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RESEARCH ARTICLE

ARDISIA NAYARII (PRIMULACEAE - MYRSINOIDEAE) - A NEW SPECIES FROM WESTERN GHATS, INDIA.

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Abstract

Ardisia nayarii is described and illustrated as a new species from Western Ghats, India. The species is distinguished from *A. paniculata* Roxb. by its distinctly petioled, decurrent glabrous leaves, rosy pink panicles, many ovules per flower and sub globose black berries.

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Introduction:-

The genus *Ardisia* Swartz has about 500 species distributed all over the subtropical and tropical regions of the world including East and South East Asia, Africa, America and Australia. There are about 400 species in Asia alone (Mao & Hu, 2013). The genus *Ardisia* is the largest in the sub family Myrsinoideae of the enlarged Primulaceae as per APG III classification (2009). *Ardisia* is classified into 14 sub genera based on characters such as habit, leaf morphology, structure, position of inflorescence and floral morphology (Mez, 1902). In India it has been represented by 25 species and one variety, 13 of which are endemic. In the Western Ghats, there are 12 species and one variety (Hooker, 1882; Nayar & Giri, 1975; Nayar *et al.*, 2014), inhabiting mainly in semi evergreen, evergreen and shola forests.

Materials and Methods:-

During floristic explorations in the Achankovil forests of Kollam district of Kerala, falling under the core area of Agasthyamala Biosphere Reserve of southern Western Ghats, the authors have collected an interesting specimen of *Ardisia* Swartz. On critical observation and comparison with available species deposited at Botanical Survey of India, Southern Regional Center (MH), Coimbatore, Calicut University Herbarium (CALI) and relevant literature (Hooker, 1882; Gamble, 1923; Nayar *et al.*, 2014) it is revealed that the taxon is quite different from any of the hitherto described taxa of *Ardisia*, hence described and illustrated as new species. Specimens were collected and processed as per the procedures given by Jain and Rao (1977).

Results and Discussion:-

A critical study on the present species based on the characteristic features such as large leaves with gland dots, sub verticillate nature, inflorescence in special branches on indetermined lateral axis of the primary terminal, sub umbellate flowers, short filament and many ovules reveals that it belongs to the subgenus *Pyrgus* (Mez, 1902). The species described here, closely resembles *A. paniculata* Roxb., a species that was collected and described by Roxburgh (1824) from Chittagong and Khasi hills of North East India by sharing certain characters such as

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conspicuously large leaves, long panicles and calyx lobes with ciliate margins. At the same time, it differs from the latter by its distinctly petioled glabrous leaves, rosy pink inflorescences, up to 2 cm long pedicels, black berries etc making it morphologically distinct from the former.

Table 1:- Comparison of characters between *Ardisia paniculata* and *A. nayarii*

Characters	<i>A. paniculata</i>	<i>A. nayarii</i>
Petiole	Sub sessile	Distinctly petioled to 1.5 cm
Leaf size	10-32 × 3-6.5 cm	15-35 × 5-10 cm
Leaf base	Rounded to auricled	Prominently decurrent
Panicle shape	Oval	Pyramidal
Pubescence	Rusty pubescent	Smooth glabrous
Colour	Green	Rosy pink
Secondary peduncles	20-25 nos.	12-18 nos.
Tertiary branches	More common	Rarely observed
Flowers	±200 in dense umbels	<100 in lax umbels
Pedicels	Up to 0.7 cm	Up to 2 cm
Ovule	1	Many
Berry	Red, globose, 0.5-0.7cm across	Black, sub globose, 0.8-1 cm across

Ardisia nayarii G. Rajkumar, A. Nazarudeen, M. Alister *et* Pandurangan *sp.nov.* (Figs. 1 & 2).

The new species, *Ardisia nayarii* is closely allied to *A. paniculata* Roxb. in having shrubby nature, coriaceous leaves and paniced inflorescence. It differs in having decurrent glabrous, distinctly petioled leaves, glabrous peduncles and pedicels, rosy pink panicles, many ovules and black subglobose berries.

Type: INDIA, Kerala, Kollam District, Achankovil, ± 250 m, 20 February 2015 G. Rajkumar, A. Nazarudeen & M. Alister, 84111 (Holotype: TBGT; Isotype: MH).

