

Oresbia, a new South African genus of the Asteraceae-Senecioneae

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Abstract

Oresbia heterocarpa Cron & B. Nord. (Asteraceae-Senecioneae) is described as a new genus and species from South Africa. Until now the species has been known as *Cineraria tomentosa* Less. although first described as *Senecio lanatus* L. fil. Both of these names are illegitimate. Characteristic features are the perennial habit with sessile entire leaves, which are densely tomentose below, and the heteromorphic cypselas with four-winged ray-floret cypselas. The closest affinities may be with *Phaneroglossa* B. Nord. and possibly also *Lamprocephalus* B. Nord. with similar distribution ranges in western Cape mountains.

Introduction

Ongoing revisionary studies on the genus *Cineraria* L. have revealed the heterogeneous nature of the genus as traditionally circumscribed, and several elements have to be removed in order to achieve monophyly (Cron et al. in press & MS.). Some species are probably best transferred to *Senecio* L., viz. *Cineraria hederifolia* Cron, *C. mitellifolia*

L'Hérit., *C. exilis* DC. and *C. microglossa* DC. Another two will be placed in a new genus *Bolandia* Cron, as *B. pedunculosa* (DC.) Cron and *B. argillacea* (Cron) Cron.

The present paper deals with yet another misplaced taxon, which is now described as a new monotypic genus.

***Oresbia heterocarpa* Cron & B. Nord., gen. et sp. nov.**

Type: Hutchinson & Pillans 576 (K holo!, BM, BOL, PRE iso!).

Syn.: *Senecio lanatus* Linn. f., Suppl. Pl. Syst. Veg.: 370 (1782), non *S. lanatus* Linn., Syst. Nat. ed. 10, 2: 1216 (1759) (= *S. populifolius* L. = *S. halimifolius* L.); nec *S.*

lanatus Scop., Fl. Carn. ed. 2, 2:165 (1772), nec *S. lanatus* (Kunth) DC., Prodr. 6: 422 (1838) (= *S. tomentolanatus* Govaerts 1999); *Cineraria tomentosa* Less., Syn. Gen.

Comp.: 390 (1832), non *C. tomentosa* Mill., Gard. Dict. ed. 8: n. 5 (1768) (= *Senecio canadensis* L.) --Type: South Africa, Cap. b. Spei, Thunberg 19593 (holotype, UPS!).

Illustr.: Figs. 1--3; Hutchinson 1946: 116.

Herba perennis erecta tomentosa vel araneosa. Folia alterna sessilia elliptica—ovata integra herbacea, supra araneosa et glabrescentia, subtus albotomentosa, margine denticulata vel serrata leviter revoluta, apice acuta, basi semiamplexicaulia. Pedunculi terminales mono- vel oligocephali subnudi sparse bractolati. Capitula heterogama radiata sparse calyculata. Involucri bracteae subuniseriatae lineari-lanceolatae venosae acuminatae. Receptaculum planum vel subconvexum laeve. Flosculi radii feminei glabri flavi. Cypselae heteromorphae, radii glabrae quadrialatae; pappi setae barbellatae caducae. Flosculi disci hermaphroditi, corolla flava quinquelobata; lobis ovatis apice subcucullatis papillois. Antherae basi sagittatae vel breviter caudatae, collum filamenti basi dilatatum. Styli rami intus areis stigmaticis separatis, apice truncati papillati. Cypselae disci exalatae, costis sex hirsutis. Pappi setae numerosae barbellatae albae caducae.

Perennial herb, to about 300 mm tall. *Stems* herbaceous, woody at the base, tuberous, unbranched or branching slightly near base, tomentose to cobwebby, glabrescent near base. *Leaves* alternate, narrowly obovate to elliptic or ovate, lamina 16 – 66 (– 80) × 4 – 23 (– 28) mm, thickly cobwebby to glabrescent above, densely white-tomentose below; apex acute; margin dentate to serrate, revolute; sessile, base clasping stem; auricles absent. *Capitula* heterogamous, radiate, occasionally solitary, usually in two's or three's (rarely as many as 11) per stem; peduncles 5 – 40 mm to point of branching, as long as 90 mm if unbranched, thickly cobwebby, subtended by lanceolate bract (10 – 23 mm long) with smaller leafy bracts along length, leaves become elliptic to oblanceolate and bract-like on main peduncle. Peduncles nearest capitula nude. *Receptacle* flat or slightly convex, glabrous. *Involucre* sparsely calyculate with 4—7 linear-

