

NEW SPECIES OF TARAXACUM FROM ASIA

(INCLUDING: RECHINGERI, ITER IRANICUM II Nr. 40)

J. L. VAN SOEST

(*'s* Gravenhage)

(received June 19th, 1960)

This paper mainly is based on rather large collections of *Taraxacum* for revision send to me by P. Aellen and K. H. Rechinger, collected for a great deal in Iran; some material from other collections is used in addition. This paper only deals with new forms. In both collections I, furthermore, noticed the following species: *T. assemani* Boiss., *T. primigenium* H.M. sens. str., *T. fulvipile* Harvey, *T. haussknechtii* Uechtr., *T. leucanthemum* Ledeb., *T. luridum* Hagl., *T. aleppicum* Dahlst., *T. fedtschenkoi* H.M., *T. monochlamydeum* H.M. em. Hagl., *T. wallichii* De C., *T. brevirostre* H.M., *T. parvulum* De C., *T. kurdicum* H.M. ex Nábělek, *T. stevenii* (Spreng.) De C., *T. protractifolium* Hagl., *T. pseudonigricans* H.M., *T. puberulum* Hagl., *T. calocephalum* H.M. em. Dahlst., *T. montanum* (C.A.M.) De C., *T. syriacum* Boiss. Especially *T. fulvipile*, *T. haussknechtii* and *T. syriacum* are very abundant in these collections; according to VON HANDEL-MAZZETTI (1907) and RECHINGER (1959), *T. haussknechtii* was only known from the Balkan Peninsula! and Libanon.

Most of the new-described species belong to already known sections; one new section (*Macrocornuta*) is described; in future, probably two new sections have to be set up in order to gain more systematical insight into the complexity of the genus in the Orient.

***Taraxacum iranicum* van Soest spec. nov.** (Fig. 1)

Planta mediocris—parva 3-7 cm alta araneoso-pilosa, basi fragmentis foliorum vetustorum incrassata.

Folia juniora araneosa denique glabrescentia, lanceolata ad 8 cm longa petiolo breve purpureo inclusa, nervo mediano praesertim parte inferiore purpureo; folia exteriora canescenti-viridia lobata, lobi laterales (utrinque ca. 4) triangulares vel deltoidei vel falcati, summo acuto retroverso, dorso convexo magne dentati, margine inferiore concavo saepe integro, interlobiis angustis saepe dentatis, interdum sublobatis, lobus terminalis ad 2 cm longus hastatus vel subsagittatus interdum indeterminato-sublobatus, dentatus vel denticulatus, subacutus.

Scapi 1-5 subcrassi (sub involucre dense) araneosi.

Involucrum mediocre 13 mm longum ad 11 mm latum glaucoviride. Squamae exteriores lanceolatae vel oblanceolatae, ad 7 mm longae ad 2,5 mm latae laxae adpressae apice recurvatae, late albomarginatae apice pro parte inconspicue callosae; squamae interiores aequilatae, apice pro parte callosae.

Calathium planum radians ad 2,8 cm diametro flavum(?); ligulae marginales planae extus stria pallide purpurea vel roseola notatae. Antherae polliniferae; stylus et stigmata subobscura. Floret aestate.

Achenium olivaceo-brunneum subcylindricum ad 1 mm latum 5,5 mm longum (pyramide inclusa) superne brevissime spinulosum ceterum subrugosum—basi laeve, in pyramiden conico-cylindricam ca. 1 mm longam spinulis saepe praeditam sensim abiens. Rostrum ca. 4 mm longum; pappus albus 6 mm longus.

Typus: Iran, Khorasan: Montes Hazar Masdjid ca. 2500 m, 8–9.6.1948; K.H. et F. Rechinger, It. Iran. II, 1948, Plantae P. Aellen coll. lect., no. 5061.

On the same spot, no. 5090, together with *T. oliganthum* Schott & Kottschy and *T. haussknechtii* Uechtr.

Furthermore:

Iran, Gorgan: in declivibus borealibus montium Shavar pr. Hadjilang 2400–2600 m, 26–27.7.1948, K.H. et Rechinger, It. Iran II, 1948.

Iran, Damghan-Semnan: Zentral-Elburs, Berg ca. 8 km nördlich Djaschm, Felsschutt 2900 m, 29.7.1948 E. Behboudi & P. Aellen (h), together with *T. oliganthum* Schott & Kottschy.

This species seems to be very allied to *T. oliganthum* Schott & Kottschy and *T. brevirostre* H.M.; the first one has somewhat narrower outer involucral bracts, a slightly coloured pappus, different leaves; the second one has a thicker rostrum; both are generally much more hairy.

But also *T. iranicum* in its youth is provided with a short hairy cover. The leaves are reminescent to those of *T. pseudo-nigricans* H.M., but this species generally has more developed horns on the involucral bracts, and, especially, its achenes are much more spinulate.

