

ERECHTHITOID TAXA OF SENEPIO (COMPOSITAE) IN NEW GUINEA AND INDONESIA

ROBERT O. BELCHER

Department of Biology, Eastern Michigan University, Ypsilanti – MI 48197. U.S.A.

SUMMARY

A new species of erechthitoid *Senecio* is described, *Senecio brassii* Belcher, and a key to the four species of erechthitoid *Senecio* recognised in the East Indies is given.

Late in the preparation of my revision of *Erechthites* (Belcher, Ann. Mo. Bot. Gard. 43, 1954: 1–85) I encountered a single anomalous specimen from New Guinea, *Brass 4343* (NY). It had been identified in 1937 as *Erechthites arguta* (A. Rich.) DC. by Mattfeld, a species which he had earlier listed in the Compositae of Papua (*Bot. Jahrb.* 65, 1929: 441–443, 500) and to which he assigned *Keysser 40*. This specimen, from 'Nordöstl. Neu-Guinea: Sarawaged-Gebirge, 3600–4000 m. ü. M.', was apparently destroyed in the burning of the Berlin Herbarium, and I have not located any duplicate of it. Although *Brass 4343* did superficially resemble *Senecio glomeratus* Desf. ex Poir. (to which I reduced *E. arguta*), I regarded it as distinct and undiagnosed. I hesitated to describe it, however, without examining additional material.

During a sabbatical in Australasia in 1967–68 I eventually recognized a number of herbarium specimens as belonging to this taxon. I prepared a description in 1968, and began to refer to it as *Senecio brassii* in correspondence. At about this time I received a packet of achenes from R. J. Jones with a cover letter reading (in part): 'Please find enclosed the seeds of *Senecio brassii* which you requested from Pinaunde A.N.U. field station in a letter 5-6-68'.

These achenes I successfully germinated, but I failed to obtain from them a dependable chromosome count. I then put the material aside in the hope of eventually getting better results, which I never have. Now that Dr. van Royen is about to publish the Asteraceae, including *S. brassii*, in volume 4 of his *Alpine Flora of New Guinea*, I belatedly offer the following description to validate this manuscript name.

Senecio brassii Belcher, sp. nov.

Erechthites arguta auct. non *Senecio arguta* A. Rich. 1832: Mattf., 1929.

Caudex perennis; caules herbacei erecti, ad 40–150 cm alti, ramulum sterilem e omni vel fere omni axilla folii medii vel superi emitentes, glabri vel sparse arachnoidei, partes juveniles dense arachnoidei. Folia alterna sessilia late amplexicaulis cum auriculis grosse dentatis, subpetiolata supra bases, paginae superiore glabrae vel scaberulae inferiore glabrae vel sparse arachnoideae; folia media anguste obovata vel late lanceolata, grosse dentata vel distincte lobata, lobi dentato;

folia superne anguste triangularis, denticulata vel subintegra, apiculata. *Inflorescentia* corymbosa ramosa; bracteae triangulares late amplexicaules longe acuminatae; bracteolae pedicelli 2–4, triangulares longe acuminatae sparse lanatae, bracteolae receptaculi 4–7, similares, parum angustiores basi. Capitula heterogama, (4–) 5–6 mm longa; flosculi marginales filiformes pistillati vel staminodia exilia anantheros habentes; flosculi perfecti infundibulares. *Achenia* 2–2½ mm longa, straminea vel ferruginea, sulcata; trichomata brevia, appressa, unifaris vel bifariis in quoque sulcata, caduca.

Crescit in graminosis alpinis neoguineensis.

Type s: legit L. J. Brass in Papuano in Monte Alberto Edwardis, altitudine 3680 m. (Brass 4343, 26 Jun. 1933, NY, iso BO).

Species nova differt a *S. papuano* (Lauterb.) Belcher foliis proportione angustioribus et late amplexicaulis, capitulis brevioribus, et acheniis multo brevioribus. Species nova *S. glomerato* Desf. ex Poir. maxime similis sed differt numero combinato flosculorum 4-fidorum et 5-fidorum duplo ampliore quam flosculorum 2-fidorum et 3-fidorum ad invicem subaequali vel duplo pauciori, acheniis parum longioribus et manifeste porcatoribus, trichomatibus acheniorum unifariis vel bifariis in quoque sulcata ad invicem multifariis.

Rootstock perennial (but flowering from first-year seedlings; root system fibrous). Stems erect, from 40 to 150 cm tall, bearing short sterile branches from the axil of every or nearly every medial and upper leaf, glabrate or sparsely arachnoid, the younger parts densely arachnoid to lanate. Leaves alternate, sessile, broadly amplexicaul with coarsely toothed auricles, subpetiolate above the base, the upper surface of the blades glabrous or minutely scabrid, the lower glabrate to hispidulous or sparsely arachnoid; medial leaves narrowly obovate or broadly lanceolate, coarsely toothed or distinctly lobate and the lobes toothed; upper leaves narrowly triangular, denticulate or subentire, the tip with a short spiny apical tooth often giving the pressed leaf a hooked appearance. Inflorescence much branched, corymbose; bracts triangular, broadly amplexicaul, long-acuminata; pedicellary bracteoles 2–4, triangular, long-acuminata, sparsely lanatae; receptacular bracteoles 4–7, similar, a little narrower at the base. Capitula heterogamous, (4–) 5–6 mm long; marginal florets filiform, pistillate or with one or more slender staminodal filaments without anther tissue; disc florets perfect, infundibuliform. Achenes 2–2½ mm long at maturity, straw colored to light rusty brown, grooved; trichomes short in one or two rows in each narrow groove, caducous.