lanceolate calyculus bracts 2—4 mm long; phyllaries subuniseriate, 16 – 20, linear-lanceolate, acuminate, (5.5 –) 6.5 – 7.5 mm long, cobwebby to tomentose, glabrescent towards the apex, 1—3-veined, margins narrowly scarious. *Ray florets* 8 – 13, female, yellow, glabrous, 9 – 15 mm long; tube 2.5--3 mm long, cylindrical; limb oblong, 5 – 12 mm, 4 –veined, yellow. *Disc florets* 25 – 42, corolla tubular below, narrowly campanulate above, 5.0 – 6.2 mm long, yellow; corolla lobes ovate, 0.5—0.7 mm long, apically subcucullate and minutely papillate. Anthers basally sagittate or shortly caudate; apical appendage ovate, obtuse; endothecial tissue radial; filament collar distinctly balusterform. Style branches with separate stigmatic areas; apex truncate with short sweeping-hairs, outside glabrous. *Cypselas* heteromorphic: ray cypselas 4-winged, glabrous, brown to reddish-brown, 2.0 – 3.5 mm long; epicarpic cells rectangular, smooth with raised ridges; disc cypselas oblong/cylindrical with 6 ribs, not compressed or margined or winged, 1.5 – 2.2 mm long, with mucilaginous hairs on ribs; epicarpic cells with rounded ends, striate; carpopodium absent or obscure. *Pappus bristles* pluriseriate, 4—5 mm long, barbellate, white, caducous.

FLOWERING PERIOD. September to January, mainly in September and October, occasionally as early as August.

DISTRIBUTION. South Africa in the Western Cape, predominantly in the mountains around Franschhoek, Worcester, Paarl, Ceres and Clanwilliam (Fig. 2).

HABITAT. Grows in moist areas shaded by rocks or low shrubs, or at the edge of caves, on south-facing or south-eastern slopes or below cliffs, on ledges, on Table Mountain Sandstone and on shale bands, 800 – 1700 m (–2100 m on the Matroosberg).

CONSERVATION STATUS. Not common, possibly rare. Occurs at high altitude on mountains and hence probably not endangered.

NOTE: *Compton 13850* (NBG) has unusually large leaves (80 x 28 mm).

Collections examined: Type: South Africa, Cap B. Spei, *Thunberg 19593* (UPS-THUNB).

–**3218** (Clanwilliam): Eland's Kloof (–BD), *Esterhuysen 3284* (BOL).

–**3219** (Wuppertal): Cederberg, Sneeuberg (–CA), *Cron, Hodgkiss, Stander & Cocks 322* (J, S); Piketburg Divsion, Twenty-Four Rivers Mountains above Porterville (–CC), *Esterhuysen 16080* (BOL).

–**3318** (Cape Town): Malmesbury Division, Leliefontein (–BD), *Pillans 8828* (BOL); Paarl Division, Berg River Hoek (–DD), *Leighton 2047* (BOL); *ibidem*, *Compton 13850* (NBG); *ibidem*, *Compton 18319* (NBG); Swartboskloof (–DD), *Van der Merwe 22-36* (PRE); Jonkershoek (–DD), *Esterhuysen 35489* (BOL, S).

–**3319** (Worcester): Great Winterhoek, Tulbagh (–AA), *Thorne 51248* (SAM); Skurfteberg, near Grybouw, Ceres (–AB), *Bodkin 7550* (BOL, K, PRE); Ceres, Gydo Pass (–AB), *Compton 16224* (NBG); Worcester (–AB), *Ecklon* (cited by Harvey); Ceres, Eland's Kloof (–AC), *Esterhuysen 3284* (NBG); Tulbagh (–AC), *Zeyher s.n. sub*

