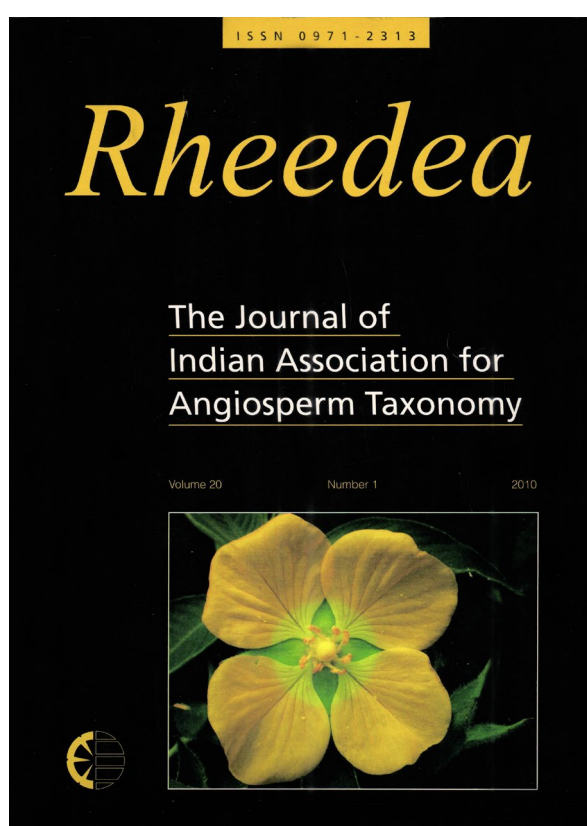




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How to cite:

Murugan R., Ravikumar K. & C. Livingstone 2010. Rediscovery of *Pogostemon nilagiricus* (Lamiaceae), a steno-endemic and critically endangered aromatic species. *Rheedeia* 20(1): 50-52.

<https://dx.doi.org/10.22244/rheedeia.2010.20.01.11>

Received: 25.07.2009

Revised and accepted: 30.01.2010

Published in print: 30.06.2010

Published Online: 30.06.2010

Rediscovery of *Pogostemon nilagiricus* (Lamiaceae), a steno-endemic and critically endangered aromatic species

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Abstract

Pogostemon nilagiricus Gamble (Lamiaceae) is rediscovered from Nilgiri hills, the type locality, after a gap of 97 years. A detailed description, photograph and note on its taxonomy are provided. Current threat status has also been assessed based on the recent botanical explorations.

Keywords: Aromatic plant, Endemic, Lamiaceae, Nilgiri, *Pogostemon*

Introduction

Botanical explorations were conducted in the Nilgiri hills during 2005 – 2009 to collect species of *Pogostemon* Desf. for bioprospection. This focused study has resulted in the collection of *P. nilagiricus* Gamble, which is endemic to Nilgiri hills of Tamil Nadu. Only three populations with about 20 mature individuals were located near Mynila village, down to Doddabetta, Udagamandalam (Ooty) during the past five years of intense exploration.

Gamble (1924) described this species based on two syntypes housed at K. One specimen was collected from Nilgiri hills probably before 1867, as the impression of seal “Herbarium-Hookerianum 1867” is seen on the sheet. The collector of this specimen is not known; but it could be Robert Wight, as he was the one who first illustrated *P. nilagiricus* but named it as *P. rotundatus* Benth. in his ‘Icones Plantarum Indiae Orientalis’ (1850). Another specimen was collected by A.G. Bourne from the same hills in 1908 [Bourne 5094 (Syntype, K!)]. Fyson (1932) included *P. nilagiricus* in the ‘Flora of the South Indian Hill Stations’ by quoting the specimen Wight 2525 (K, CAL), which is actually *P. mollis*. After Bourne’s collection, this species has not been collected and reported elsewhere. Hence, the present collections form a rediscovery of this species after a gap of 97 years from the type locality.

Pogostemon nilagiricus morphologically resembles *P. mollis* Benth. Hooker (1885) treated Wight’s illustration (t. 1441, *P. rotundatus*) under *P. mollis* and recorded by mentioning that he had not seen any *P. mollis* with acute leaf apex like that of Wight’s illustration. Later, Gamble studied both the specimens

mentioned above and described *P. nilagiricus* as a distinct species (Gamble’s remarks are seen on those two specimens). A detailed description and photograph (Fig. 1) of this species are provided to facilitate easy identification.

Pogostemon nilagiricus Gamble, Fl. Madras: 1134. 1924; Srinivasan in Henry *et al.*, Fl. Tamil Nadu 2: 185. 1987; Bhatti & Ingrouille in Bull. Nat. Hist. Mus. London (Bot.) 27(2): 97. 1997. *P. rotundatus* sensu Wight, Icon. Pl. Ind. Orient. 4: t. 1441. 1849, non Benth. 1830.

