

unbeaked or more coarsely beaked, spiculate achenes with 5 conspicuous ribs and a minute pappus. (Epappose achenes are already known, though rarely, within the species variation and the presence of normal achenes in two of the gatherings, *D.* 41105 and *D.* 41143, supports the view that too much significance should not be placed on this character). Despite the characteristic appearance of the Marmaris plants they cannot be considered worthy of formal recognition when the whole of the subspecific variation is studied.

***C. fraasii* Schultz Bip. sensu lato.**

The group of species including *C. fraasii*, *C. hierosolymitana* Boiss. and *C. mungieri* Boiss. & Heldr. is found from Greece and the Aegean islands, through W Turkey and Cyprus to Lebanon, Israel and Jordan. Study of these specimens shows that characters previously used for distinguishing species, such as indumentum of involucre, corolla size and style colour, vary considerably throughout the geographic area of the group. There seems to be a tendency for plants at the western end of the range to be lower-growing, to have fewer segments to the basal leaves, fewer stem leaves, fewer heads to the inflorescence and contain fewer flowers than those at the eastern end of the range. In addition, the western plants have more ribs to each achene (15 as opposed to 5–10) and appear to flower later in the year. However, none of these characters is consistent and further study on the group is desirable.

***C. hakkarica* Lamond, sp. nov. (Sect. *Soyeria* (Monn.) Benth.) Fig. 3.**

Species affinis *C. conyzifoliae* (Gouan) Dalla Torre sed involucris pallide viridibus, phyllariis externis proprie pectinatis et indumento caulis, folii involucricque differt.

*Herba* perennis, 55–75 cm alta, ut videtur radice palari ± robusta. *Caudex* lignosus, basibus veteribus petiolorum cauliumque praeditus. *Caules* pauci, erecti, robusti, foliosi, fistulosi, inferne pallidi, ± laeves, superne virides, ± striati, glabri vel parce pilosi. *Folia basalia* ad 33 cm longa (petiolis anguste alatus ad 20 cm inclusis), laminis simplicibus obovatis apicibus obtusis marginibus irregulariter dentatis, glabris vel pilis brevissimis vestitis. *Folia caulina* nonnulla, inferiora basalibus similia sed petiolis brevioribus; superiora sensim decrescentia, sessilia, ovata-triangularia, apicibus acutis, ad bases truncata vel auriculata, marginibus interdum integris. *Inflorescentia* racemosa, 2–5-capitata, supra medium caulis ramificans. *Pedunculi* 5–15 cm longi, erecti vel ascendentes, validi, fistulosi, striati, glabri vel breviter pilosi, cum vel sine paucis validis setis, sub capitulis 1–4 bracteati. *Capitula* c. 85-flora. *Involucrum* late campanulatum; phyllaria ± lanceolata-triangularata, exteriora 5–7, 8·5–15 × 2·5–5 mm, dorsaliter glabra, minute tomentosa vel raro ad medium sparsim setosa, ventraliter minute tomentosa, marginibus pectinatis, interiora 12–15, 15–19 × 3–5 mm, extra tomentosa ad medium interdum setosa, intus ± glabra, nitida, marginibus ± scariosis, glabris vel subtiliter pilosis. *Receptaculum* ± planum alveolis ciliatis; extra tomentosum vel ± villosum. *Corollae* 2·6–2·9 cm, aureae, glabrae, ligulis 17–21 × 2·4–5 mm. *Antherae* 6·5–7·5 mm longae. *Styli* 1·9–2·1 cm, ramis 4·5–5 mm longis flavis inclusis. *Achenia* (vix matura) 9–10 × 1·5–3 mm, superne breviter attenuata, ad bases ± truncata, ferruginea, c. 20-costata, glabra vel superne minute tomentosa. *Pappus* ± copiosus, eburneus, ± persistens?, setis 6–12 mm longis inaequalibus barbellis minutis sub lente vix manifestis instructis.



G.A.M.

FIG. 3. *Crepis hakkarica* Lamond; a, habit  $\times \frac{2}{3}$ ; b-c, outer phyllaries, dorsal and ventral surfaces  $\times 1\frac{1}{2}$ ; d-e, inner phyllaries, dorsal and ventral surfaces  $\times 1\frac{1}{2}$ ; f, flower  $\times 1\frac{1}{2}$ ; g, anther-tube  $\times 5$ ; h, achene and pappus  $\times 2\frac{1}{2}$ .

Turkey C10 Hakkari: Cilo Da. above Diz deresi, 2440 m, rocky slope, few-stemmed perennial, erect, 7 viii 1954, *Davis & O. Polunin*, D. 23949 (holo. E; iso. BM, K); Cilo Da., in gorge between Cilo Ya. and Diz deresi, 2440 m, *Davis* 24255 (E, BM).

*C. hakkarica* differs from all other species of the genus examined in the distinctive pectinate margins of the outer phyllaries. From *C. conyzifolia* (Gouan) Dalla Torre of C & E Europe, Caucasia and NE Turkey it differs in having pale green involucre without a fuscous indumentum, long-petiolate basal leaves and generally larger capitula. In size of capitula it resembles *C. pontana* (L.) Dalla Torre from the European Alps, generally a single-headed plant. *C. hakkarica* also resembles *C. sibirica* L. in section *Hapalostephium* (D. Don) Froehlich in type of branching and size of involucre, but differs in indumentum and pappus characters and in the absence of a rhizome. At present only known from the two cited gatherings, more material with completely mature achenes is desirable.

#### REFERENCE

Babcock, E. B. (1947). The genus *Crepis*. *Univ. Calif. Publ. Bot.* 21 & 22.

### **Echinops**

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*Echinops*, in common with many Turkish genera of Compositae, is very inadequately known. Most of its species are well-armed with sturdy spines and prickles, are neither easy nor pleasant to press, and consequently herbarium material is often sparse and far from adequate. The main characters used in the classification of the species are: indumentum, capitulum size, phyllary shape and length, the density and length of the brush (penicillus) and the degree of fusion of the innermost phyllaries. The range of variation of these characters within individual populations of a species is not known but may, judging from herbarium material, be considerable. One almost completely neglected character in the genus is the achene. This might prove to be a more reliable feature in classification than some of the others but mature achenes are hardly ever present on herbarium specimens; by the time mature fruit is developed, the heads have usually disintegrated and fallen to the ground.

***Echinops melitenensis* Hedge & Huber-Morath, sp. nov.** (Sect. *Oligolepis* Bge.)

Fig. 4.

*Herba perennis*, 15–30 cm alta. *Caulis* simplex vel pauciramosus, ramis 4–9 cm longis, inferne c. 4–5 mm latus, tota longitudine foliatus, prominenter sulcato-striatus, omnino albo-vel griseo-floccoso-tomentosus, pilis mollibus tenuissimis adpressis et pilis glanduliferis longis patentibus in parte superiore copiose provisus. *Folia* basalia et caulina inferiora desunt. *Folia* in sicco omnia crasse rigida, discoloria, valde armata, ambitu obtrullata vel triangulari-ovata, nervis subtus valde prominentibus; folia caulina sessilia, semi-amplexicaulia, ad 24 × 10 cm, irregulariter pinnatifida, infra medium