SAM 16974; Waterkloof Gorge, W of Ceres (–AC), *Hutchinson & Pillans 576* (BM, BOL, K, PRE); Michell's Pass (–AD), *Schlechter 8940* (BM, K, PRE, WAG); Slab Peak, Michell's Pass (–AD), *Esterhuysen 6158* (BOL); *Compton 11956* (NBG); *Stokoe 57074* (SAM); Ceres (–AD), *Levy's 4658* (BOL); *Bolus s.n.* (BOL); Waaihoek Mt. (–AD), *Esterhuysen 8336* (BOL); Matroosberg (–BC), *Marloth 2260* (PRE); *Esterhuysen 14189* (BOL); *Bolus 3955* (BOL); Slanghoek Needle (CA), *Esterhuysen 17800* (BOL); Du Toit's Kloof (–CC), *Stokoe 63021* (SAM); *ibidem, Drège s.n.* (P); Drakensteinbergen (–CC), *Drège 1739* (G-DC, P, S, SAM 50222); Eland's Kloof, off Du Toit's Kloof (–CC), *Esterhuysen 15721* (BOL); Franschhoek Reserve (–CC), *Compton 5862* (BOL, NBG); *ibidem, Compton 4182* (NBG); Franschhoek Peak (–CC), *Stokoe 60489* (SAM); Paarl Division, Sebastian's Kloof (–CC), *Stokoe 7270* (BOL); Paarl Division, April Peak, Wemmershoek Mts. (–CC), *Esterhuysen 4128* (BOL); Louwshoek Mountain (–CD), *Stokoe 60490* (SAM); Saw Edge Peak (–DA), *Goldblatt 4369* (S).

–**3322** (Oudtshoorn): Swartberg Pass, Oudtshoorn (–AC), *Bolus 12022* (BM, BOL, K, P, PRE); Swartberg Pass, near Prince Albert (–AC), *Bolus 11557* (BOL, K, PRE).

–**3418** (Simonstown): Simonsberg (–AB), *Drège s.n.* (P).

–**3419** (Caledon): Caledon Division, Wildepaardeberg (–A/B?), *Stokoe 2750* (BOL); Genadendal, Caledon division (–BA), *Prior s.n.* (K).

sine loc. Drège s.n. (BM)

Discussion

This taxon is anomalous in *Cineraria* as pointed out by e.g. Harvey (1865), who placed it in a subgenus of its own, *Senecioides* Harv., distinct from his subgenus “*Eu-Cineraria*” by non-compressed glabrous winged cypselas, and sessile undivided leaves. Harvey adds, “quite unlike any other *Cineraria*”. We certainly agree, and our proposition is a new genus with a single species, which we name *Oresbia. heterocarpa* Cron & B. Nord.

The generic name is derived from the Greek adjective ‘*oresbius*’, meaning ‘mountain-dwelling’, and the specific epithet alludes to the heteromorphic cypselas.

The new genus is probably related to *Phaneroglossa* B. Nord., which is another monotypic genus from western Cape mountains (Nordenstam 1978: 66—70). This relationship is also supported by molecular evidence as discussed by Cron et al. (in press). The DNA data suggest relationships with either *Kleinia* or a clade with *Dendrosenecio* and *Phaneroglossa*. The former affinity seems unlikely for several and mainly morphological reasons. *Phaneroglossa bolusii* (Oliv.) B. Nord. is very likely a true relative although generically distinct. Like *Oresbia* it has heteromorphic cypselas, those of ray-florets being 5—6-winged and glabrous, and those of disc-florets exalate but ridged and pubescent. In *Phaneroglossa* the capitula are however white-rayed, ecalyculate and borne singly on long scapose peduncles.

Another possible relative is *Lamprocephalus* B. Nord., a monotypic genus with a similar distribution (Nordenstam 1976). *Lamprocephalus montanus* B. Nord. is clearly distinct from *Oresbia* in several important characters such as the discoid ecalyculate capitula, strangely appendaged style branches with a continuous stigmatic surface and homomorphic cypselas without wings or prominent ridges.

