

Raphionacme chimanimaniana (Periplocaceae), a new species from Zimbabwe

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Accepted 14 March 1988

Raphionacme chimanimaniana Venter & Verhoeven, a new species from Zimbabwe is described. It is recognized by its erect stems, linear-lanceolate leaves which are hirsute and glandular, few-flowered inflorescences and magenta to white flowers. Plants inhabit scrubby veld at high altitude in the Chimanimani Mountains. *R. chimanimaniana* resembles *R. brownii* Scott Elliot and *R. pulchella* Venter & Verhoeven. All three species erect with linear leaves and white to purple flowers. *R. chimanimaniana* is distinguished from *R. brownii* and *R. pulchella* by the few-flowered inflorescences with large flowers, its columnar corona bases and glandular hirsute indumentum.

Raphionacme chimanimaniana Venter & Verhoeven, 'n spesie uit Zimbabwe, word beskryf. Dit kan aan die regop stingels, lynlansetvormige blare wat ruharig en klieryagtig is, die ylblommige bloeiwyses en die persrooi tot wit blomme uitgeken word. Dit groei in struikagtige veld hoog in die Chimanimani-gebergte. *R. chimanimaniana* toon ooreenkomstige met *R. brownii* Scott Elliot en *R. pulchella* Venter en Verhoeven. By al drie soorte dra die regop plante lynlansetvormige blare en wit tot pers blomme. *R. chimanimaniana* kan van *R. brownii* en *R. pulchella* deur die ylblommige bloeiwyses met groot blomme, kolomvormige bykroonbasisse en die klierryke, ruwe haarkleed onderskei word.

Keywords: Africa, Periplocaceae, *Raphionacme chimanimaniana* sp. nov., taxonomy

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Introduction

While studying the genus *Raphionacme* Harv. two unnamed collections were found in the herbaria of Harare (SRGH), Kew (K) and Pretoria (PRE). Both collections are from the Chimanimani Mountains in eastern Zimbabwe near the border with Mozambique. Although displaying characters in common with *R. brownii* Scott Elliot and *R. pulchella* Venter & Verhoeven, it is here described as a new species.

Description

Raphionacme chimanimaniana Venter & Verhoeven

Herba suffrutescens. *Caules aërii* erecti, dense hirsuti et glandulosi. *Folia* opposita, erecta, sessilia, linearia, 70–90 × 2–4 mm, hirsuta et glandulosa, apice attenuata, basi cuneata, margine integro. *Inflorescentia* cymosa, terminalis et axillaris, satis laxa, floribus 2–3; pedunculi et pedicelli dense hirsuti et glandulosi. *Sepala* 5, discreta, triangulata, dense hirsuta et glandulosa. *Corolla* 14–15 mm longa; tubus campanulatus, 3–4 mm longus; lobi 5, obovati vel ovati, 10–12 × 2,5–3 mm, rosei. *Corona* lobis 5, ex ostio tubi corollae exorientibus, filiformibus, 8–11 mm longis. *Stamina* 5, 6–7 mm longa; filamenta crassa, basibus coronae loborum connata pro columnis erectis 1,5 mm longis; antherae anguste triangulares; geruli pollinis spathulati. *Ovaria* 2, stylus teres, exsertus ex ostio tubi corollae; gynostegium late ovoideum vel late oblongo-ovoidium.

TYPUS. — Zimbabwe: Melssetter District, Chimanimani Mountains, Mavi 634 (SRGH, holotypus; K, isotypus).

Suffrutescent herb. *Aerial stems* erect, up to 70 × 2 mm, densely hirsute and glandular. *Leaves* opposite, erect, sessile with dentate interstipular ridges; blade linear-lanceolate, 70–90 × 2–4 mm, hirsute and glandular abaxially, sparsely hirsute with the midrib and margin hirsute abaxially, apex attenuate, base cuneate, margin entire, midrib prominent below. *Inflorescence* cymose with monochasial branches of 2–3 flowers, terminal and axillary, fairly lax; peduncles and pedicels densely hirsute and glandular, peduncles 4 mm long, pedicels 9 mm long; bracts subulate, 3 mm long, reddish. *Sepals* 5, free, triangular, densely hirsute and glandular. *Corolla* 14–15 mm long; tube campanulate, 3–4 mm long, hirsute; lobes 5, obovate to ovate, 10–12 × 2,5–3 mm, spreading, outer surface hirsute, magenta to white, apex acute. *Corona* of 5 simple lobes arising from mouth of corolla tube, basal 2 mm columnar, terminal 7–10 mm filiform and apically twisted. *Stamens* 5, 6–7 mm

