A new species of *Raphionacme* (Periplocaceae) from Natal, South Africa

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Raphionacme palustris Venter & Verhoeven, a new species from Natal, is described. It is recognized by the dichotomously branched stems, oblong-ovate leaves, mauve flowers and the long erect, very narrowly obovoid, normally solitary follicles. *R. palustris* belongs to *Raphionacme* Harv. sect. *Raphionacme* and is related to *R. hirsuta* (E. Mey.) R.A. Dyer. It is distinguished from *R. hirsuta* by its erect growth form, narrowly ovate corona lobes and the follicles as described above.
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Raphionacme palustris Venter & Verhoeven, 'n nuwe spesie uit Natal, word beskryf. Dit is aan die vurksgewyse vertakking van die stingels, langwerpig-eiervormige blare, ligpers blomme en die lang, regop, baie smal omgekeerd-eierronde, normaalweg enkelstaande kokervrugte herkenbaar. *R. palustris* behoort aan *Raphionacme* Harv. seksie *Raphionacme* en is verwant aan *R. hirsuta* (E. Mey.) R.A. Dyer. Dit word van *R. hirsuta* deur die regop groeiwyse, smal ovaalvormige bykroonlobbe en die vrug soos bo beskryf, onderskei.
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Introduction

During their study of *Raphionacme* Harv. the authors came across two unfamiliar and unnamed specimens, *Abbott 888* (Umtamvuna Nature Reserve, southern Natal) and *Hilliard & Burtt 10142* (Karkloof Range, mid-Natal). Both specimens possessed extraordinary long, erect follicles, but no flowers. Living specimens were collected in both localities and these flowered in October 1984 proving these plants to be a new species. This new species belongs to *R.* sect. *Raphionacme* and is related to *R. hirsuta* (E. Mey.) R.A. Dyer. The main differences are: *R. hirsuta* has smaller spreading plants, *R. palustris* has larger erect plants. In *R. hirsuta* the corona, although variable in shape, is never slender, narrowly ovate and concave as in *R. palustris*. The most distinctive difference lies in the fruit. *R. hirsuta* has short stout ovoid follicles with spreading habit in contrast to *R. palustris* which has erect, long, very narrowly obovoid follicles. The follicles of *R. hirsuta* are paired or solitary while those of *R. palustris* are seldom not solitary.

Description

Raphionacme palustris *Venter & Verhoeven*, sp. nov.

Herba suffrutescens, glabra. *Caules* aerii erecti, dichotomi ramosi. *Folia* opposita, lamina oblonge ovata, margine integro. *Inflorescentia* dichasialis. *Sepala* 5, anguste triangulata. *Corolla* 11 – 14 mm longa, tubus campanulatus; lobi 5, obovati, violacei. *Corona* 5 – lobata, anguste ovata. *Stamina* 5, filamenta exorientia e basi coronae; antherae anguste angulatae ovatae. *Ovaria* 2; gynostegium quadrato-rhombicum. *Folliculi* solitari, erecti, angustissime obovoidei, 180 – 270 × 8 – 10 mm.

TYPUS.—Natal: Karkloof Range, Farm 'Bennie', *Venter 9005* (BLFU, holotypus; K, PRE, isotypi).

A suffrutescent glabrous herb with spherical or ovoid root tuber(s). *Underground stems* perennial, erect or forming part of the tuber crown. *Aerial stems* annual, erect, branching dichotomously or opposite, up to 0,5 m long and 5 mm wide, becoming violet with age. *Leaves* opposite with dentate interstipular ridges; petioles 2 – 10 mm long, violet; blades oblong-ovate, 50 – 60 × 20 – 30 mm, darker green above than below; veins translucent, midvein sunken above, prominent below, secondary veins divaricate, looping at the margin; margin entire, violet; apex obtuse-mucronate; base obtuse. *Inflorescence* a terminal or axillary dichasium, usually with 3 flowers; peduncles 10 – 20 mm long, violet; pedicels 5 – 10 mm long, violet; bracts opposite, very narrowly ovate, 3 mm long, violet. *Flowers* actinomorphic. *Sepals* 5, free, narrowly triangular,

Figure 1 *Raphionacme palustris*. A. Stem with follicles, X 2; B. habit, X 3; C. part of flower, X 3. (A. *Abbott 888* (NH); B & C. *Venter 9005* (BLFU)).

3 × 1 mm, brownish-violet. *Corolla* 11 – 14 mm long, tube campanulate, 3 – 4 mm long, outer surface pale greenish-violet, inner surface whitish violet with 5 green nectiferous spots at the bottom; lobes 5, spreading, obovate with obtuse apex, 8 – 10 × 5 mm, outer side pale greenish-violet, inner side violet, inner surface whitish-violet with 5 green nectiferous spots at the bottom; lobes 5, spreading, obovate with obtuse 1 – 2 mm, violet to white, apex bifurcate, base bilobed. *Stamens* 5, 3 – 4 mm long; filaments arise from the base of the inner face of the corona lobes, whitish-violet, arched towards the centre; anthers narrowly angular-ovate, 2 × 0,5 mm, pale lemon-yellow, apical appendages violet, narrowly rhomboid and connivent over the gynostegium; pollen carriers spatulate, brown. *Ovaries* 2, free, 1 – 2 mm long; style terete, 1 – 3 mm long; gynostegium quadrately rhomboid, 2 × 3 mm, pale violet. *Follicles* erect, normally solitary, very narrowly obovoid, with acuminate apices, 180 – 270 × 8 – 10 mm (Figures 1 and 2). *Seed* narrowly oblong, somewhat flattened, with base oblique and apex obtuse to acute, 8 – 10 × 3,4 mm, placental side ribbed along centre from top to bottom, pale brown, surface smooth, margin thickened; coma whitish tinged copper, 25 – 30 mm long; embryo straight.