Acknowledgements

References

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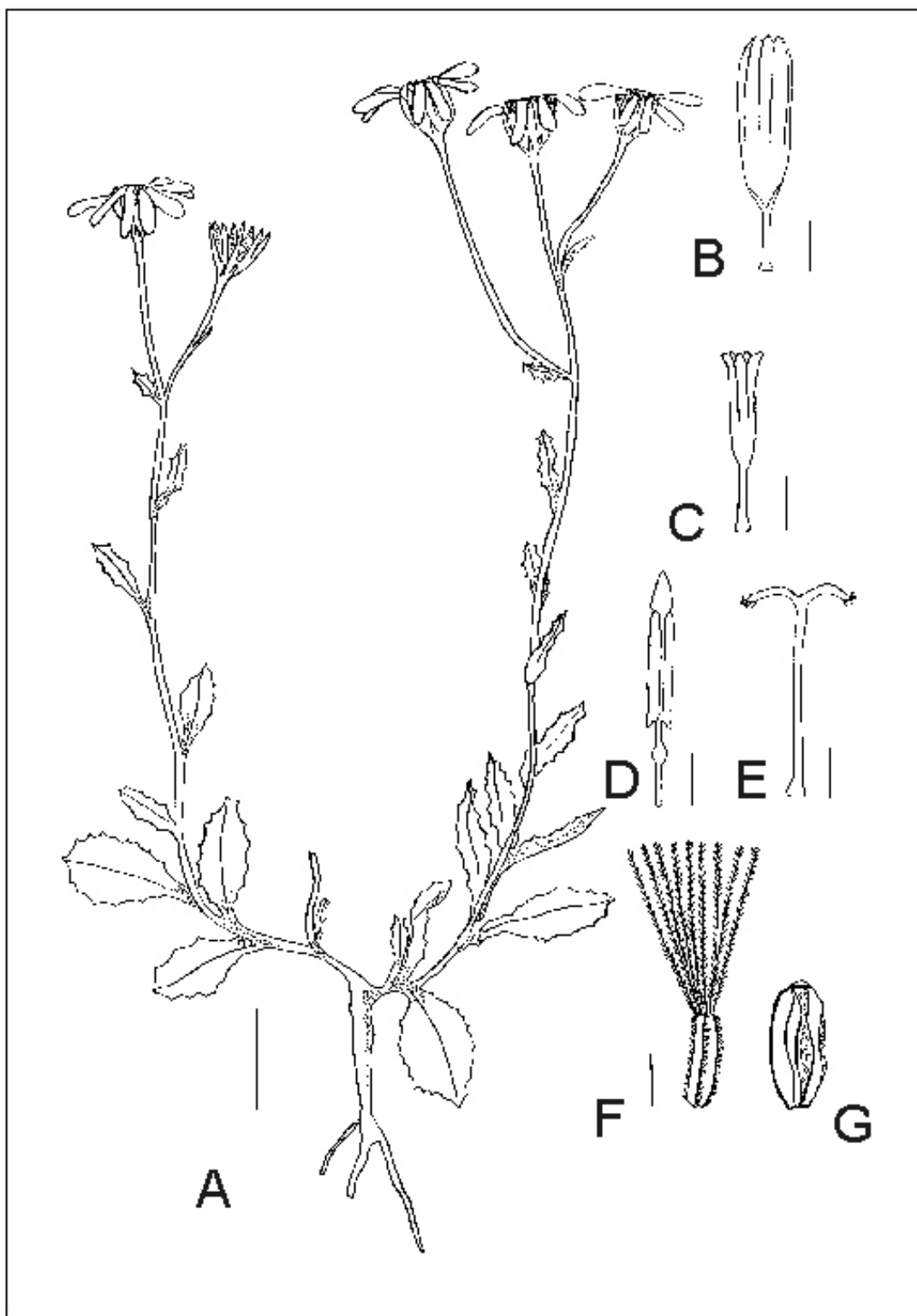


Figure 1: Features of *Oresbia heterocarpa*, [Cron, Hodgkiss, Stander & Cocks 322 (J)]: (a) Habit. Scale bar = 4.4 mm. (b) Four-winged ray cypsela. Scale bar = 250 μ m. (c) Leaves. Scale bar = 5 mm. (d) Disc cypsela - mucilaginous trichomes have been triggered by wetting. Scale bar = 350 μ m. (e) Ray floret tube and base of limb (lacks glandular hairs characteristic of *Cineraria*). Scale bar = 650 μ m. (f) Disc floret. Scale bar = 830 μ m.

