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Notes on African plants

VARIOUS AUTHORS

CYPERACEAE

A NEW SPECIES OF *CARPHA* FROM THE NATAL DRAKENSBERG, SOUTH AFRICA

Carpha filifolia *Reid & Arnold,* sp. nov., *C. capitellatae* Boeck. affinis, sed culmis uni-nodis interdum sine nodis, vaginis foliorum fragilibus aureo-brunneis (veteribus nigris), laminis foliorum filiformibus teretibus, acheniis 4–5plo longioribus latitudine differt.

TYPE.—Natal, 2929 (Underberg): 'Storm Heights', Mpendhle District (–BC), *Hilliard & Burtt 11791* (PRE, holo.; E; NU).

Perennial herb, erect, tufted, glabrous, 400–600 mm tall. *Rhizome* abbreviated, c. 2–3 mm long, c. 2–3 mm diam., concealed by persistent leaf bases. *Roots* c. 1,5–2 mm diam., with a distinct outer layer of aerenchymatous tissue. *Culms* overtopping leaves, terete, c. 1 mm diam., single-noded (rarely nodeless), each node bearing a leaf-like bract 110–190 mm long. *Leaf* sheaths with bases shiny, dark brown, with raised nerves, usually turning black and splitting vertically with age; upper parts papery, golden brown, eventually opening and becoming flattened, apex auriculate to truncate, outer sheaths bladeless. *Leaf blades* spirally arranged, filiform, 0,5–0,75 mm diam., c. 280–330 mm long, terete with adaxial surface shallowly to deeply grooved, venation usually obvious, apex obtuse. *Inflorescence* a single terminal head, occasionally accompanied by 2–3-peduncled or sessile reduced partial inflorescences, each originating in the axil of a leaf-like bract. *Partial inflorescence* a compact, narrow panicle composed of 5–6 units, each consisting of 3–5 sessile or pedicelled spikelets and subtended by a bract. *Bracts* several, lowest 1½–3 times length of the panicle, leaf-like with slightly dilated bases, remaining bracts reduced in length and becoming glume-like towards the apex. *Spikelets* lanceolate, c. 8–10 mm long, composed of 4–5 spirally arranged glumes. *Glumes* lanceolate, c. 6 mm long, apex acute to acuminate, golden-brown, green-keeled when young. Lowest 2–3 glumes empty, the remainder subtending bisexual florets or the uppermost male or empty. *Style* excluding base c. 5 mm long, slender, brownish, the 3 papillate branches equalling the undivided portion in length. *Style base* cream-coloured, trigonous, scabrid, 0,9–1,4 mm long, persistent, forming a beak at the achene apex. *Stamens* 3, anthers linear, c 4–4,4 mm long, pale, mottled green, crest minute, white, pyramidal, with the crest height equalling its breadth at the base. *Bristles* 6, terete, white, slightly exceeding the achene in length, scabrid distally, setose basally, those adjacent to achene faces occasionally plumose. *Achene* trigonous, 4–5 × 1 mm, c. ⅔–¾ glume length, brown at maturity with ribs cream-coloured, beak and rib shoulders scabrid; surface with epidermal cells 5–6 sided, arranged in vertical rows.

This species is restricted to the sandstone and basalt formations of the upper Karoo System in the Drakensberg mountains, at altitudes between 1 800 and 2 800 m. It grows along streambanks and in marshy areas, where it is frequently the dominant species. Towards the end of the growing season its populations are easily identifiable by the characteristic yellow-green colour of the foliage. Flowering begins in November at lower altitudes and is later at higher altitudes. Mature fruits are present from December onwards and are dispersed by the subsequent breaking up of the spikelets. Figs 1–4.

TRANSVAAL.—2730 (Vryheid): 'Oshoek', Wakkerstroom district (–AD), *Devenish 1067, 1821* (PRE).

O.F.S.—2829 (Harrismith): Platberg (–AC), *Venter 7093,* (PRE; BLFU).