Shrubs, 0.75–2.5 m high, stem terete, lateral branches horizontal or slightly drooping, bark smooth, grey-brown. Leaves sub-verticillate, crowded towards tip, oblanceolate, 15–35 × 5–10 cm, coriaceous, often gland dotted, light brown on drying, entire, base decurrent, apex acute to acuminate, lateral veins 10–15 pairs, oblique, arching, mid rib prominent; petiole 0.5–1.5 cm long, glabrous, pinkish brown; bracts 1–1.4 × 0.3–0.4 cm, lanceolate, glabrous, revolute towards tip. Inflorescence paniced 12–24 cm long, pyramidal, terminal on lateral branches, lenticelled, glabrous, rosy pink; secondary peduncles 12–18, 1.5–4.5 cm long. Flowers 3–7 per sub-umbels, 1.3–1.5 cm across; 0.8–1.8 cm long, slightly thicker towards tip, lax; pedicels ca. 2 cm long, glabrous, lenticellate. Calyx lobes ca. 1.5 × 1 mm, broadly triangular, margin with glandular cilia, glabrous. Corolla lobes 0.5–0.7 × 0.3–0.4 cm, ovate, acute, glabrous, decurrent, rosy pink with orange yellow blotches, turns light blue on wilting with 8–9 veins, branched towards tip. Stamens 5, inserted on the throat 0.4–0.5 cm long; filament 0.1 cm, rosy pink; anther apiculate, basifixed, dehiscence longitudinal, light yellow with orange yellow blotches. Ovary ca. 0.2 cm diam., globose, glabrous; style 0.5–0.6 cm long, tapering, entire, tip slightly bending; ovules many on an axile placenta. Berry 0.8–1 cm diam., globose, glabrous, black on ripening; fruiting pedicel 1.8–2 cm long. Seed single, 0.6–0.7 cm diam., sub globose, vertically striate.

Flowering & Fruiting:- January – July.

Etymology:- The specific epithet – “*nayarii*” is named after Dr. M. P. Nayar, the eminent taxonomist, visionary and former Director of Botanical Survey of India, Kolkata for his immense and valuable contribution in the field of Botanical research.

Distribution:- Endemic to Achankovil forests, Kerala, Southern Western Ghats.

Habitat & Ecology:- Undergrowth in wet evergreen forests in association with *Orophea erythrocarpa* Bedd., *O. uniflora* Hook. f. & Thomson, *Mitrephora grandiflora* Bedd., *Nothopegia aureo-fulva* Bedd. ex Hook. f., *Saprosma corymbosum* (Bedd.) Bedd., *Casearia championii* Thwaites, *Antidesma montana* Blume, *Coscinium fenestratum* (Gaertn) Colebr., *Xanthophyllum arnottianum* Wight, *Pterygota alata* (Roxb.) R. Br., *Pterospermum rubiginosum* B.

Heyne ex G. Don, *Knema attenuata* (Wall. ex Hook. f. & Thomson) Warb., *Elaeocarpus tuberculatus* Roxb., *Harpullia arborea* (Blanco) Radlk., *Semecarpus auriculata* Bedd., *Cullenia exarillata* A. Robyns etc.

Conservation status:- The proposed species has so far located from only one locality in the Achankovil forests at \pm 250 m AMSL. About 50 individuals have been noted in 3 populations. As per the IUCN Red List Category Criteria (2014, 2016) the area of occupancy of the species is <5 sq.km. and hence the taxon is categorized here as “ CR (Critically Endangered)”.

Notes:- *A. paniculata* Roxb. has also been recorded from Tamil Nadu (Henry *et al.*, 1987) and Karnataka (Saldanha, 1984). The overall shape of the inflorescence of *A. nayarii* is pyramidal unlike the oval shape in *A. paniculata* Roxb. which is having rusty pubescent peduncles and pedicels but the proposed species is different from the above species in that the peduncles and pedicels are glabrous. Another important character noted with *A. nayarii* is regard to the gland dots. Only those leaves just adjacent to the panicles possess gland dots, that too even on the lower half.

Additional specimens examined:- INDIA, Kerala, Kollam District, Achankovil, \pm 280 m, 09 January 2015, G. Rajkumar, A. Nazarudeen & M. Alister 83778; *ibid* 07 February 2015, G. Rajkumar & A. Nazarudeen, 76554; 16 July 2015, G. Rajkumar & M. Alister 77247 (TBGT).

