

# HELICHRYSUM FRUTICOSUM: ITS CORRECT NAME AND TAXONOMIC STATUS

O. M. HILLIARD\* & B. L. BURTT

**ABSTRACT.** It is argued that Forskal used the epithet '*fruticosum*' in his account of *Gnaphalium* in a descriptive sense only, not as a formal name. This is shown by the typography. Even if '*G. fruticosum* Forsk.' (1775) is accepted as a valid name, it is illegitimate, being a homonym of *G. fruticosum* Mill. (1768). Forskal's species was correctly named *G. forskahlii* by J. F. Gmelin (1792) and this now becomes *Helichrysum forskahlii* (J. F. Gmel.) Hilliard & Burtt. It is shown that it should not be classified as a subspecies of *H. cymosum* (L.) D. Don; there is a closer affinity to *H. melanacme* DC. (1838), but that species should also be kept distinct, and in any case is a younger name.

In extracting the early literature on *Gnaphalium* and *Helichrysum* for a study of the South African species, the name *Gnaphalium fruticosum* Miller (Gard. Dict. ed. 8, no. 20, 1768) came to light. This instantly rang a warning bell: what is its relation to the well-known *Helichrysum fruticosum* (Forsk.) Vatke? The basionym of that combination was given as *Gnaphalium fruticosum* Forsk. (1775); on the face of it this is a later homonym of Miller's name. However, a further surprise was in store: there is, in our view, no such name as *Gnaphalium fruticosum* Forsk. Forskal's *Flora aegyptio-arabica* is set with distinctive typography for species names, for which small capital letters are used. As the facsimile extract in fig. 1 shows, the only *Gnaphalium* for which a name was used was *G. orientale*, a Linnaean species. The argument that *fruticosum* appears in italic print through a typographical error is possible, but against it must be set the clear lack of epithet for the three preceding species. In any case there is no need

87. ARTEMISIA SEMSEK; foliis multifidis, filiformibus, viridibus, subvillosis. Petioli triquetri. Folia graveolentia; frequenter adhibita in ufus medicos. Cum Abrotano non bene convenit hæc Artemisia. Kahiræ hortensis. Arab. Semsek vel Mfaka.
88. GNAPHALIUM calycibus albis; foliis remotis, petiolatis, supra pilosis, lanceolatis, integris; corymbo terminali; caule ramofo.
89. G. calycibus cinereis; foliis linearibus, integris.
90. G. calycibus cinereis; foliis cuneatis, obtusis, subsinuatis. Kurmæ.
91. G. fruticosum; calycibus flavis, corymbosis, terminalibus; foliis linearibus, amplexicaul.
- Kurmæ. Arab. Scheratât. شرعط Barah: Sînde. سندرہ Corymbus parvus, flavus.
92. G. ORIENTALE; foliis confertis, lanceolatis, villosis, amplexicaulibus, marginibus albis; fragrantibus.
- Hædie. Arab. Adhaum el kelb. اذون الكلب
93. ACHILLEA LOBATA; foliis villosis, linearibus, subdentatis, apice lobatis. Planta annua. Corolla radio albo.
- Alexandriæ, rarior.

FIG. 1. Facsimile extract from Forskal, *Flora aegyptio-arabica* p. 218 (1775).

\* Dept of Botany, University of Natal, Pietermaritzburg, S Africa.

for argument: *G. fruticosum* Forsk. is either non-existent (as we think) or a later homonym of *G. fruticosum* Mill. and therefore illegitimate. It follows that Vatke's use of the epithet in *Helichrysum fruticosum* has priority only from his own publication (1875).

*H. fruticosum* Vatke is, however, illegitimate because Forskal's plants had long before been given legitimate binomials by J. F. Gmelin (Syst. Nat. ed. 13, 2(2), 1792):—

Forskal's no. 88: *G. arabicum* J. F. Gmel. (op. cit. p. 1216).

„ no. 89: *G. cinereum* J. F. Gmel. (op. cit. p. 1216).

„ no. 90: *G. cuneifolium* J. F. Gmel. (op. cit. p. 1216).

„ no. 91: *G. forskahlii* J. F. Gmel. (op. cit. p. 1214).

It is the last of these that is '*G. fruticosum*' and Vatke ought to have taken up the epithet *forskahlii* in *Helichrysum*. This we must now do, thus:—

***Helichrysum forskahlii* (J. F. Gmel.) Hilliard & Burt comb. nov.**

Syn.: [*Gnaphalium fruticosum*; *calycibus flavis*, *corymbosis*, *terminalibus*, *foliis linearibus amplexicaul.* Forsk., Fl. aegyptiarab. 218 (1775)].

*Helichrysum fruticosum* Vatke in Linnaea 39:491 (1875), nom. illegit.

*H. cymosum* (L.) D. Don subsp. *fruticosum* Hedberg in Symb. Bot. Ups. 15(1):203 (1957).

Type (for all the above names): Arabia (Yemen), Mt Kurma, *Forskal* (C, n.v.).

Other synonyms attributed to *H. fruticosum*, as the name has been commonly used, are much later than Gmelin's publication of *Gnaphalium forskahlii* and need not be further considered here.

The taxonomic status of *H. forskahlii* does, however, require discussion. In *Flora of Tropical Africa* (3:353, 1877) Oliver & Hiern placed *H. fruticosum* as a synonym under *H. cymosum*, but subsequently in practical herbarium work the two were separated again. More recently Hedberg reduced *H. fruticosum* to subspecific rank as *H. cymosum* subsp. *fruticosum*, which could stand nomenclaturally as a new subspecific name as cited above. But we cannot agree with this taxonomy.

