

***Crassothonna* B. NORD., a new African genus of succulent Compositae-Senecioneae**

BERTIL NORDENSTAM

Department of Phanerogamic Botany, Swedish Museum of Natural History
P. O. Box 50007, SE-10405 Stockholm, Sweden
bertil.nordenstam@nrm.se

Abstract

The new genus *Crassothonna* B. NORD. is described with 13 species transferred from the large and polymorphic genus *Othonna* L. *Crassothonna* species are perennial herbs, shrublets or shrubs with terete succulent leaves. The genus is mainly South African with a centre in Little Namaqualand and adjacent parts of the Western Cape, but is also represented by a few species in the eastern Cape Province, Natal and southern Namibia. Several species belong to the Gariep floristic element.

Introduction

The genus *Othonna* L. (Compositae-Senecioneae) comprises about 120 species (NORDENSTAM 2007) with a marked centre in southern Africa. The taxonomy of this genus is notoriously difficult, and further revisional work remains to be done especially on the specific level. On the generic level one major change is necessary, viz. to remove a group of highly succulent terete-leaved taxa out of the genus. They are here recognized as a new genus *Crassothonna* B. NORD. with (provisionally) 13 species. The remaining *Othonna* s.str. comprises tuberous herbs and shrubby perennials with quite a variety of life-forms and adaptations to extreme climatic conditions.

Molecular data support the segregation of this group from *Othonna*, although only a few species have been investigated so far. However, it has been demonstrated that *O. sedifolia* and *carnosa* (now *C. cacalioides*) form a clade closer to *Gymnodiscus* LESS. (a small genus of annual herbs) than to the core of *Othonna* (DEVOS et al. 2010, NORDENSTAM et al. 2009, PELSNER et al. 2010).

***Crassothonna* B. NORD., gen. nov.**

Glabrous shrubs or shrublets or perennial herbs. Stems terete, thin to thickened, sometimes bottle-shaped and carnos, little- to much-branched. Leaves alternate, simple, terete, subterete or ovoid to fusiform, highly succulent, green or glaucous or pruinose or minutely papillose, sessile or shortly petiolate, apically rounded to obtuse, sometimes mucronate. Capitula heterogamous, radiate or disciform, terminal, pedunculate on thin and sometimes long peduncles with one or a few minute bracts, solitary or few to several or many in corymbose synflorescence. Involucre soft, campanulate (not cup-shaped), phyllaries uniseriate, 5–8, basally shortly connate, herbaceous, 3–5-veined, with membranaceous margins.. Receptacle flat or somewhat convex, glabrous, minutely alveolate. Ray-florets female, fertile, tube shortly cylindrical, lamina strap-shaped, yellow or more rarely white, sometimes tubular and eligulate. Style bifurcate, truncate or obtuse, with short apical sweeping-hairs. Cypselas fusiform–oblong–obovoid, 2–5 mm long, 1–3 mm wide, veined or ribbed, glabrous or puberulous or covered with a dense silvery-white tomentum of appressed trichomes becoming mucilaginous when soaked. Pappus bristles numerous, minutely barbellate, white, persistent or caducous. Disc-florets hermaphrodite but often female-sterile (functionally male), with style in central florets undivided with a conical tip, but in some taxa marginal disc-floret styles fertile, bifurcate with separate stigmatic areas on the inside of style branches and tip shortly conical or subtruncate with short sweeping-hairs; corolla tubular-campanulate, 5-lobed, lobes midveined, sometimes only faintly so. Anthers basally obtuse, ecaudate, endothecium radial; apical appendage flat, ovate-oblong; filament collar balustriform. Cypselas, usually not developing, narrowly oblong, glabrous or puberulous. Pappus bristles few to several, white, caducous.

Type: *Crassothonna cylindrica* (LAM.) B. NORD.

13 species recognized here, South Africa, Namibia. A few more taxa remain to be described, and a revision of the genus is in preparation. The members of the genus have a characteristic look. The terete succulent leaves are usually long and uniformly thick, but variable in size and shape. They may be short and almost grape-like as in *C. clavifolia* or small and somewhat larva-like as in *C. sedifolia*, and in *C. opima* very large and sausage-like.

Most species are diploid with $2n=20$. This number has been counted in *C. alba*, *cacalioides* (2 collections), *capensis* (2 collections), *clavifolia*, *cylindrica*, *floribunda*, *opima*, *patula*, *protecta* (6 collections), *sedifolia* (3 collections) and *sparsiflora* (AFZELIUS 1924, 1967, CZEIKA 1957, NORDENSTAM 1967, 1969a, 1971, ORNDUFF et al. 1967, RATLER & MILNE 1973). Only *C. rechingeri* differs by the hexaploid number $2n=60$ (NORDENSTAM 1971).

1. *Crassothonna alba* (COMPTON) B. NORD., comb. nov.