long; filaments stout, 2–2,5 mm long, fused with columnar base of corona lobes for 1,5 mm; anthers narrowly triangular, 4–5 mm long, apex acute, free; pollen carriers spathulate, 3,5–4 mm long. *Ovaries* 2, semisuperior, 1 mm long; style terete, 6 mm long, exserted from corolla mouth; gynostegium broadly ovoid to broadly oblong ovoid with apex acute and simple or bilobed. *Follicles* and *seed* unknown. (Figure 1).

Pollen grains united as tetrads, with tetragonal (Figure 3) or rhomboidal arrangement (Figure 4). Size of tetrads from (70–)74(–77) × (66–)70(–76) μm (tetragonal) to (77–)83(–87) × (61–)66(–72) μm (rhomboidal). Single grains vary from (32–)36(–41) μm in diameter and 10 to 14 pores. Pores are round, oval or irregular and restricted to junction area of adjacent grains. Sometimes covered with a layer of exine material (Figure 5).

Distribution and ecology

Presently *R. chimanimaniana* is known from two collections only. Both are from the Chimanimani Mountains in eastern Zimbabwe (Figure 2). The species is a component of a vegetation type comprising shrubs, herbs and a sparse grass cover above the level of *Brachystegia tamarindoides* woodland covering the northern slopes of the Chimanimani Mountains. The substrate is granite or quartzite. *R. chimanimaniana* occurs as solitary plants, sparsely scattered but widespread on these mountain slopes.

Discussion

Schumann 1895 proposed four sections in *Raphionacme*. *R. chimanimaniana*, however, does not fit any of these. This species, *R. brownii* and *R. pulchella* are closely related and will constitute a new section in the forthcoming monograph of the genus.

R. chimanimaniana, *R. brownii* and *R. pulchella* have an erect habit with long linear-lanceolate leaves borne more upright than spreading, and have white to purple flowers. They differ in the following: *R. pulchella* has a pubescent indumentum, very small flowers (corolla 4,5–6 mm long) and tripartite corona lobes. *R. brownii* is scabrous and/or siliceous with medium-sized flowers (corolla 7–10 mm long) and simple corona lobes. *R. chimanimaniana* is hirsute and glandular with relatively large flowers (corolla

