Ficinia anysbergensis and F. esterhuyseniae (Cyperaceae), two new species from the Cape Floristic Region of South Africa

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Two new species of Ficinia Schrad. are described from the Cape Floristic Region in Western Cape Province of South Africa. Ficinia anysbergensis Muasya, restricted to mountains in the Little Karroo where it is fairly common on the Anysberg and scattered at a few other localities, is a tufted perennial with no obvious rhizome, a papery-white leaf sheath and ligule that becomes lacerated with age, and a digitate inflorescence comprising 5–7 spikelets. Ficinia esterhuyseniae Muasya, growing in crevices of sheltered rock faces at high altitude from the Cedarberg to the Langeberg mountains, is a tufted perennial with congested culms up to 100mm tall, an inflorescence of 2–7 digitate to subdigitate spikelets, and spherically-arranged glumes that increase in length from the base to the apex of the spikelets.

Introduction

The genus Ficinia Schrad. (Cyperaceae) comprises about 60 species (Goetghhebeur 1998). The majority grow in the Cape Floristic Region (CFR) of South Africa where they are an important element of the fynbos vegetation (Clarke 1898, Levyns 1950, Archer 2000). A few species grow in northern and eastern southern Africa and in the afroalpine areas in tropical central and eastern Africa (Haines and Lye 1983, Gordon-Gray 1995).

Ficinia are diagnosed by a combination of characters. They are perennial herbs, often with a papery leaf sheath and ligule, have bisexual flowers lacking perianth segments and the nutlet base often has a gynophore disk. However, a number of species lack the gynophore disk. This blurs generic boundaries between Ficinia and Isolepis, and the genus seriously needs taxonomic revision. For example, F. nodosa (Rottb.) Goetgh., Muasya and DA Simpson, previously placed in Isolepis due to the lack of a well-developed gynophore disk and a distribution in and beyond Africa, is now confirmed to belong to Ficinia, based on DNA data, but the position of several other species is still doubtful (Muasya et al. 2000 and 2001, Muasya and Simpson 2002). Systematic studies are in progress to revise the taxonomy of the genus, reconstruct phylogeny and evaluate character homology.

While doing fieldwork in the CFR in 2002, specimens that did not fit the description of any of the known species were collected. Other similar specimens were placed among unidentified material in herbaria and were not previously named. These have been recognised as two new species that are described below:
smaller nutlets (2.2–2.4mm long vs 3–3.2mm long). The two species were noted growing together. Phylogenetic studies of the plastid rps16 intron resolve this taxon into a clade including F. paradoxa (Schrad.) Nees and F. pinguior CB Clarke (Muasya et al. unpubl. data). Both species have a tufted habit, papery leaf sheaths and glume margins that are papery and lacerated.

Etymology

Named for the type locality.

Distribution, habitat and conservation status

Ficinia anysbergensis is a CFR endemic, restricted to Anysberg Mountain and a few other localities scattered in the Little Karroo. The habitat comprises rocky areas in fynbos at an altitude ranging from 600–1 200m. On the Anysberg Mountain, the species is very common on the southern slope between 800–1 200m, and is under no obvious threats as the habitat is in a nature conservation area. However, only a single individual was observed at Lemoenshoek at 600m, while little information is available on the Knysna and Rooiberg populations. This species is likely to occur in similar habitats within the Little Karroo and more field studies targeting these habitats are needed to establish the distribution of the species.

Material studied

—3320 (Montagu): Ladysmith district, Anysberg Mountain, (– DA), 14 December 2002, Muasya 2363 (BOL, EA, ETH, GENT, K, NBG, PRE, US); Swellendam district, Lemoenshoek, (– DD), 11 December 2002, Muasya 2352a (BOL, EA, K).
—3321 (Ladismith): Rooiberg (– CB), 24 May 1950, Esterhuysen 17193 (K).
—Without precise locality, Knysna district, Doering River area, 22 November 2002, Andrian s.n. (EA, K, PRE).

Ficinia esterhuyseniae: Muasya sp. nov., F. angustifolia (Schrad.) Levyns affinis sed plantis caespitosis, foliis culmis longionibus, spiculis teretibus (vs complanatis) differt.

