

Persia, in high mountains.

This little-known species, represented by only a few herbarium collections, is evidently polymorphic. Although the identity of the type locality is dubious, all the other collections which resemble the type are from southern provinces. De Candolle's spelling of the type locality, "Alpes Zerokou," is an obvious error, since the original label reads Alp. Zerd., and Boissier gives Zerdkuh, which may signify Zardeh Kuh Mts. in S. Khunsar Prov., 120 km northwest of Chigha Khur. It appears, therefore, that all the typical and closely similar forms thus far known occur in S. Persia, whereas Bornmüller's collection of a distinct subspecies is from the Elburz Mts., in the north.

Key to the Subspecies of Crepis heterotricha

- Leaves dentate to subpinnatifid, with broad terminal and relatively short lateral segments, the rachis and petiole broader; outer involucrel bracts 6–10, mostly ovate-triangular, acute 98, *a. typica*
- Leaves pinnately parted, with narrow terminal and relatively long lateral segments, the rachis and petiole very narrow; outer involucrel bracts 12–18, ovate, acuminate. 98, *b. lobata*

98, *a. Crepis heterotricha typica* subsp. nov. Folia caudicalia 2–7 cm longa 1 cm lata dentata; scapi plerumque 8–14 cm longi; squamae involucri exteriores 6–10 ovatae acutae; corolla 13–17 mm longa; antherae 4–5 mm longae; rami styli 2.5–3 mm longi; achaenia 6 mm longa; pappus albus copiosus 6–8 mm longus 3-seriatus.

Caudical leaves 2–7 cm long, 1 cm wide, usually with a few remote short very narrow teeth or shallow lateral lobes; scapes 2–16 (mostly 8–14) cm long; outer involucrel bracts 6–10, mostly ovate-triangular, acute; corolla 13–17 mm long; ligules in marginal florets 2–2.5 mm wide, the teeth 0.3–1 mm long; anther tube 4.25–5 mm long, the filaments extending beyond the appendages 0.75 mm; style branches 2.5–3 mm long; achenes and pappus typical. See fig. 142.

Crepis Kotschyana Boiss., Fl. Or. 3: 839. 1875 in syn., non C. B. Clarke.

Hieraciodes heterotrichum O. Kuntze, Gen. 1: 346. 1891.

Persia: Khunsar (?) Prov., Zerdkuh (= Zardeh Kuh ?) Mts., *Aucher-Eloy 3549* (DC type, UCf, K); S. Persia, Kuh Da'ena Mts., *Kotschy 800* (Bo, B), as *C. Kotschyana* Boiss.; *ibid.*, Bahtiyari Mts., Mt. Sebsekuh, calcareous rocks, *Hausslnecht* in 1868 (Bo); *ibid.*, without locality, *Kotschy 977* (Bo); *ibid.*, Kerman Prov., Mt. Kuh-i-Lalesar, highest peaks, 3800–4000 m, *Bornmüller 5139* (Weimar, B, UC) m.v. 1.

Minor Variant of C. heterotricha typica

1. Florets larger than in typical forms, with longer ligule teeth and more strongly pubescent tube and ligule; corolla 16–17 mm long; ligule 2–2.25 mm wide; teeth 0.75–1 mm long; style branches 2.5 mm long, gradually increasing in width to the truncate tip, which is 0.2–0.25 mm wide; achenes not seen. Upon examination of the pollen some 4-pored grains were seen, which suggests that this may be a polyploid of some sort. However, the pollen in a typical plant (*Kotschy 977*), as well as in subsp. *lobata*, was found to be irregular in size, ranging from 23 to 34 μ and 26 to 36 μ , respectively, and in both plants some large grains, suspected of being 4-pored, were seen. Hence, this species may consist of a series of polyploid forms, this one being merely an extreme variant. *Bornmüller 5139* (B, Weimar, UC) Kuh-i-Lalesar, 3800–4000 m, Kerman Prov., S. Persia.