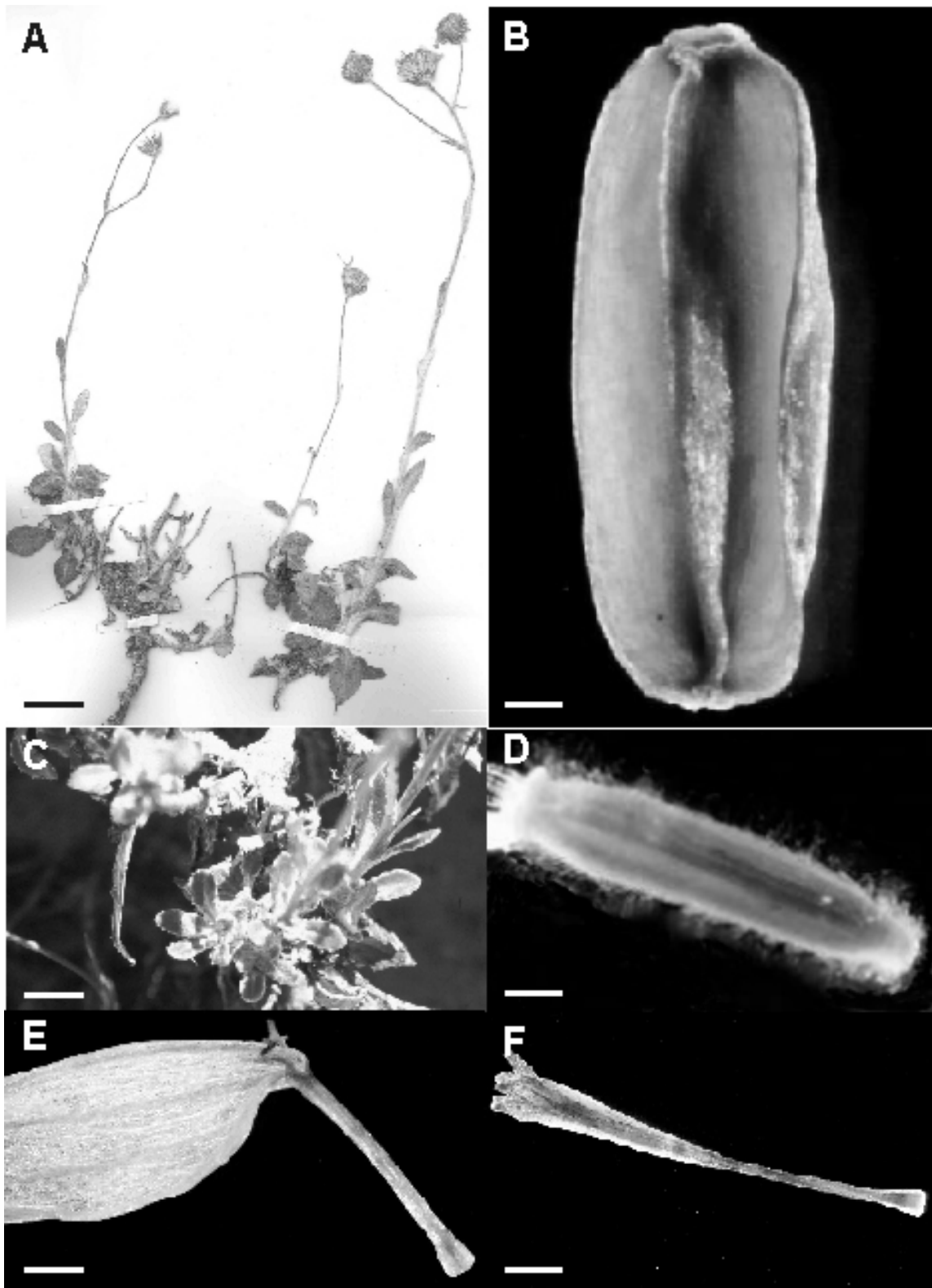


Figure 2: Light micrographs of florets of *Oresbia heterocarpa* [Cron *et al.* 322 (J)]: (a) Style apex. Scale bar = 50 μ m. (b) Disc floret dissected to show stamens and style. Scale bar = 280 μ m. (c) Balusterform filament collar and short anther "tails". Scale bar = 150 μ m. (d) Style base. Scale bar = 150 μ m. (e) Anthers with anther appendages. Scale bar = 150 μ m. (f) Endothecial thickening of radial (inner anticlinal) type. Scale bar = 50 μ m.