NATAL.—2929 (Underberg): path from Loteni Nature Reserve to Redi (–AD), *Hilliard & Burtt 16098,* (E; NU); 'Storm Heights' (–BC), *Hilliard & Burtt 11791* (E; NU; PRE); Highmoor Forest Reserve (–BC), *Killick & Vahrmeijer 3595* (PRE), *Hilliard &*

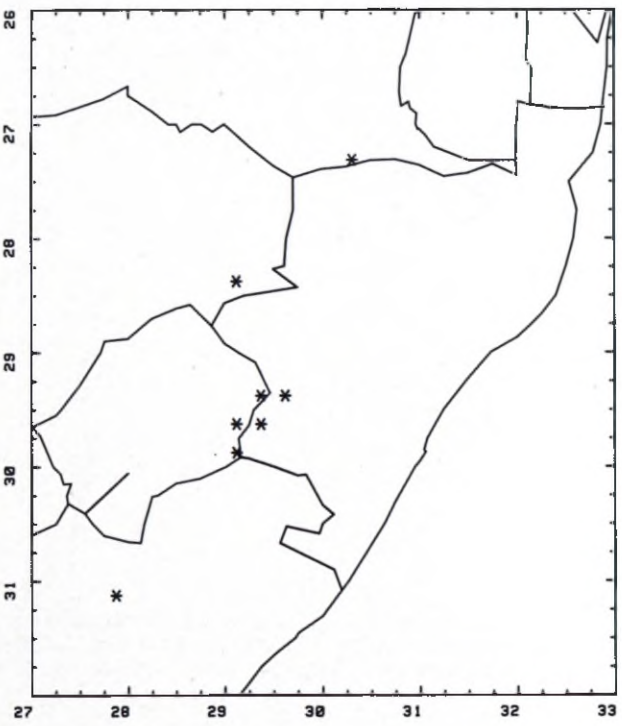

FIG. 1.—Distribution of *Carpha filifolia.*

FIG. 2.—1. *Carpha filifolia:* a, habit × 2/3; b, inflorescence × 2; c, lowest inflorescence bract × 3; d, glume × 3. e, achene × 15; f, style and branches × 20; g & h, bristles × 20. 2, anther crests of *Carpha* spp. (schematic representation): a, *C. filifolia;* b, *C. capitellata;* c, *C. bracteosa;* d, *C. glomerata;* e, *C. schlechteri* (all × 50).

Burtt 16258 (E; NU); Mlambonja Valley, Garden Castle Forest Reserve (−CA), *Hilliard & Burtt 14946* (E; NU; PRE); Sani Pass (−CB), *Hilliard & Burtt 9788* (E; NU; PRE); Cobham Forest Station (−CB), *Hilliard & Burtt* 12509 (E; NU; PRE), *16005, 16059* (E; NU); Garden Castle Forest Reserve, (−CB), *Hilliard & Burtt* 13462 (E; NU; PRE).

LESOTHO.—2929 (Underberg): Sehlabathebe National Park (−CC), *Hoener 2138* (PRE).

CAPE.—3127 (Lady Frere): Bastervoetpad, Elliot−Maclear district boundary (−BB), *Hilliard & Burtt 16677* (E; NU).

Previous workers in *Carpha* relied on gross morphological features to separate the taxa, neglecting spikelet characters. The present investigation has, however, highlighted the importance of these characters as a useful means of differentiating taxa. The most important spikelet characters are therefore discussed below for all five southern African members of the genus, together with vegetative characters and distribution patterns. This comparison provides an insight into affinities between taxa, as well as indicating possible evolutionary trends within the group.

The existing southern African species of *Carpha* have a more southerly distribution and a more robust habit than *C. filifolia. C. glomerata* (Thunb.) Nees, occurring at low altitudes from Piketberg in the western Cape Province, through the southern Cape to southern Natal, is the largest species in the genus. It grows to 3 m tall, has broad leaves up to 28 mm wide, culms with 1−2 sterile and 4−6 fertile nodes, and a large, many-branched complex inflorescence.