TYPUS. — Western Cape: Piketberg district, Groot Winterhoek Wilderness Area, Muasya 2312 (BOL, holotypus; EA!, ETH!, GENT!, K!, NBG!, PRE!, US!, isotypi). Tufted to mat-forming perennial. Culm: 10–100mm tall, 0.2–0.5mm thick, but c. 0.8mm thick across the sheath, glabrous. Leaf-sheath: 5–35mm long, glabrous, brownish and not lacerated. Leaf blade: 20–80 x 0.2–0.5mm, canaliculate, glabrous or scabrid on margins. Involucral bracts: 2–3, leaf-like and erect, 12–38 x 0.4–0.5mm, margin glabrous. Inflorescences: 15–17mm long, digitate or subdigitate. Spikelets: 2–7, 4–15 x 1.1–1.7mm, terete, reddish to dark brown. Glumes: increasing in length from the base to the apex of the spikelet, 2.0–5.2 x 0.7–1.2mm, including a mucro 0.2–0.5mm long; margins entire. Style: trifid. Stamens: 3, anthers crested. Nutlet 1.6–1.9 x 0.6–0.8mm, reddish to brown, smooth; gynophore disk 0.6–0.7mm long, margins lobed (Figure 2).

Diagnostic features and affinities

Ficinia esterhuyseniae has morphological similarities to F. angustifolia (Schrad.) Levyns, which also grows in moist rock crevices. Both are slender plants with brownish leaf sheaths that are not lacerated, and inflorescences 15–17mm long. They differ in habit, with F. esterhuyseniae a more tufted and smaller plant with leaves longer and overtopping the culms, spikelets terete (vs flattened in F. angustifolia) and glumes 2.0–3.0(–5.2)mm long (vs 5.0–5.5mm long). Phylogenetic studies of the rps16 intron resolves the taxon in a polytomy that includes the F. angustifolia clade (Muasya et al. unpubl. data), and there is no obvious affinity to any of the known taxa.

Etymology

The specific epithet honours Miss Elsie Esterhuysen, a prolific plant collector whose material is key to understanding Ficinia.

Distribution, habitat and conservation status

Ficinia esterhuyseniae is endemic to the Western Cape, growing in crevices in sheltered overhanging rocks between...
19980–1 700m, distributed from the Swellendam to Clanwilliam districts. The suitable habitats are uncommon and populations at the type locality comprised less than 10 clumps of about 2cm diameter each. A search for other populations within the type locality revealed no other population. From the herbarium records the species appears to be widespread, but with the exception of the type and several other collections, the majority of the specimens were collected by Elsie Esterhuysen. Perhaps it is because of the specialised habitat and minute size that few botanical collectors have collected *F. esterhuyseniae*. There are no obvious threats to this species; however, little is known about the size of populations or its entire distribution.

**Material studied**

—3218 (Cape Town): Malmesbury district, Riebeek Kasteel, (– DD), 13 May 1956, Esterhuysen 25845 (K); Stellenbosch district, Simonsberg, (– DD), 31 May 1943, Esterhuysen 8806 (K, NBG); 11 March 1956, Esterhuysen 25455 (K); Jonkershoek Twins, near to Langkloof, (– DD), 23 October 1973, Esterhuysen 33276 (K).

—3319 (Worcester): Piketberg district, Groot Winterhoek Wilderness Area, (– AA), 26 November 2002, Muasya 2312 (BOL, EA, ETH, GENT, K, NBG, PRE, US); Tulbagh district, Groot Winterhoek, (– AA), 31 December 1951, Esterhuysen 19783 (K); Worcester district, Hex River Mts., E. of Milner peak, (– AD), 17 December 1948, Esterhuysen 14878 (NBG); Paarl district, Haalhoek Sneekouk, (– CA), 21 December 1952, Esterhuysen 20868 (K); Bains Kloof (– CA), 7 April 1956, Esterhuysen 25613 (K); Worcester district, Dutoits Kloof, Hex R. Mts., (– CA), 21 January 1949, Esterhuysen 15076 (K); Paarl district, New Year Peak, Hawequa Mts., (– CC), 19 May 1963, Esterhuysen 30192 (K); Ceres district, S. side of Castle Rock, (– CC), 5 December 1948, Esterhuysen 14701 (K); Worcester district, Keeromsberg, (– DA), 22 November 1956, Esterhuysen 26619 (K); Robertson district, Dassieshoek Peak, Langeberg, (– DB), 3 September 1961, Esterhuysen 29116 (K).

—3320 (Montagu): Swellendam district, ridge between Clocks and Goedgelooif Peaks, (– CD), 11 December 1973, Esterhuysen 33415 (K).

**Figure 2:** *Ficinia esterhuyseniae*: a) habit b) culm and inflorescence c) spikelet d) glume e) flower f) nutlet. All from Muasya 2312. Drawn by Margaret Tebbs.
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