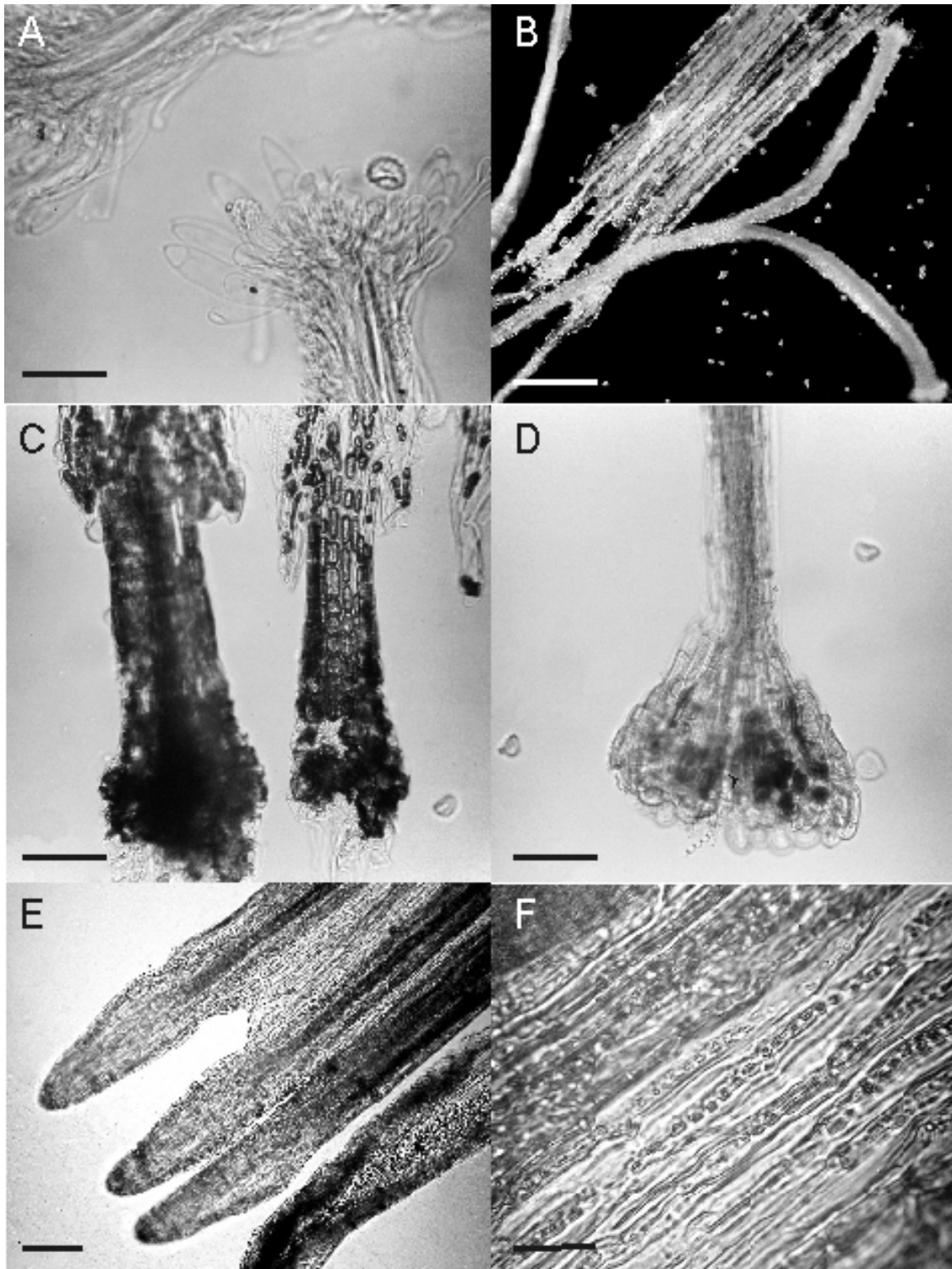


Figure 3: Scanning electron micrographs of cypselae of *Oresbia heterocarpa* [Cron *et al.* 322 (J)]: (a) Four-winged ray cypselum. Scale bar = 1 mm. (b) Epicarp surface of ray cypselum: smooth rectangular cells with raised walls. Scale bar = 10 μ m. (c) Disc cypselum. Scale bar = 100 μ m. (d) Ribs and trichomes of disc cypselum. Scale bar = 100 μ m. (e) Stylopodium end of disc cypselum. Scale bar = 10 μ m. (f) Base of disc cypselum (no carpopodium evident). Scale bar = 10 μ m. (g) Pappus bristles. Scale bar = 10 μ m. (h) Detail of epicarp surface of disc cypselum: striate elongate cells with rounded ends. Scale bar = 10 μ m.

