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RESEARCH ARTICLE

RUNGIA REMADEVIAE (ACANTHACEAE), A NEW SPECIES FROM THE WESTERN GHATS OF KERALA, INDIA

K.V. Jithin[1], M.S. Sanil[1], P.A. Jose[1], N.M. Binoy[1] and A Gin[2]

1. Department of Tree Physiology, Kerala Forest Research Institute, Peechi 680653, Thrissur, Kerala, India.
2. Post Graduation and Research Department for Botany, St. Peters College, Kolenchery 68231, Ernakulam, Kerala, India.

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Abstract

A new species, Rungia remadeviae is described from Idukki, Kerala, Western Ghats, India. The diagnostic characters of new species are discussed and comments were made on differences between the related species Rungia apiculata Bedd. and *Rungia linifolia* Nees. The new species differs from *Rungia apiculata* in their glabrous stem, long slender lax inflorescence, conspicuous bract, length of calyx and corolla, glabrous fruit etc. and from *Rungia linifolia* in their terete glabrous stem, petiolate leaf, shape of lamina, architecture of inflorescence, shape of fruit and seed.

Introduction:-

Family Acanthaceae belongs to the order Lamiales, consisting of 3175 species under 212 genera. The members are predominantly distributed in tropical and warmer parts of the world. The family is divided into 4 subfamilies, namely Nelsonioideae, Thunbergioideae, Acanthoideae and Avicinioideae (Mabberley, 2008). In India, the family is represented by 475 species under 47 genera. In Kerala, the family is represented by 203 species under 41 genera, of which 101 species are endemic to Western Ghats (Jithin and Jose, 2017). The genus Rungia was established by Nees von Esenbeck (1832). It is closely related to Justicia L. but differs mainly by the septa with attached retinacula separating from the inner wall of the ripe capsule (Hansen, 1989; Lin and Deng, 2017). The genus Rungia comprises about 50 species distributed throughout tropical and subtropical part of the Old World (Lin and Deng, 2017) of which Sasidharan (2013) enumerated 11 species from Kerala. As a part of population survey of the endemic and threatened plants of the Western Ghats, the authors came across and collected an interesting specimen of Rungia. On critical examination of the specimen using relevant literature (Anderson, 1867; Clarke, 1885; Remadevi and Binoj, 2009; Sasidharan, 2013), revealed that the specimen is new to science and can be treated as a new species.

Taxonomy:

Rungia remadeviae Jithin sp. nov. (Fig 1)

Corresponding Author:- K.V. Jithin
Address:- Department of Tree Physiology, Kerala Forest Research Institute, Peechi 680653, Thrissur, Kerala, India.