Basionym: *Othonna alba* COMPTON, Trans. Roy. Soc. South Africa 19: 321 (1931).

Similar to *C. cylindrica* and *C. cacalioides* but easily recognized by the white rays. ROWLEY (1994), also in EGGLI (2002), did not recognize it as a distinct species but cited it in synonymy of *Othonna carnosa* LESS., which is now *Crassothonna cacalioides*. The status of this white-rayed taxon will be further investigated. It has been recorded from the Western Cape, in karroo, but is nowhere common or abundant.

2. *Crassothonna cacalioides* (L.f.) B. NORD., comb. nov.

Basionym: *Cineraria cacalioides* L.f., Suppl. Pl.: 374 (1782).

Syn.: *Othonna carnosa* LESS., Syn. Gen. Compos.: 88 (1832).

LESSING published the new name *Othonna carnosa* for a taxon cited as *Cineraria cacalioides* THUNB. and for the obvious reason that the specific epithet was not available under *Othonna* (*O. cacalioides* L. fil. is a quite different species and a true *Othonna*; cf. NORDENSTAM 1969b). This nomenclature was adopted by HARVEY in *Flora capensis* (HARVEY 1865). However, under *Crassothonna* the earliest epithet *cacalioides* is available, so this species has to change its name completely - from *Othonna carnosa* to *Crassothonna cacalioides*. The white-rayed related taxon from the Western Cape is distinguished as *C. alba* (cf. above), and a rayless taxon in KwaZulu-Natal Province is recognized as *C. discoidea* (cf. below).

Coastal areas from Humansdorp in the Eastern Cape north to KwaZulu-Natal border.

3. *Crassothonna capensis* (L. H. BAILEY) B. NORD., comb. nov.

Basionym: *Othonna capensis* L. H. BAILEY, Cycl. Amer. Hort.: 1180 (1901).

Syn.: *Othonna crassifolia* HARV., Fl. Cap. 3: 336 (1865), non *O. crassifolia* L., Syst. Nat. ed. 12, 2: 579; Mant. Pl.: 118 (1767) = *Othonna othonnites* (L.) DRUCE.

Very popular and common in cultivation, and unfortunately sometimes still under the invalid name from HARVEY's *Flora capensis*, viz. *Othonna crassifolia* HARV.

The plants in cultivation easily form green mats of succulent leaves and a profusion of yellow flowerheads, which makes it a favourite in rock gardens or green-houses in many parts of the world. With reference to the leaf-shape it is often called 'Little Pickles'.

Distributed in the Western Cape.

4. *Crassothonna clavifolia* (MARL.) B. NORD., comb. nov.

Basionym: *Othonna clavifolia* MARLOTH, Trans. Roy. Soc. South Africa 2: 38 (1910).

Short thickened stems and leaves grape-like or ovoid-fusiform and mucronate.

This species is endemic to the area around the lower Orange River, i.e. southernmost Namibia and the Richtersveld in northern Namaqualand, a region phytogeographically known as the Gariep Centre, home of the Gariep floristic element (NORDENSTAM 1966, 1969c, VAN WYK & SMITH 2001).

The species is sought after by succulent growers and makes a nice impression with its low habit and grape- or olive-like leaves in small bunches.

5. *Crassothonna cylindrica* (LAM.) B. NORD., comb. nov.

Basionym: *Cacalia cylindrica* LAM., Encycl. Méth. Bot. 1: 529 (1785).

Syn.: *Othonna cylindrica* (LAM.) DC., Prodr. 6: 477 (1838).

A branching erect shrub up to one m high, with elongate terete leaves and several (mostly 2–4) yellow-flowered capitula in small synflorescences.

This is a shrubby species widely distributed in the Western Cape north to southern Namibia. The succulence of the leaves has been questioned (cf. ROWLEY 1994: 170), but there is no doubt that the leaves are terete and succulent, like in all congeners.

6. *Crassothonna discoidea* (OLIV. in HOOK.) B. NORD., comb. et stat. nov.

Basionym: *Othonna carnos*a var. *discoidea* OLIV. in HOOK. Icon. Plant. 18 t. 1713 (1887–1888).

This is sufficiently distinct from *C. cacalioides* to be regarded as a separate species (cf. HILLIARD 1977, who expressed the same opinion). Apart from the disciform (not discoid, in spite of the epithet) capitula it has a distinctive habit with rather large and long leaves (up to 15 cm long and 1 cm wide), many-flowered capitulescences with long peduncles, and other characteristics to be discussed in my forthcoming revision of the genus. It seems to be confined to KwaZulu-Natal, where it is found in coastal areas, forming colonies in sand dunes or sandy grassland.

7. *Crassothonna floribunda* (SCHLTR) B. NORD., comb. nov.