Figure 2 *Raphionacme palustris*. (*Hilliard & Burtt 10142* (NU), collected in the same locality as the holotype).

Distribution and ecology

This species occurs scattered in Natal from the coastland to approximately 1 000 m above sea level (Figure 3). It inhabits swamps or wet grassland. Flowering occurs from September to October. Mature fruits are found in late summer.

Discussion

Raphionacme Harv. comprises 30 species which are all endemic to Africa. Ten species occur in southern Africa. Four sections are recognized (Schumann, 1895). *R. palustris* belongs to *R.* sect. *Raphionacme* which has eight species. This section inhabits southern and eastern Africa, but the main concentration of species occurs in the south.

R. palustris is the only species of the section to inhabit marshland. The others occur in grassveld or savanna which may be xeric or mesic. *R. palustris*, however, is not the sole hygrophytic member of the genus. In *R.* sect. *Pseudochironia* K. Schum. the species *R. bingeri* (A. Chev.) Lebrun & Stork and *R. excisa* Schltr., both from tropical Africa, may inhabit seasonally inundated savanna. *R. linearis* N.E. Br. of the same section is a marsh herb from Angola.

The solitary erect, very narrowly obovoid follicles is a special characteristic of *R. palustris*. The solitary condition is the normal situation in the species, but in one specimen, *Wood 1849* (NH), one flower gave rise to a pair of follicles, although solitary follicles developed from the other flowers of this specimen. The solitary condition results from the abortion of one follicle. Two normal ovaries are present in the flowers. Solitary follicles are not uncommon in *Raphionacme*, neither in the family. In most species of *Raphionacme* both conditions are present, but the paired condition is more common. In *R.* sect. *Pseudochironia* solitary follicles are characteristic of *R. bingeri*, *R. brownii* Scott Elliot, *R. excisa* and *R. splendens* Schltr., but paired follicles are encountered.

In *Raphionacme* the follicles are borne erect or more commonly spreading. *R. palustris* is the only member of

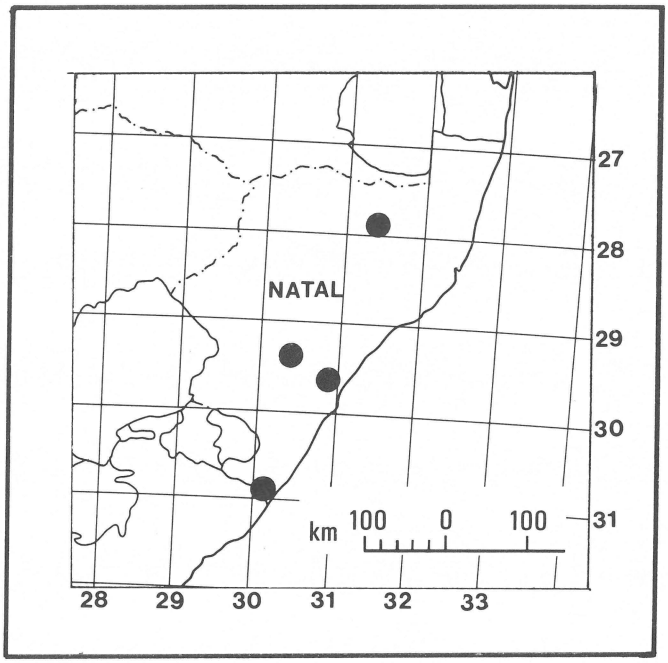

Figure 3 Distribution of *Raphionacme palustris*.

R. sect. *Raphionacme* with erect follicles. Erect follicles are typical of *R. bingeri*, *R. brownii*, *R. excisa* and *R. splendens* in *R.* sect. *Pseudochironia* and of *R. galpinii* Schltr. and *R. globosa* K. Schum. in *R.* sect. *Cephalacme* K. Schum.

The very narrowly obovoid shape of the follicles is found in *R. palustris* exclusively. In the other members of *Raphionacme* follicle shape ranges from stoutly ovoid to very narrowly ovoid. *R. palustris* also has the largest follicles in *Raphionacme*, ranging from 180 – 270 mm in length. In all other members of the genus, *R. galpinii* excluded, follicle length seldom exceeds 100 mm.

Although the erect follicles and habitat preference suggest that *R. palustris* belongs to *R.* sect. *Pseudochironia* all other characteristics of the plant place it in *R.* sect. *Raphionacme*.

The tuber encountered in *R. palustris* is present in all species of *Raphionacme*.

Representative specimens

—**2731** (Louwsburg): Ngome Forest Reserve, above Ngome Waterfall (– CD), *Gerstner 5164* (PRE).
—**2930** (Pietermaritzburg): Karkloof Range, Farm 'Bennie' (– AD), *Hilliard & Burtt 10142* (K, NU), *13486* (K, PRE), *Venter 9005* (BLFU, K, PRE); Inanda (– DB), *Wood 368* (K, NH).
—**3030** (Port Shepstone): Port Edward, Umtamvuna Nature Reserve (– CC), *Abbott 888* (NH, PRU), *Venter 9004* (BLFU, K, PRE); Mt. Enon, *Wood 1849* (K, NH), Natal, *Gerrard & McKen 1294* (K, NH).

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