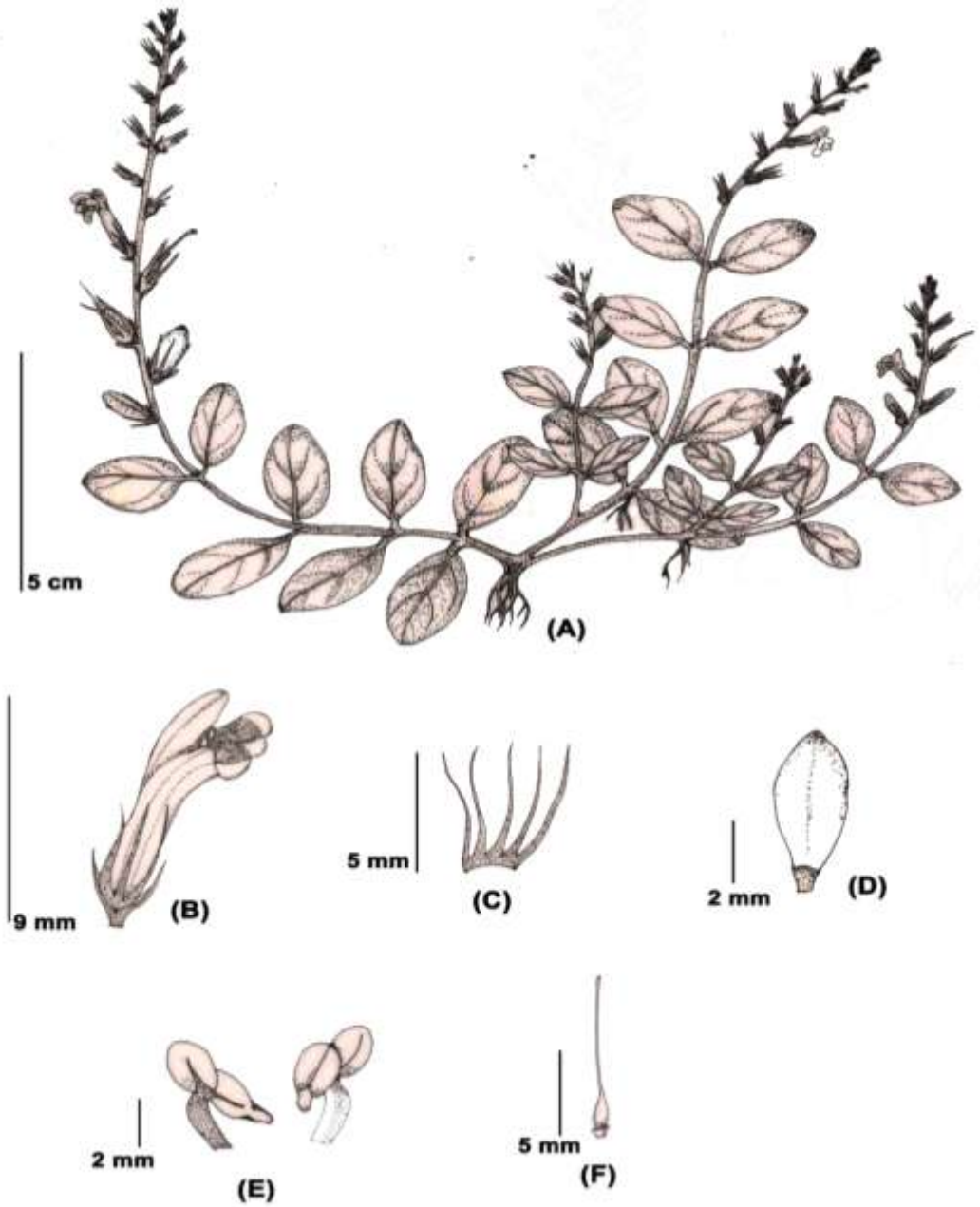

Figure 1:- Rungia remadeviae. A. habit; B. single flower; C. calyx; D. capsule; E. anther; F. gynoecium. (Jithin sp.nov. 29901 KFRI).

Type:
INDIA, Kerala, Idukki District, Kulamavu, 09° 48’ 43.04’’N, 76° 53’ 46.35”E, ±760 m, 24 March 2016, K.V. Jithin 29901 (holotype KFRI!; isotype MH!).

Diagnosis:
The new species *Rungia remadeviae* is closely related to *R. apiculata* Beddome (1868-1874: 247) and *R. Linifolia* Nees (1832. 110: 3) in its herbaceous suberect habit, slender inflorescence, flower colour and flower size. New species differs from *R. apiculata* on its glabrous stem, long lax inflorescence, conspecous glabrous or scabrid bract, globose ovary and glabrous capsule with acute apex. But in *R. apiculata* stem puberulous, short congested inflorescence, broadly ovate bract, pubescent or puberbous style, minutely bifid stigma and capsule with rounded or obtuse apex. *R. remadeviae* can easily distinguished from *R. linifolia* in their terete glabrous calyx, aimple stigma,

cylindrical capsule, globose seeds but in *R. linifolia* stem is quadrangular, puberulous, leaf sub sessile, pubescent calyx, bifid stigma, tetragonous capsule and rounded or orbicular seed (Table1).