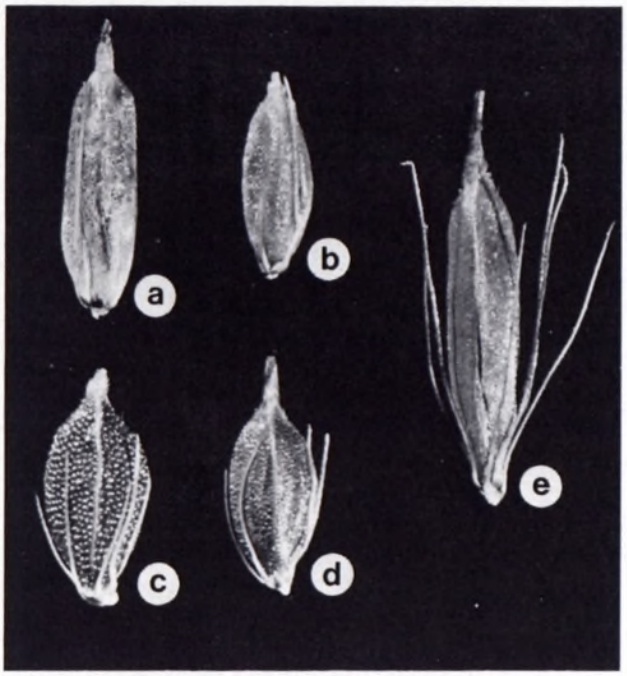

FIG. 4.—Achenes of *Carpha* spp.: a, *C. glomerata;* b, *C. schlechteri;* c, *C. capitellata;* d, *C. bracteosa;* e, *C. filifolia* (all × 9,5).

FIG. 3.—*Carpha filifolia* Reid & Arnold, *Hilliard & Burtt* 11791 (PRE, holotype).

Closely related to *C. glomerata* is *C. schlechteri* C.B.Cl. This species is confined to the Koue Bokkeveld mountains of the Ceres District in the south-western Cape. It is less robust than *C. glomerata,* reaching c. 1 m in height, with much narrower leaves (c. 5−8 mm wide) and a less complexly branched inflorescence. The number of sterile and fertile culm nodes is the same as in *C. glomerata.*

The remaining species, *C. capitellata* Boeck. and *C. bracteosa* C.B. Cl., have a similar distribution to *C. glomerata* although present records indicate that they do not occur in Transkei or Natal. They differ from the two previous species in being smaller (up to 600 mm in height), their leaf width ranges between 2−4 mm, the culms have 1−2 sterile and 2−4 fertile nodes, and the inflorescence is more reduced, comprising fewer branches with less complex partial inflorescences. These two species are closely related, differing mainly in *C. bracteosa* having large, papyraceous inflorescence bracts. In Flora of the Cape Peninsula, Levyns (1950) treated them as conspecific.

C. filifolia is slightly smaller in habit than these four species, reaching a height of 400−600 mm. The leaves are typically filiformous, showing an adaptation to high altitude montane conditions. The inflorescence has undergone the greatest degree of reduction, with the culm single-noded and supporting fewer, smaller partial inflorescences than either *C. capitellata* or *C. bracteosa.*

In *C. glomerata* and *C. schlechteri* the anther crests are characteristically linear-acuminate in

shape, being 2–2,5 times as long as broad at the base in *C. glomerata* and 3–4 times as long as broad at the base in *C. schlechteri*. The style bases in these two taxa are respectively glabrous or minutely scabrid.

In *C. capitellata* and *C. bracteosa* the anther crests are pyramidal to globular in shape with the crest length equal to or shorter than the width at the crest base. The style base in both species is distinctly more scabrid than in either *C. glomerata* or *C. schlechteri*. In *C. filifolia* the size and shape of the anther crests and scabrid nature of the style base are the same as described for *C. capitellata* and *C. bracteosa*. This suggests a much closer relationship with these two taxa than with *C. glomerata* or *C. schlechteri*. This affinity is further indicated by the amount of reduction undergone by the inflorescence coupled with the reduction in the number of culm nodes.

Despite its close affinity with these two taxa and especially with *C. capitellata*, *C. filifolia* has a number of characteristics that clearly set it apart from other southern African species: these include the tufted growth habit, filiformous leaves and single-noded culms which have already been discussed. Other distinctive features include the large achenes, these being 1,6–2 times longer than those of other taxa, in which the achenes are all similar in size, ranging between 2,3–2,6 mm in length. Associated with the large achene is a long style base which varies between 0,9–1,4 mm, compared with 0,4–0,7 mm in other taxa. Another unusual feature found only in this species, although not well-developed in all the specimens examined, is the occurrence of plumose bristles.

Apart from the southern African species, the only other *Carpha* species found in Africa is *C. eminii* (K. Schum.) C.B. Cl. A detailed comparison between *C. filifolia* and this species has not been carried out, nevertheless it is clear from existing descriptions that these two taxa are not conspecific. Two characteristics of *C. eminii* that distinguish it from *C. filifolia* are its broad, flattened leaves, and small achenes which are only ⅓ the length of the glumes.