Undershrubs, 60 – 80 cm high, much-branched, strongly aromatic, densely woolly-tomentose; trichomes 6 – 10(–12)-celled; stems terete, woody at base. Leaves opposite, ovate or orbicular, 1 – 4 × 1.5 – 3 cm, truncate or rounded at base, single or double crenate, acute or subacute or obtuse, thick, rugose, glandular-punctate; trichomes 6 – 8-celled; petioles c. 5 mm long; trichomes 6 – 8-celled. Flowers in dense verticils, in terminal unbranched, erect, cylindrical spikes; spikes 3 – 13 × 1 – 1.5 cm; trichomes 6 – 8-celled. Bracts lanceolate or linear, 3 – 5 mm long; trichomes 6 – 8-celled. Calyx tubular, 5-lobed at apex; tube c. 4 × 2 mm, 10-nerved, glabrous inside, glandular-punctate and densely woolly-tomentose outside; trichomes 6 – 8-celled; lobes lanceolate, subequal, 1 – 1.5 mm long, acuminate, ciliate. Corolla bilipped, c. 7 × 1 mm, exserted, white; upper lip c. 2 mm long, 3-lobed; lower lip entire, shorter than upper lip. Stamens 4, subequal, c. 6 mm long, exserted, white or pale pink; filaments bearded at middle with white or pale pink moniliform trichomes. Styles c.

9 mm long, exserted, glabrous, white or pale pink; stigma bifid, c. 0.5 mm long. Nutlets 4, orbicular, c. 0.5 mm, foveate, black.

Flowering & Fruiting: January – April.

Ecology: Exposed slopes along roadsides and disturbed localities above 2000 m altitude; found growing with *Cytisus scoparius* (L.) Link and few common grasses.

Specimens examined: INDIA, **Tamil Nadu**, Nilgiri hills, (?) *Wight s.n.* (Syntype, Acc. No. K000509588 image, K!); Ootacamund, Nilgiris, 23.4.1908, *Bourne* 5094 (Syntype, Acc. No. K000509589 Image, K!); Udagamandalam, Mynila, 4.4.2005, *R. Murugan* 29; Udagamandalam, Mynila, 14.4.2007, *R. Murugan* 35; Udagamandalam, Mynila, 2.2.2008, *R. Murugan* 36; Udagamandalam, Mynila, 17.1.2009, *R. Murugan* 40 (FRLH, MCCH).

IUCN Threat Status: Initially assessed as “Endangered” (Sharma & Kumar, 1990). However, reassessment during the present study indicates that this species is “Critically Endangered” [CR-B1ab(i,iii&v)] based on the extent of occurrence, severely fragmented populations, quality of habitat and declining number of mature individuals.

Note: This species is closely allied to *P. mollis*. The differences between *P. mollis* and *P. nilagiricus* are given in Table 1.

This species yields 0.3 % yellow-coloured essential oil. The fragrance of the oil is similar to and as strong as that of commercial patchouli essential oil from *P. cablin* (Blanco) Benth. The essential oil is rich in cadinol (personal data – unpublished). As the fragrance of essential oil of *P. nilagiricus* is similar to commercial patchouli oil, it can be improved through plant breeding programme to increase its oil percentage and for further commercial



Fig. 1. *Pogostemon nilagiricus* Gamble

exploitation. Being a steno-endemic with very few individuals with a greater possibility of habitat loss, it needs urgent conservation attention. Hence this species is recommended for ‘species recovery’ programme for its conservation through micro-propagation and subsequent re-habilitation.

Acknowledgements

The authors are grateful to the Royal Botanic Gardens, Kew, for providing the images of type specimens and to the Director, Botanical Survey

Table 1. Differences between *Pogostemon nilagiricus* and *P. mollis*

Character	<i>P. nilagiricus</i>	<i>P. mollis</i>
Stem	Densely woolly-tomentose; trichomes 6 – 10(–12)-celled	Tawny-tomentose; trichomes 4 – 6-celled
Leaves	Rugose above; apex acute to obtuse, margins single or double crenate, densely woolly-tomentose; trichomes 6 – 8-celled	Smooth above; apex obtuse, margins single dentate, tawny-tomentose; trichomes 4-celled
Bract	Lanceolate or linear	Linear
Calyx	Woolly-tomentose; trichomes 6 – 8-celled; lobes lanceolate, acuminate	Tawny-tomentose; trichomes 4-celled; lobes triangular, acute
Style	8 – 9 mm long	5 – 6 mm long

of India, Kolkata, for giving permission to consult the Herbarium. Thanks are due to the Tamil Nadu State Forest Department, for permission to collect plant samples. The authors are also thankful to the Principal, Madras Christian College, Chennai, for facilities.

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Received: 25.7.2009

Revised and Accepted: 30.1.2010