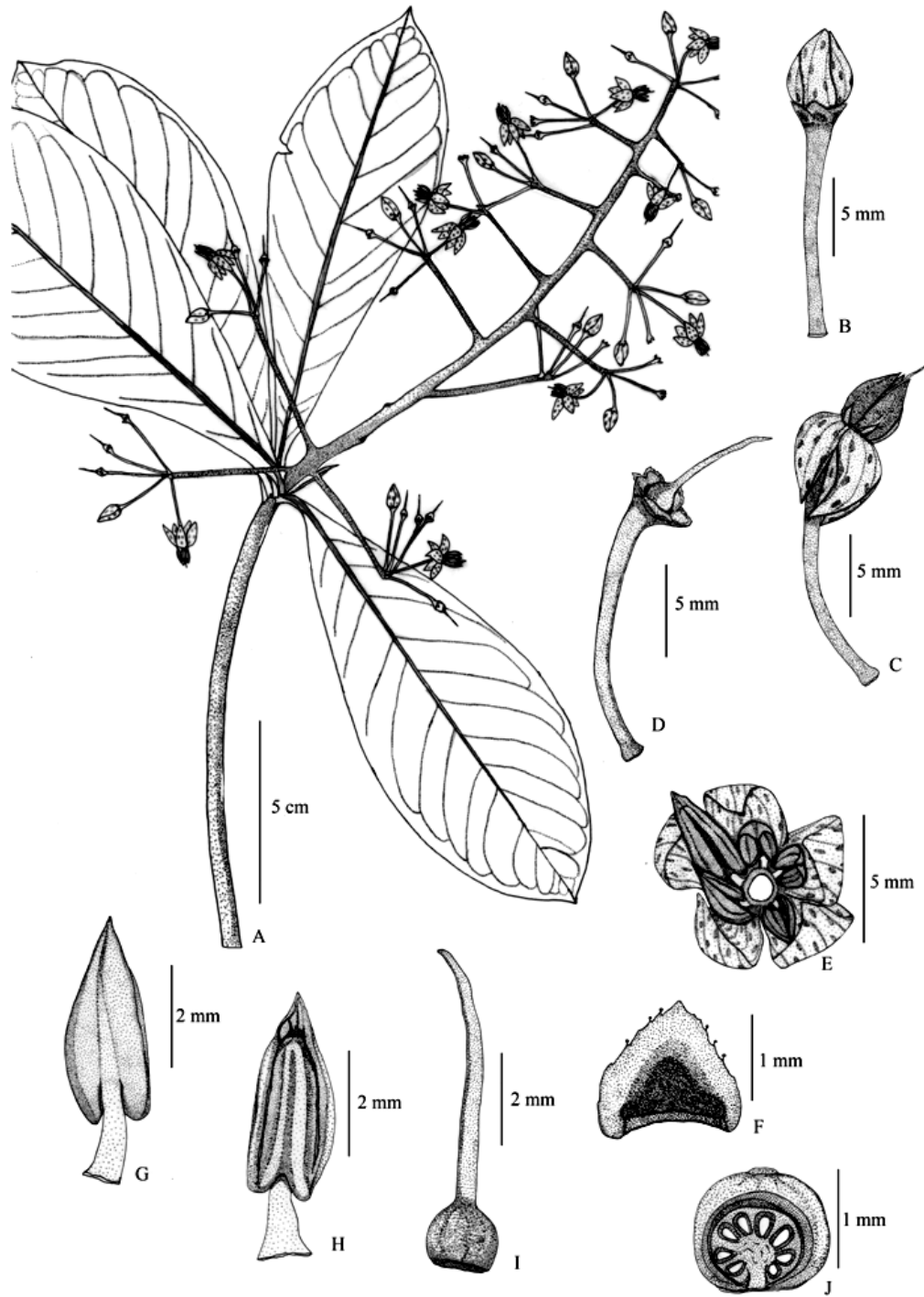


Figure 1. *Ardisia nayarii* G. Rajkumar, A. Nazarudeen, M. Alister *et* A. G. Pandurangan *sp. nov.* A. Habit; B. Flower bud; C. Flower; D. Flower with petals removed; E. Petals with anthers; F. Single calyx lobe; G. Stamen, dorsal side; H. Stamen, ventral side; I. Pistil; J. L. S. of ovary.



Figure 2. *Ardisia nayarii* G. Rajkumar, A. Nazarudeen, M. Alister *et* A. G. Pandurangan *sp. nov.* A. Habit showing panicles; B. Branch- A closer view; C. Young foliage; D. Single flower; E. Young fruits; F. Ripe fruits; G. Ripe fruits harvested; H. Seeds.

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