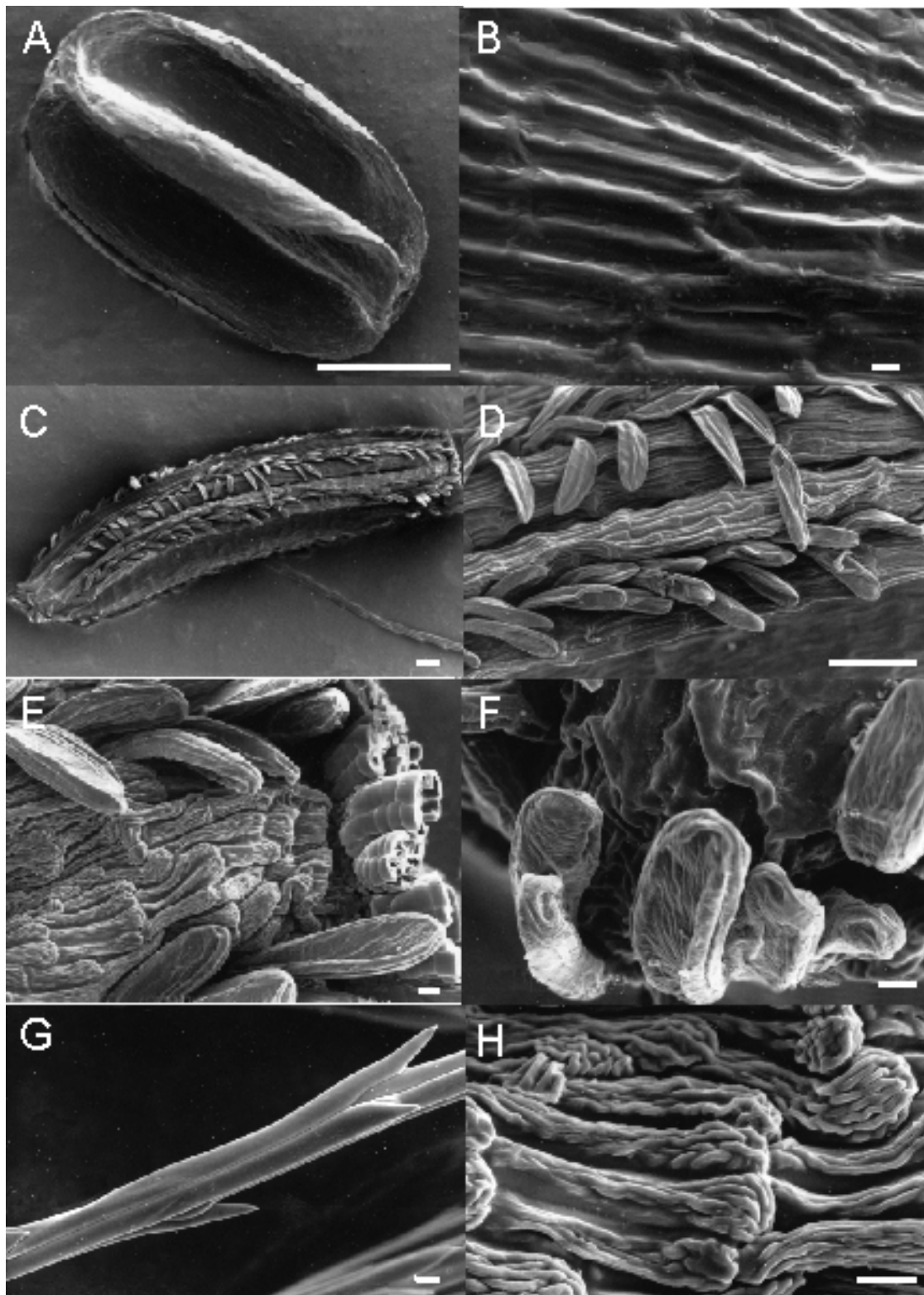


Figure 4. Scanning electron micrographs of cypselas of *Oresbia heterocarpa* Cron & B. Nord. – A. Four-winged ray cypselus. Scale bar = 1 mm. – B. Epicarp surface of ray cypselus: smooth rectangular cells with raised walls. Scale bar = 10 μ m. – C. Disc cypselus. Scale bar = 100 μ m. – D. Ribs and trichomes of disc cypselus. Scale bar = 100 μ m. – E. Stylopodium end of disc cypselus. Scale bar = 10 μ m. – F. Base of disc cypselus (no carpodium evident). Scale bar = 10 μ m. – G. Pappus bristles. Scale bar = 10 μ m. – H. Detail of epicarp surface of disc cypselus: striate elongate cells with rounded ends. Scale bar = 10 μ m. [Cron *et al.* 322 (J)].