98, *b. Crepis heterotricha lobata* subsp. nov. Folia caudicalia 2–4.6 cm longa 1–2 cm lata pinnatipartita, segmenti terminali brevi tenui, segmentibus lateralibus 8–12 tenuibus interdum 1-dentatis; scapi 4–6 cm longi ad summitatem interdum tomentosi; squamae involucri exteriores 12–18 ovatae acuminatae; corolla circa 14 mm longa, ligula interdum 2 mm lata; antherae 4 mm longae; rami styli 1.5 mm longi; achaenia (immatura) 3 mm longa virescentia columnaria ad apicem paululum attenuata; pappus albus copiosus 6–8 mm longus 3-seriatus, setis inaequalibus mollibus persistentibus.

Caudical leaves 2–4, 6 cm long, 1–2 cm wide, pinnately parted, with 4–6 pairs of rather close narrow lateral segments and short narrow terminal segment, lateral segments sometimes 1-dentate on lower margin near base; scapes 4–6 cm long, sometimes canescent-tomentose at summit; outer involueral bracts 12–18, ovate, acuminate; corolla about 14 mm long; ligules in marginal florets 2 mm wide, the teeth 0.25 mm long; anther tube 4 mm long, the filaments extending beyond appendages 1.75 mm; style branches 1.5 mm long; achenes (immature) 3 mm long, greenish, columnar, slightly attenuate at summit; pappus white, copious, 7–8 mm long, 3-seriate, united at base, the setae very unequal in length and width, 2–8 cells wide at base, soft, persistent. See fig. 143.

N. Persia: Elburz Mts., Mt. Totschal, alpine peaks, 3800 m, *Bornmüller 7536b* (B type, Weimar, UC).

Relationship

Crepis heterotricha is nearest to *C. armena*, from which it is very distinct in the broad yellow margins of the involueral bracts, the nonglandular setae of the leaves, the fewer but larger florets, and the truncate style branches. It is certainly less close to *C. bithynica* and *C. Robertioides*. Through the coincidence that the type of subsp. *lobata* was collected on the same mountain as one of Kotschy's collections of *Crepis elbrusensis* (see p. 626), the two were at first confused, but the resemblance is superficial and the receptacle is devoid of paleae in all forms of *C. heterotricha*.

99. *Crepis armena* DC.

Prod. 7: 168. 1838. (Figs. 144, 145.)

Perennial, 0.8–1.5(3) dm high; caudex 5–8 mm wide in old plants, prolonged into a strong, woody taproot, with several strong fibers from near crown, crown simple or 1-divided, covered with brown bases of old leaves; leaves all caudical, up to 7 cm long, 1.9 cm wide, oblanceolate or lanceolate, obtuse or acute, attenuate into a short narrowly winged petiole with broader clasping base, remotely denticulate, later leaves sometimes pinnately dentate with narrow acuminate teeth, densely hispidulous with pale glandular setae; stems 1 or 2 from a caudex, scapiform or occasionally 1-furcate, slender, striate, pubescent near base and near head, bearing 1 or 2 small bracts; heads erect in flower and fruit, medium, 25–35-flowered; involucre campanulate; outer bracts 10–15, unequal, $\frac{1}{3}$ – $\frac{1}{2}$ as long as inner ones; inner bracts 14–18, lanceolate, acuminate, dorsally pubescent, ventrally glabrous; receptacle naked; pappus (4)5–6(7) mm long, white tinged with yellow, soft, rather fine, 3-seriate, persistent, coming away in small clumps.

Asia Minor, E. Anatolia and Armenia.

Although this little-known species is represented by only very scanty herbarium material, critical study of the available specimens reveals the existence of several forms, two of which must be recognized as subspecies and may eventually be found to be true species. On account of the paucity of material, however, it is sufficient for the present to treat them as subspecies.

Key to the Subspecies of *Crepis armena*

- Outer involueral bracts about 10, ovate, obtuse, less than $\frac{1}{2}$ the length of inner ones; inner bracts about 10 mm long; pappus 4–5 mm long 99, *a. typica*
- Outer involueral bracts 10–15, ovate to lanceolate, acute, longest $\frac{1}{2}$ as long as inner ones; inner bracts 12–18 mm long; pappus 5–7 mm long 99, *b. longibractea*

99, *a. Crepis armena typica* subsp. nov. Planta 0.8–3 dm alta; caudex ligneus foliosus; folia omnia caudicalia dense glanduloso-hispidulosa; caules semper (?) scapiformes; involucreum 11 mm longum, squamis exterioribus 10 aequalibus ovatis,