Basionym: *Othonna floribunda* SCHLTR, Bot. Jahrb. Syst. 27(1-2): 214 (1899).

This is close to *C. cylindrica* with which it is partly sympatric, distributed in the Western Cape, from Malmesbury northwards into Namaqualand, but has not yet been recorded from Namibia. It is more richly flowering (= 'floribund') than

C. cylindrica with rays deeper yellow or even orange-coloured.

8. *Crassothonna opima* (MERXM.) B. NORD., comb. nov.

Basionym: *Othonna opima* MERXM., Mitt. Bot. Staatssamml. München 5: 636 (1965).

A robust erect branching shrub up to one m high with thickish stems and branches. Leaves very long and thick, terete, sausage-like, up to 15 cm long and 1.5 cm thick.

Perhaps the most striking species in the genus, because of its large sausage-like leaves. It is confined to the Richtersveld in northern Namaqualand and southernmost Namibia, i.e. a typical Gariep element. It is hybridizing occasionally with one or two other species of *Crassothonna*, viz. *C. cylindrica* and *C. floribunda* (cf. also ROWLEY 1994: 185). I have seen and collected intermediate specimens growing with the presumed parent species in parts of the Richtersveld.

9. *Crassothonna patula* (SCHLTR) B. NORD., comb. nov.

Basionym: *Othonna patula* SCHLTR, J. Bot. 36: 26 (1898).

A stemless herbaceous succulent with stolons, forming new plants from rooting nodes.

This was described from the Eastern Cape, but is apparently distributed more widely with scattered occurrences also in the Western Cape and Namaqualand. The stoloniferous habit is shared with *C. rechingeri* (cf. below). The latter is a hexaploid rayless species, whereas *C. patula* is a radiate diploid with $2n=20$, counted on plants originating from Vanrhynsdorp Div., 15 miles E of Vanrhynsdorp (NORDENSTAM 1971).

10. *Crassothonna protecta* (DINTER) B. NORD., comb. nov.

Basionym: *Othonna protecta* DINTER, Repert. Spec. Nov. Regni Veg. 19: 141 (1923).

Syn.: *Othonna crassicaulis* COMPTON, Trans. Roy. Soc. South Africa 19: 322 (1931).

A characteristic species with a bottle-shaped or sausage-like swollen short stem up to 15–20 cm high, little-branched with weak branches. Leaves subterete and succulent, but often somewhat flattened or grooved on the upper side, rather narrow and elongate, apically mucronate; leaf-axils woolly. Ray-florets numerous (13–22), with light yellow or greenish lamina, often becoming rolled back.

The species is distributed in arid areas of the Western and Northern Cape from the Witteberg and Karoo Poort through Namaqualand into southern Namibia.

11. *Crassothonna rechingeri* (B. NORD.) B. NORD., comb. nov.

Basionym: *Othonna rechingeri* B. NORD., Ann. Naturhist. Mus. Wien 75: 139 (1971 publ. 1972).

This one of the few rayless species of the genus. The stoloniferous habit is shared with *C. patula*, which is a diploid with radiate capitula. *C. rechingeri* is hexaploid with $2n=60$ (NORDENSTAM 1971). The species is easily cultivated and tends to spread to other pots by the rooting tuberous nodes formed on the runners.

The species may be confined to the Northern Cape (type locality in Calvinia Div.).

12. *Crassothonna sedifolia* (DC.) B. NORD., comb. nov.

Basionym: *Othonna sedifolia* DC., Prodr. 6: 479 (1838) [1837 publ. early Jan 1838].

A small erect branching shrub up to 50–60 cm high with mostly single capitula. Leaves short and thick, obovoid or terete, less than 1 cm long and shortly petiolate to subsessile, smooth or minutely papillose. Rays pale or richly yellow.

There is some interesting variation within this species especially in leaf shape and texture, and it is possible that *Othonna papillosa* DTR may be recognized as a separate taxon. Further studies on this issue are ongoing.

Fairly widespread in the Western Cape and Namaqualand into southern Namibia.

13. *Crassothonna sparsiflora* (S. MOORE) B. NORD., comb. nov.

Basionym: *Euryops sparsiflorus* S. MOORE, Bull. Herb. Boissier Ser. 2, 4: 1023 (1904).

Othonna sparsiflora (S. MOORE) B. NORD., Mitt. Bot. Staatssamml. München 4: 125 (1961).

This species was first described as a member of *Euryops*, but moved to *Othonna* by NORDENSTAM (1961). It is similar to *C. cylindrica* and *C. cacalioides* but easily recognized on its disciform heads with tubular-campanulate hermaphroditic marginal florets. The plant is a branching shrub ca. 0.5 to 0.8 m tall and the capitula are borne singly on peduncles up to 7 cm long.

Restricted to the Richtersveld in northern Namaqualand and southern Namibia, i.e. a typical Gariep element (cf. spp. 4 & 8).

