruit.



Figure 2. *Piper nirjulanum* Gajurel, Rethy et Kumar – a. Male spike ; b. Fruiting spike; *P. arunachalensis* Gajurel, Rethy et Kumar– c. Male spike; d. Young fruiting spike; *P. mullesua* Ham. ex D. Don – e. Male spike; f. Fruiting spike.

male and female spikes orbicular-peltate, minute, stalk hairy. *Fruiting spikes*: short, cylindrical or subglobose 6-9 x 4-5 mm on 6-10 mm peduncle. *Drupes* densely aggregated, oblong c. 1.5 mm across, turning deep green when ripe.

*Habitat*: Evergreen forests preferring thinly shaded areas along the banks of rivulets with rocky beds.

*Flowering & Fruiting*: March-September.

*Etymology*: The species is named after its type locality Nirjuli in Itanagar, Arunachal Pradesh.

Hooker (1886) characterized by solitary dioecious spikes, orbicular peltate bracts with densely aggregate fruits in short cylindrical and globose or sub globose fruiting spikes. It can be distinguished from the closely related *P. arunachalensis* Gajurel *et al.* and *P. mullesua* Ham. ex D. Don as shown in Table 1.

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Table 1. A comparison of the morphological characters of *Piper mullesua* Ham. ex D. Don, *P. arunachalensis* Gajurel *et al.* and *P. nirjulianum*.

Characters	<i>P. mullesua</i>	<i>P. arunachalensis</i>	<i>P. nirjulianum</i>
Habit	Erect shrub, 0.5-1.5 m tall (climbing shrub in southern India).	Climbing shrub, 4-10 m high.	Climbing shrub, 2-3 m high.
Young runner shoot	Finely pubescent, leaves ovate, 2-3 x 0.5-1 cm.	Finely pubescent; leaves ovate-cordate, 5-9 x 4-7 cm.	Pubescent leaves almost orbicular, 2 - 3 cm across.
Leaves in fertile branch	Ovate, 8-12 x 4-7 cm; petiole 4-6 mm long, glabrous.	Ovate-lanceolate, 6-10 x 2-4 cm petiole 8-10 mm long finely pubescent.	Narrowly lanceolate, 8-14 x 3-4 cm; coriaceous petiole 5-9 mm long, finely pubescent.
Veins	Prominent lateral veins in 3-4 pairs, the anterior pair arising 1-2 cm above the base.	Prominent lateral veins in 2 pairs, the anterior pair arising 1 cm above the base.	Prominent lateral veins in 2 pairs, the anterior pair arising 2-3 cm above the base.
Male spike	5-8 cm long, blackish.	2-4 cm long, pale white.	3-5 cm long, pale green.
Flower	Stamen 2 with 2 anther lobes.	Stamen 3 with 4 anther lobes.	Stamen 2 with 2 anther lobes.
Fruiting spike	Globose 10-14 x 9-13 mm peduncle 3- 5 mm long, glabrous.	Sub-globose 10- 14 x 5 -7 mm peduncle 1-2 mm long, pubescent.	Sub-globose 6-9 x 3- 4 mm peduncle 6 - 10 mm long, finely pubescent.
Internodal anatomy	Mucilage canal 1 (central).	Mucilage canal 1 (central).	Mucilage canals 3 (one central and two peripheral).

*Note*: Only a few individuals were located at type locality where the first collection was made in 1999. As this area was later deforested completely, we could not relocate it again there and in adjacent areas.

The species is dioecious like other species of the region and comes under the section *Chavica* of J. D.

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## Literature Cited

Hooker, J. D. 1886. *The Flora of British India*. Vol. 5. L. Reeve & Co., London. pp. 78-96.

Gajurel, P. R., P. Rethy & Y. Kumar 2001a. *Piper haridasanii* a new species of *Piper* from Arunachal Pradesh, North East, India. *Journ. Econ. & Tax. Botany* 25: 293-296.

Gajurel, P. R., P. Rethy & Y. Kumar 2001b. A new species of *Piper* from Arunachal Pradesh, north-eastern India.

*Bot. J. Linn. Soc.* 137: 417-419.

Gajurel P. R., P. Rethy, Y. Kumar, & B. Singh 1999. Taxonomic problems and distribution of *Piper* species of North East India with special references to Arunachal Pradesh. In: Sivadasan M. & P. Mathew (Eds), *Biodiversity, Taxonomy & Conservation of Flowering Plants*. Mentor Books, Kerala, India. pp. 57-68.

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