Description:

Sub erect herbs, up to 10-15 cm high; usually form a small mat. Stem terete, green or green with red tinches, glabrous, sometimes sparsely puberulous or pubescent; internodes more than 5–8 cm long, nodes swollen, often produces roots from the nodes. Leaves, simple, opposite, estipulate, lamina dark green or green with violet shade above, 3–8 × 2–4.5 cm, elliptic to ovate, apex round or acute, base rounded, margin entire, lateral nerves 4–6 pairs, minutely hairy along the veins only at lower surface; petiole 1–2 cm long, glabrous to minutely hairy. Inflorescence spike, arise from the terminal or in the upper axils, rarely from the lower axils, simple or compound, slender, 8–15 × 0.3–0.8 cm long. Peduncle 1–4 cm; flowers 3–4 mm apart; sterile bract elliptic, 3 – 5 mm; floral fertile bracts in a single row, 2 × 1 mm, linear to triangular, minutely serrulate at margin, green, acuminate at apex, 1–2 nerved. Flowers subsessile, 1–2 mm long. Calyx 5- lobed, lobes 5–8 × 1 mm, linear, acuminate at apex, glabrous. Corolla 0.7-0.9 cm long, glabrous, liliac, prominent in lower lip, upper lip almost hyaline, tube 3–5 mm long, cylindric bilabiate, upper lips erect, 2-lobed, ovate-lanceolate, 2–3.5 × 2–3 mm, obtuse to sub-acute at apex; lower lip 3-lobed, lobes rounded 4–5 × 3–4 mm, obovate to elliptic, 3 lobs, with dark purple to violet spots or streaks inside. Stamens 2; filaments 2–4 mm long, glabrous; anther thecae offset, overlapping for half of their length, each theca 1.3–2 mm long, elliptic, yellow. Ovary 1 × 0.2–0.4 mm, globose, hirsute; ovules 4, style as long as corolla tube, slender, glabrous. Capsule cylindrical, 3–5 mm long, glabrous or sparsely hirsute; septa attached with retinacula seperating from inner wall of mature capsule; seeds 4, rounded, glabrous, 0.1–0.2 mm in diameter.

Etymology:

The specific epithet remadeviae is named after Prof. Dr.Remadevi, Former Head of the Botany Department, S.D. College, Alappuzha, Kerala for her valuable contribution to the Acanthaceae taxonomy of Kerala.

Distribution, habitat and phenology:

Rungia remadeviae grows in the crevices of wet rocks in evergreen forests at ±760m elevation. The species was first collected from Kulamavu, Idukki district, Kerala, India. The major associated species noted are *Gymnostachyum canescens* (Nees) Anders., *Pouzolzia zeylanica* (L.) Bennett, *Rhynchoglossum notonianum* (Wall.) Burtt, *Vernonia cinerea* (L.) Less. etc.

Flowering and fruiting:

November to March

Conservation status:

The species has so far only been collected from type locality Kulamavu forest, Idukki district. The extent of occurrence is estimated to be less than 10 km^2 Earlier the the population consists of around 100 individuals which are randomly distributed. But recent survey resulted 30 individuals. Land sliding and anthropogenic activity like preparation of fire line and road widening are found to be the major reason for the reduction of their population. Here individuals declined more than 50% within an year. So based on present knowledge and available data the species assessed as Critically Endangered. (CR B1ab(I,ii,iv): 2 ab(I,ii,iv)D: E) using IUCN Redlist categories and criteria (2018).

Table 1:- Distinguishing characters between Rungia remadeviae and its allied species.

Characters	*R. apiculata*	*R. linifolia*	*R. remadeviae*
Stem	puberulous	quadrangular, minutely pubescent	terete, glabrous
Petiole	4–10 mm long	subsessile	10–25 mm long
Lamina	linear–elliptic to lanceolate, attenuate at base	linear – elliptic to lanceolate, base tapering.	elliptic to ovate, rounded at base
Spike	Simple, 2–4 cm, floral internodes 1–1.5 mm through out	Simple, 0.5 – 4 cm, internode lenth unknown.similar to apiculata in type.	Simple or compound , 8–15 cm long, floral internodes 3–4 mm at base 1–2 mm at the top of the fully developed inflorescence

Bract	broadly ovate, 5–8 mm long	conspicuous, ovate to elliptic, 3.5 mm.	ovate, 2-4 mm long
Calyx	pubescent	pubescent	glabrous or scabrid
Ovary	elliptic, glabrous	shape unknown, pubescent	globose, hirsuit
Style	puberulous	glabrous	glabrous
Stigma	minutely bifid	bifid	simple
Fruit	5–8 mm, pubescent, rounded or obtuse at apex	2-3 mm, hirsuit, tetragonous,	3–5 mm glabrous or sparsely hirsute, minutely acute at the apex
Seed	rugose	orbicular to rounded	rugose

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