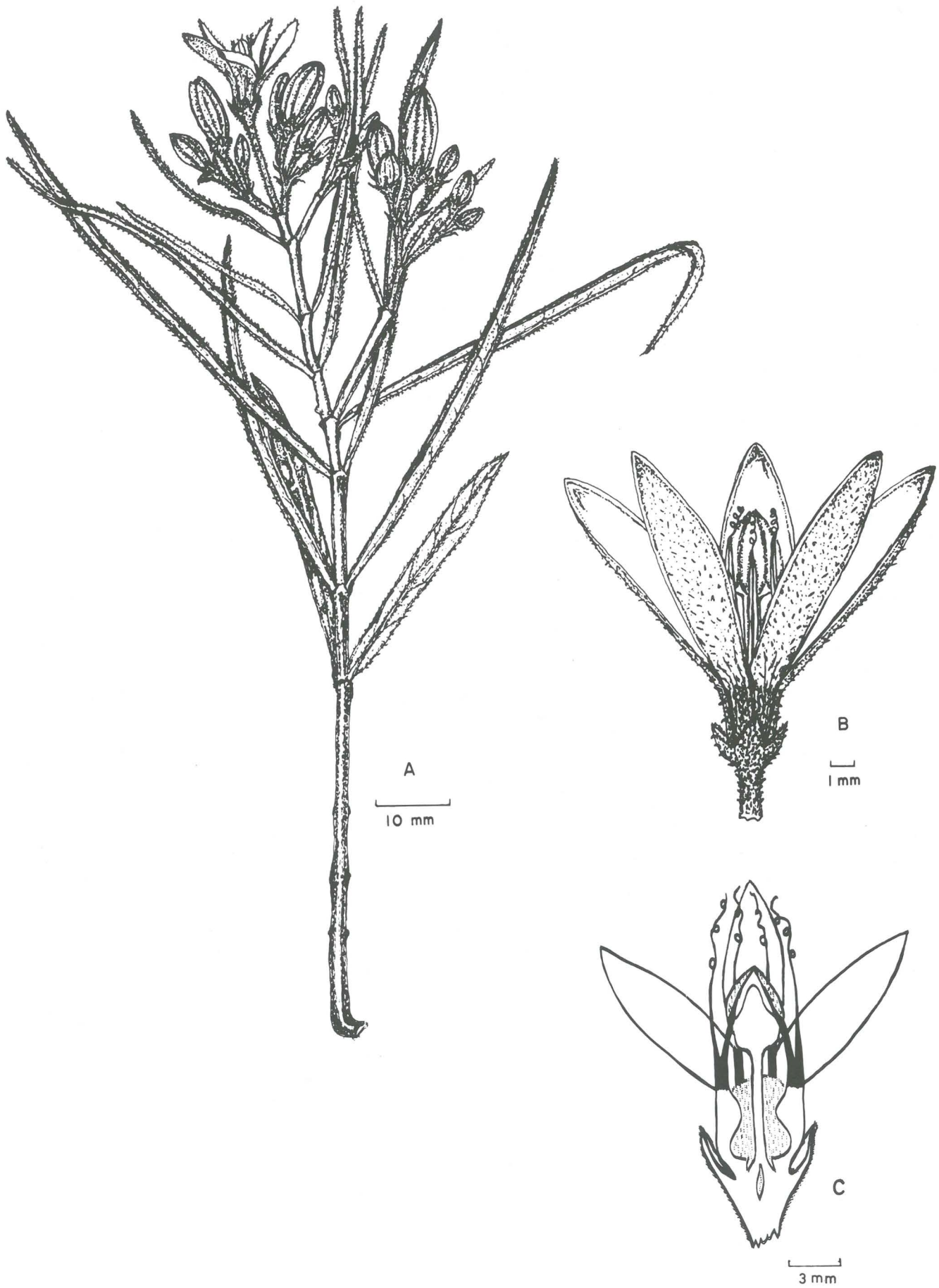


Figure 1 *Raphionacme chimanimaniana*. A. habit; B. flower; C. sectional view of flower. [A, B & C from Phipps 839 (K, SRGH)].

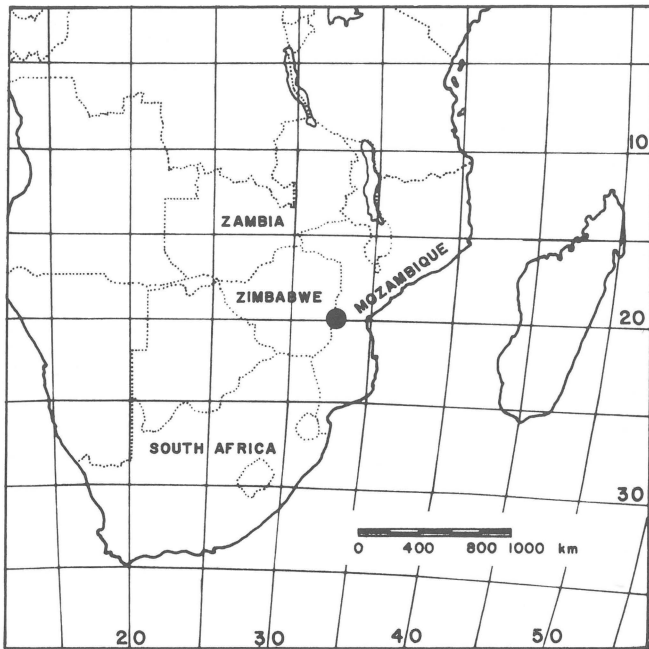


Figure 2 The known geographical distribution of *Raphionacme chimanimaniana*.

14–15 mm long) and simple corona lobes.

The underground parts, fruit and seed are unknown in *R. chimanimaniana*. All other *Raphionacme* species have a napiform root tuber with a perennial underground stem from which the aerial stems sprout annually. *R. brownii* to which *R. chimanimaniana* seems to be related, bears very narrowly ovoid, erect follicles. Similar structures may occur in *R. chimanimaniana*.