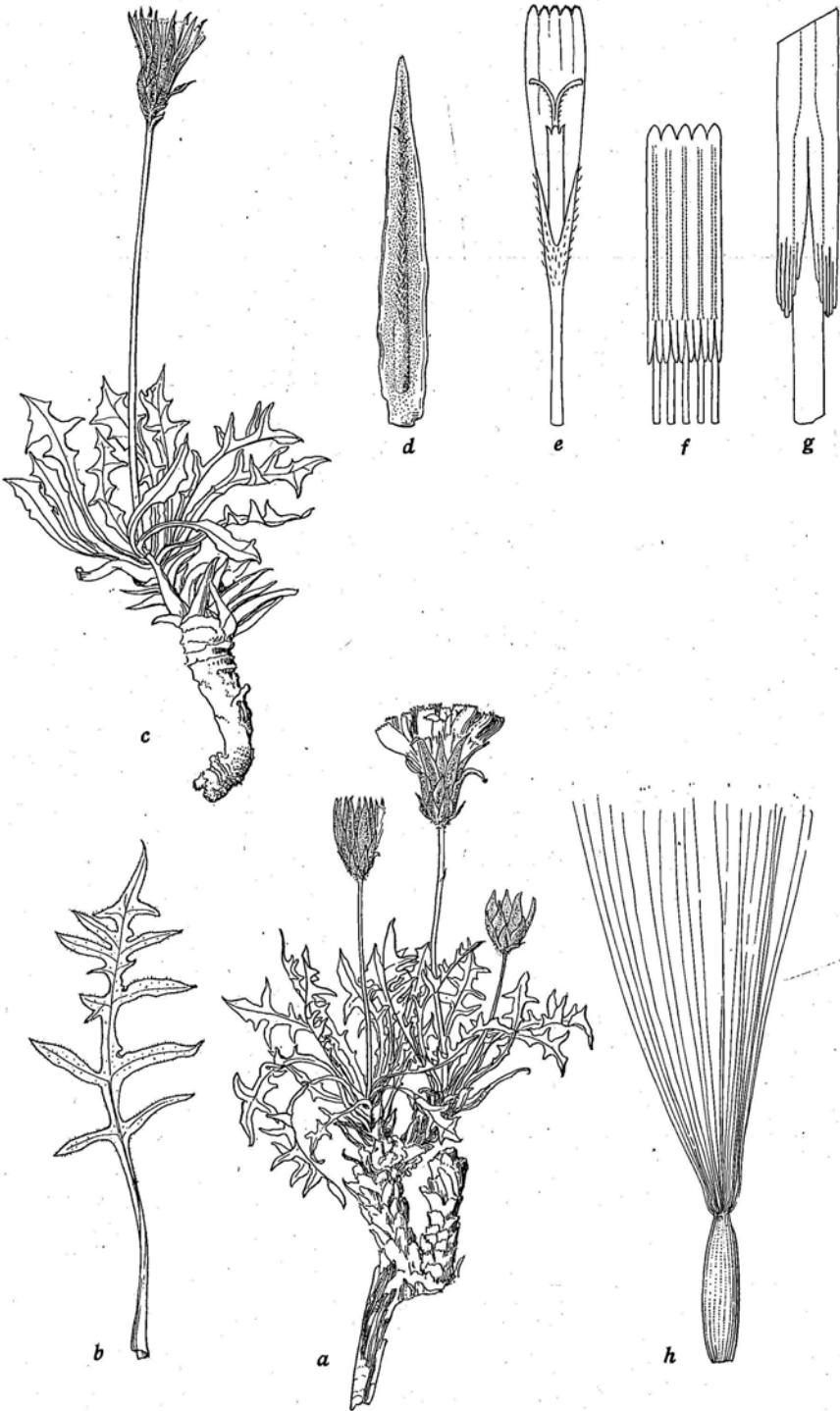


Fig. 143. *Crepis heterotricha lobata*, from type and isotypes (B, UC 575081): *a*, plant with young heads, $\times 1$; *b*, leaf, $\times 1$; *c*, plant with young fruiting head, $\times 1$; *d*, inner involucre bract from same, $\times 4$; *e*, floret lacking ovary, $\times 4$; *f*, anther tube, $\times 8$; *g*, detail of appendages, $\times 32$; *h*, immature achene and pappus, $\times 8$.