References

- AFZELIUS, K. 1924. Embryologische und zytologische Studien in *Senecio* und verwandten Gattungen. *Acta Hort. Berg.* 8: 123–219.
- AFZELIUS, K. 1967. Chromosome numbers in some Senecioneae. *Svensk Bot. Tidskr.* 61: 1–9.
- CZEIKA, G. 1957. Strukturveränderungen endopolyploider Ruhekerne in Zusammenhang mit Wechseln der Bündelung der Tochter-chromosomen und karyologisch-anatomische Untersuchungen an Sukkulenten. *Österr. Bot. Zeitschr.* 103: 536–566.
- DEVOS, N., NORDENSTAM, B., MUCINA, L. & N. P. BARKER 2010. A multi-locus phylogeny of *Euryops* (Asteraceae, Senecioneae) augments support for the "Cape to Cairo" hypothesis of floral migrations in Africa. *Taxon* 59: 57–67.
- EGGLI, U. (ed.) 2002. *Illustrated handbook of succulent plants: Dicotyledons*. 545 + lxiv pp. Springer-Verlag, Berlin, Heidelberg, New York
- HARVEY, W. H. 1865. Compositae. Pp. 44–530 in: HARVEY, W. H. & O. W. SONDER, *Flora capensis* 3. Hodges, Smith & Co., Dublin; I. C. Juta, Capetown. Reprint ed., 1894; Lovell Reeve & Co., London.
- HILLIARD, O. M. 1977. *Compositae in Natal*. University of Natal Press, Pietermaritzburg.
- NORDENSTAM, B. 1961. Die Gattungszugehörigkeit von *Euryops sparsiflorus* S. MOORE. *Mitt. Bot. Staatssamml. München* 4: 125–126.
- NORDENSTAM, B. 1966. *Euryops* in South West Africa. *Bot. Notiser* 119: 475–485.
- NORDENSTAM, B. 1967. Chromosome numbers in *Othonna* (Compositae). *Bot. Notiser* 120: 297–304.
- NORDENSTAM, B. 1969a. Chromosome studies on South African vascular plants. *Bot. Notiser* 122: 398–408.
- NORDENSTAM, B. 1969b. *Othonna cacalioides*. *Flow. Plants Afr.*, Plate 1572.
- NORDENSTAM, B. 1969c. Phytogeography of the genus *Euryops* (Compositae). *Opera Bot.* 23, 77 pp.
- NORDENSTAM, B. 1971. *Othonna rechingeri* B. NORD., spec. nova, a hexaploid succulent from South Africa. *Ann. Naturhistor. Mus. Wien* 75: 139–142.
- NORDENSTAM, B. 2007. Tribe Senecioneae CASS. Pp. 208–241 in: KUBITZKI, K. (ed.), *The families and genera of vascular plants* Vol. 8, Flowering plants: Eudicots, Asterales (KADEREIT, J. W. & C. JEFFREY, eds.). Springer, Berlin.

- NORDENSTAM, B., CLARK, V. R., DEVOS, N. & N. P. BARKER** 2009. Two new species of *Euryops* (Asteraceae: Senecioneae) from the Sneeuuberg, Eastern Cape Province, South Africa. *S. Afr. J. Bot.* 75: 145–152.
- ORNDUFF, R., MOSQUIN, TH., KYHOS, D. W. & P. H. RAVEN** 1967. Chromosome numbers in Compositae. VI. Senecioneae. II. *Amer. J. Bot.* 54: 205–213.
- PELSER, P. B., KENNEDY, A. H., TEPE, E. J., SHIDLER, J. B., NORDENSTAM, B., KADEREIT, J. W. & L. E. WATSON** 2010. Patterns and causes of incongruence between plastid and nuclear Senecioneae (Asteraceae) phylogenies. *Amer. J. Bot.* 97(5): 856–873.
- RATLER, J. A. & C. MILNE** 1973. Some Angiosperm chromosome numbers. *Notes Roy. Bot. Gard. Edinb.* 32: 429–438.
- ROWLEY, G. D.** 1994. *Succulent Compositae*. Strawberry Press, Mill Valley, California.
- VAN WYK, A. E. & G. SMITH** 2001. *Regions of Floristic Endemism in Southern Africa*. Umdaus, Hatfield, S.A.



Nordenstam, Bertil. 2012. "Crassothonna B. Nord., a new African genus of succulent Compositae-Senecioneae." *Compositae newsletter* 50, 70–77.

View This Item Online: <https://www.biodiversitylibrary.org/item/128427>

Permalink: <https://www.biodiversitylibrary.org/partpdf/319694>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Biodiversity Heritage Library

Copyright & Reuse

Copyright Status: In Copyright. Digitized with the permission of the rights holder

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://www.biodiversitylibrary.org/permissions/>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.