The South African affinity of *H. forskahlii* is with *H. melanacme* DC., not with *H. cymosum* (L.) D. Don. To dispose of *H. cymosum* first: it is a spreading subshrub characterized by leaves that nearly always have the upper surface clothed with close-woven hairs forming a skin like tissue-paper (only very rarely are they woolly above); the involucre bracts are canary yellow and smooth; the cylindric heads contain 6–12(–20) flowers of which 0–4 are female, 3–12(–20) hermaphrodite, the female flowers fewer than the hermaphrodite or rarely equalling them in few-flowered heads. *H. cymosum* ranges from the Cape Peninsula east and then north-eastwards along the coast and coastal mountains (inland to the Amatolas west of East London) as far as St Lucia Lake on the N Natal coast; a distinct montane subspecies, subsp. *calvum* Hilliard, is found in the Cape and Natal Drakensberg and associated mountains as far as the Transvaal border. This differs from the typical subspecies by having few flowers (4–7 only), by its receptacular fimbrials being about as long as the ovary (not twice as long), and by the lack of pappus.

*H. melanacme* is a tufted plant, its thin stems often forming a tangled mass; the leaves are thinly woolly on both surfaces, rarely the upper surface is glabrescent; the involucre bracts are generally tawny (very rarely the innermost yellow), their tips decidedly crisped, the campanulate heads contain (15-)20-45 flowers, 6-18 of them female, 12-30 hermaphrodite, the female always fewer than the hermaphrodite. It ranges from the Koudeveld mountains near Murraysburg in the eastern Central Cape to the Witteberg (Lady Grey distr.—its type locality), the Drakensberg and associated mountains and uplands, the low Drakensberg on the Natal-Orange Free State-Transvaal borders, the SE Transvaal highveld and W Swaziland. We have seen no specimens of *H. melanacme* from the eastern highlands of the Transvaal, where it seems to be replaced by *H. polycladum* Klatt. It should be pointed out here that since Hilliard's account in *Compositae in Natal* (1977) further research and re-collection of *H. melanacme* in its type locality (Lady Grey distr., Witteberg, road to Joubert's Pass, 1800 m, 17 i 1979, Hilliard & Burt 12141) has convinced us that this is the correct name for the plants previously (op. cit. p. 169) referred to *H. tenuiculum* DC. *H. tenuiculum* itself is a more south-western species with leaves usually glabrous above, and closer to *H. cymosum* in its yellow, and but slightly crisped, involucre bracts.

*H. forskahlii* sensu stricto, from the Yemen, is shrubby with leaves woolly on both surfaces; the involucre bracts are tawny with crisped tips; the campanulate heads contain 17-22 flowers, 11-15 of them female, 5-9 hermaphrodite. Thus the sex-distribution is here reversed compared with *H. cymosum* and *H. melanacme*, the female flowers being the more numerous.

In tropical Africa as a whole *H. forskahlii*, in a broad sense, is immensely diverse; but throughout its range heads in which the female flowers are more numerous than the hermaphrodite predominate, although plants with a reversed distribution do occur: thus, out of 85 specimens examined only 12 had heads with the female flowers fewer than the hermaphrodite. Many of the plants are stiff dense-leaved subshrubs, especially those from high altitudes, but looser growing plants occur in East Africa and southwards through Malawi to Zimbabwe-Rhodesia. It is these plants in particular that have long been called *H. cymosum*, but they never have its tissue-like indumentum on the leaves, nor the smooth bright yellow bracts. In bracts and indumentum they are closer to *H. melanacme* than to *H. cymosum*, but the head structure is distinctly different: 10-20 flowers with 8-16 female and 1-6 hermaphrodite in the tropical plants, compared with 15-45 flowers, 6-18 female and 12-30 hermaphrodite in *H. melanacme*. These tropical plants can also be distinguished from *H. melanacme* without dissection: they have a coarser looser habit with larger more spaced leaves and thicker branches bearing larger corymbs. *H. melanacme* is very consistently a plant with thin densely leafy stems, at least in the lower part, and small corymbs.

More shrubby plants resembling typical *H. forskahlii* in appearance also occur in Malawi and in the eastern highlands of Zimbabwe-Rhodesia. But these, contrary to the more usual state in the species, have heads in which the hermaphrodite flowers outnumber the female: out of a total of 13-30, 3-7 are female, 10-21 hermaphrodite. However the habit is always stiffer and woodier than in *H. melanacme* and the leaves thicker and more linear (*H. melanacme* always has rather delicate lanceolate-acuminate leaves). These tropical plants could not be placed in *H. melanacme*.

The diversity of *H. forskahlii* in its broad sense poses many problems that lie beyond our scope: our aim here is simply to set the nomenclature right and to show that these problems are wholly tropical. In this connexion the apparent absence of both *H. melanacme* and *H. cymosum* from the eastern Transvaal highlands produces a significant gap between their distributions.

The botanical and nomenclatural position can be summed up as follows:—*H. cymosum* carries the oldest specific epithet (1753): this species has distinct morphological features and is not found in tropical Africa. *H. forskahlii* carries the next oldest epithet (1792): it is immensely variable and is widespread in tropical Africa, but seems to be relatively uniform in the Yemen, whence the type came. In its many forms *H. forskahlii* can always be distinguished from the South African *H. melanacme* which bears the youngest of the epithets involved (1836). In the unlikely event of the discovery of linking forms between these two species, the use of *H. forskahlii* for the tropical plant could not be upset.