Specimens examined

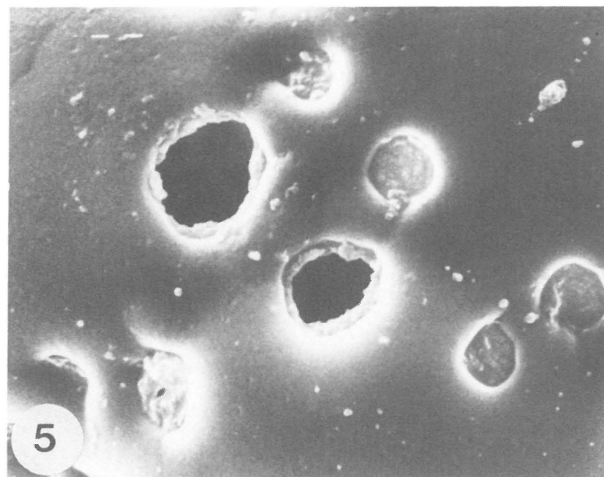
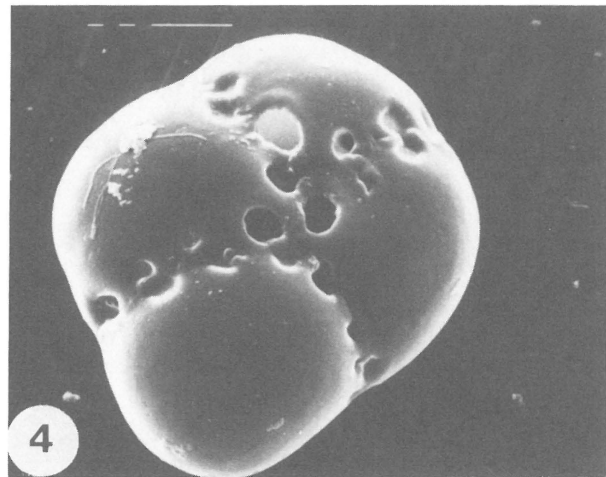
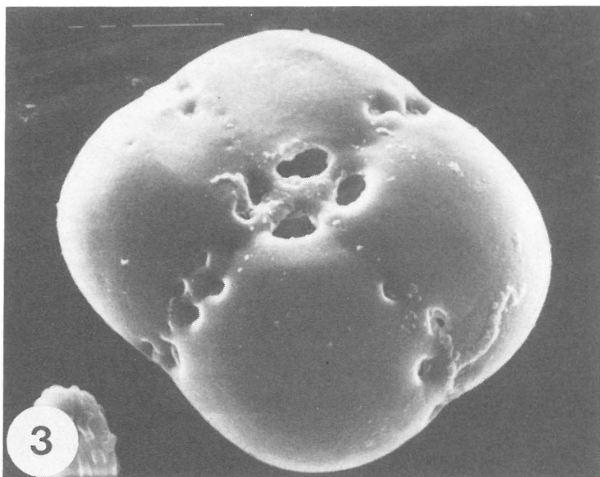
- 19°41'S 32°51'E: Zimbabwe, Melssetter District, Chimanimani Mountains, Musapa Gap, *Phipps* 839 (K, PRE, SRGH).
- 19°52'S 33°06'E: Zimbabwe, Melssetter District, Chimanimani Mountains, Chikukwa's Kraal, *Mavi* 634 (K, SRGH).

Acknowledgements

We thank the University of the Orange Free State and the Council for Scientific and Industrial Research for financial support and Mr Louis van Ryneveld, Department of Latin, University of the Orange Free State, for checking the Latin diagnosis.

Reference

- SCHUMANN, K. 1895. Asclepiadaceae. In: Die natürlichen Pflanzenfamilien, eds Engler, A. & Prantl, K. Vol. 4, pp. 220.



Figures 3–5 Scanning electron micrographs of pollen grain tetrads of *R. chimanimaniana* (*Phipps* 839). 3. Tetragonal tetrad. 4. Rhomboidal tetrad. 5. Detail of pores, some covered with exine material. Grains acetolyzed. Scale = 10 μm in Figures 3&4, and 1 μm in Figure 5.