Key to the southern African species

Plants rhizomatous; leaves dorsiventrally flattened, keeled, 2–28 mm wide; inflorescence axis many-noded (2–6 fertile, 1–2 sterile); achene length 2,3–2,6 mm:

- Plants of large stature, 0,8 to 3 m tall; fertile inflorescence nodes 4–6; anther crests linear-acuminate:
  - Leaves 15–28 mm wide, margins scabrid; spikelets 6–7 mm long ..... *C. glomerata*
  - Leaves 5–8 mm wide, margins entire; spikelets c. 3 mm long ..... *C. schlechteri*
- Plants of small stature, less than 0,6 m tall; fertile inflorescence nodes 2–4; anther crests pyramidal to globular:
  - Inflorescence bracts narrowly lanceolate, chartaceous; achene epidermal cells isodiametric, outer periclinal walls crateriform ..... *C. capitellata*
  - Inflorescence bracts broadly ovate, papyraceous; achene epidermal cells longitudinally elongated, outer periclinal walls ± planar ..... *C. bracteosa*

Plants tufted; leaves filiform, 0,5–0,75 mm diam.; inflorescence axis single-noded or nodeless; achene length 4–5 mm ..... *C. filifolia*

C. REID & T. H. ARNOLD*

* Both Botanical Research Institute, Department of Agriculture, Private Bag X101, Pretoria 0001.

LAMIACEAE

A NEW SPECIES OF *PLECTRANTHUS*

Plectranthus dolomiticus *Codd*, sp. nov., forma corollae *P. petiolaris* E. Mey. ex Benth. simile, sed caulibus tenuioribus decumbentibus, foliis et floribus parvioribus differt.

Herba perennis, semisucculenta, ramosa; caules decumbentes cinereo-tomentulosi, 100–150 mm longi. *Folia* petiolata; lamina semisucculenta, ovata vel late ovata, 20–30 × 18–30 mm, subglabra, apice rotundato, basi truncata, margine manifeste crenato; petiolus 15–30 mm longus. *Inflorescentia* terminalis, simplex vel interdum ramosa, 70–130 mm longa; rhachis minute puberula; bracteae ellipticae, 1,5 mm longae, persistentes. *Verticillastri* 10–25 mm distantes, 2–6-flori; pedicelli 4–5 mm longi, minute puberuli. *Calyx* campanulatus, demum 5–6 mm longus, subglaber; lobus posticus ovatus, erectus, 2 mm longus; lobus anticus subaequaliter 4-dentatus; dentes deltoideo-lanceolati, 1,5–2 mm longi. *Corolla* violacea, glabra, 9–10 mm longa; tubus aliquantum sigmoideus, basi 0,75 mm diam., ad fauce 2 mm diam.; labium posticum erectum, 2 mm longum, obscure 4-lobatum; labium anticum concavum, 2 mm longum. *Stamina* 4; filamenta 2 mm longa, libera. *Stylus* 2 mm fauce exsertus.

TYPE.—Transvaal, Farm Ostend, 7 km north-west of Penge Mine, 10 December 1982, *Van Jaarsveld* 7052 (PRE, holotype).

Perennial, semi-succulent, branched herb, about 100 mm tall and 300 mm across; stems decumbent, slender, greyish-tomentulose, 100–150 mm long. *Leaves* petiolate; blade semi-succulent, ovate to broadly ovate, 20–30 × 18–30 mm, subglabrous, apex rounded, base truncate, margin distinctly crenate; petiole 15–30 mm long. *Inflorescence* terminal, simple or sometimes branched, 70–130 mm long; rhachis minutely puberulous; bracts elliptical, 1,5 mm long, persistent. *Verticils* 2–6-flowered, 10–25 mm apart; flowers in 1–3-flowered sessile cymes; pedicels 4–5 mm long, minutely puberulous. *Calyx* campanulate, eventually 5–6 mm long, subglabrous; upper lip ovate, erect, 2 mm long; lower lip subequally 4-toothed; teeth lanceolate-deltoid, 1,5–2 mm long. *Corolla* violet-purple, glabrous, 9–10 mm long; tube somewhat sigmoid, 0,75 mm deep at the base, increasing about the middle to 2 mm deep at the throat; upper lip erect, 2 mm long, obscurely 4-lobed; lower lip concave, 2 mm long. *Stamens* 4; filaments 2 mm