Distribution: West Irian: Mt. Wilhelmina; Papua New Guinea: Central Division, N., E. and S. Highlands Districts.

EcoLOGY: Alpine grasslands, often boggy or peaty, on piles of rocky debris, along roadsides, in tree-fern savanna and fire-induced meadows, 2640–3680 m alt.

Collections examined: ANU 2144 – v. Balgooy 109 – Borgmann 25 – Brass 4343, 9393, 9552, 29814 – Brass & Meijer Drees 9719, 10241 – Clemens 5681, 9572 – Hartley 11143 – Hoogland 9726, 9914, 10001 – Hoogland & Pullen 5649 – Hoogland & Schodde 7160, 7458 – NGF 8875, 15292, 40257 – Philipson 3446 – Robbins 229 – v. Royen 15183 – Schodde 1831, 1963, 1976 – Weber & McVean 13932.

This new species is readily distinguished from *S. papuanus* (Lauterb.) Belcher, the only other erechthiid species known from New Guinea, by its proportionately more narrow and broadly amplexicaul leaf, its shorter capitulum, and achene shorter by 1–2 mm. In the field, according to Dr. van Royen (personal communication), *S. brassii* is consistently distinguishable from *S. papuanus* by the purplish color of the phyllaries of the former.

S. brassii most closely resembles the Australian *S. glomeratus*, as which it has indeed heretofore been identified, but it can be distinguished by careful analysis of the capitulum and achene. In *S. brassii* the combined total of 4-fid and 5-fid florets is generally twice or more as many as the number of 2-fid and 3-fid florets combined, whereas in *S. glomeratus* this total of 4-fid and 5-fid florets is about the same as or half as many as the number of 2-fid and 3-fid florets combined. The slightly longer achene of *S. brassii* is more strongly ridged, the ridges continuing further into the basal and apical transverse rings, and the trichomes are in only one or two rows in each groove rather than in several rows as in *S. glomeratus*, and are more commonly shed at maturity. In addition, the inflorescences of the new species are much less congested and less woolly than is the case with the Australian species, which is in fact not known from New Guinea.

Specimens of this new taxon exhibit unusual variability in the details of its capitula. Most heads have 13–14 phyllaries, but two specimens were seen with 20–21 (the number of vascular traces in the involucre, however, is rather consistently around the mode of 21). Collections from higher elevations usually have larger heads, few or no 2-fid or 3-fid florets, and many polliniferous florets. Specimens from somewhat lower elevations tend to have smaller capitula with 2-fid, 3-fid, and 4-fid pistillate florets and fewer 4-fid and 5-fid polliniferous florets. These clusters of characteristics, as seen in the specimens assembled in Australia, were the basis for my original intention to describe two subspecies.

I was puzzled, however, by the fact that the more robust specimens were from the higher elevations, rather than from lower down as one would usually expect. This apparent anomaly was resolved by Dr. Hoogland at Canberra when he recalled that his specimens with the more alpine facies were actually collected from frost-inversion meadows at the lower elevations where air drainage was blocked. The more robust specimens were found on higher slopes with better air drainage, associated with a tree fern and tussock grass association. In both habitats the species behaves ecologically as does the majority of the other Australasian species of erechhitoid *Senecio*; namely, occupying areas subjected to disturbance by fire. In this case the burning is not associated with agriculture or with forestry, but with hunting.

As I have reviewed the further suite of specimens loaned to me from Leiden, I have come to realize that my two supposed subspecies are united by far too many intermediate individuals to permit their formal separation. Any determinations by me at the sub-specific level which may be found among sheets which I have previously annotated are therefore to be disregarded.

I now recognize four species of erechhitoid *Senecio* as occurring in the East Indies: *S. brassii* and *S. papuanus* in the Alps of New Guinea, *S. pyrophilus* Zoll. & Mor. ex Zoll. at higher elevations in Java and Timor, and *S. lombokensis* Koster on Lombok. These four taxa may be identified by the following key:

- 1a. Leaves linear-lanceolate, arachnoid; phyllaries 16 or more, 7–8 mm long, often arachnoid on both outer and inner faces; achenes 4 mm long, attenuate *S. pyrophilus*
- b. Leaves wider; phyllaries 11–14 (to 21), pubescent on only the outer face or glabrate; achenes shorter, plumper. 2
- 2a. Leaves deeply lobed, lobes linear; phyllaries 5 mm long; achenes 2.5 mm long, subrostrate *S. lombokensis*

- b. Leaves subentire, coarsely toothed, or shallowly lobed 3
- 3a. Leaves oblong, slenderly auriculate, about 3 times as long as wide, sinuate-dentate with 3–5 teeth on either side; phyllaries 11–13, 7–8 mm long; achenes 3–3.5 mm long *S. papuanus*
- b. Leaves narrowly obovate or lanceolate, broadly amplexicaul, coarsely toothed or lobate with toothed lobes; phyllaries 13–14 (to 21 in some robust specimens), 4–6 mm long; achenes 2–2.5 mm long. *S. brassii*.