VON HANDEL–MAZZETTI (1907) classed *T. oliganthum* into sect. *Rhodotricha* H.M., because of its coloured pappus, but the colour is very faint. Also that of *T. brevirostre* is not purely white and this species is classed by him in sect. *Parvula* H.M., with which I can not agree. I believe *T. oliganthum*, *T. brevirostre* and *T. iranicum* together belong to a distinct and new section, of which I, however, prefer to postpone its description.

***Taraxacum rechingeri* van Soest spec. nov.** (Fig. 2)

Planta 5–12 cm alta parce araneosa.

Folia ad 15 cm longa petiolo saturate purpureo inclusa, nervo mediano praesertim parte inferiore purpureo. Lobi laterales (utrinque ca. 3–4) breves ad 1,2 cm longi triangulares valde retroversi acuti integri vel raro dorso 1 dente minuti. Interlobiis angustis ad 1 cm longis interdum denticulatis vel parve dentatis. Lobus terminalis elongatus subsagittatus apice ± rotundatus, lobuli basis subacuti, lobulo apicali interdum inciso.

Scapi floriferi foliis breviori, paulo araneosi, sub involucrium glabri.

Involucrium ca. 12 mm longum ca. 13 mm latum atroviride.

Squamae exteriores laxe adpressae ovatae ad 7 mm longae conspicue anguste albo-marginatae vel roseolo-marginatae ciliolatae laeves summo elongato obtuso. Squamae interiores 2,5–3 mm latae membranaceo-marginatae laeves.

Calathium planum radians ad 2,5 cm diametro pallide luteum. Ligulae marginales planae extus stria cano-violacea notatae. Antherae polliniferae. Stylus et stigmata virescentia. Floret vere.

Achenium ignotum, pappus albus.

Typus: Iran, Teheran: Montes Elburs centr., in declivibus australis montis Točal inter Darband et Pasgaleh, 1400–1600 m, 8.4.1948; K.H. et F. Rechner, It. Iran. II, 1948, no. 2632; also 2627.

This species does not seem to be nearly related to any known form of *Taraxacum*; in some respects it may be related to *T. stevenii* (Spreng.) De C., which easily can be distinguished by blackish styles and by nearly integer, dentate leaves; in other respects, especially in relation to the involucre, it reminds of *T. scaturiginosum* Hagl. (from Greece into the Orient up to Kurdistan), but also the leaves of this species are quite different. As ripe achenes are lacking, it is impossible to fit this species at this moment into a section.

Sectio Macrocornuta van Soest sect. nov.

Achenia parva ca. 3,5 mm (pyramide inclusa), brunnescentia vel straminea, rostrata, pappus niveus. Involucrum in stato juvenilis semicoronatum ut squamae interiores cornis angustis vel corniculis magnis instructae sunt. Calathium parvum flavum.

Typus: *T. wallichii* De Candolle (1838).

The section consists, as far as known nowadays, of the following species:

1. *T. wallichii* De C. in its strict sense, not in the large sense as treated by VON HANDEL–MAZZETTI (1907), who gave the following distribution: “*in aridis siccis a regione Caspica et Syria usque ad Indiam et Mongoliam*”. I only know *T. wallichii* from Iran, Afghanistan and the western Himalayas in Pakistan and India. The material from Syria belongs to *T. aleppicum* Dahlst., belonging to sect. *Scariosa* H.M. em. Dahlst. (1926).
2. *T. monochlamydeum* Handel–Mazzetti em. Hagl. (1938); Haglund mentioned: Turkestan!, China (Kansu!, Sinkiang!) and Mongolia!; I can add: Afghanistan and Ladak.
3. *T. afghanicum* m. from Afghanistan.
4. *T. neolobulatum* m. from Iran, Beluchistan and Kulu Himalaya; both latter species are discussed below.

The section *Scariosa* H.M. (1907), very heterogeneous, has been already discussed by Dahlstedt, who restricted it to *T. bithynicum* De C., *T. aleppicum* Dahlst. and a series of species belonging to the very complex species: *T. megalorrhizon* (Forskål) H.M.; the area of

this group covers the Mediterranean region, including the African and Asian coastal districts along this sea. Moreover, von Handel-Mazzetti's section contained *T. obovatum* (Willd.) De C., which, together with a few allied species, belongs to sect. *Obovatum* m. (1954); next, it contained the forms, now enclosed in sect. *Macrocornuta* and finally *T. glaucanthum* (Ledeb.) De C., which seems to be nearly related to sect. *Eu-Erythrocarpa* Dahlst. (see below).

***Taraxacum afghanicum* van Soest spec. nov.** (Fig. 3)

Planta mediocris ca. 10 cm alta araneoso-pilosa.

Folia numerosa decumbentia ad 15 cm longa lobata paulo canescentia, interdum irregulariter purpureo-maculata, petiolis subangustis nervoque mediano purpureo-colorata. Lobi laterales (utrinque ad 6) triangulares ca. 1 cm longi dorso dentato summo retroverso acuto, interlobiis ad 7 mm latis valde dentatis vel sublobatis; lobus terminalis sagittatus ad 2 cm longus \pm denticulatus vel interdum dentatus, subacutus vel subobtusus.

Scapi (sub involucro dense) araneosi.

Involucrum ad 13 mm longum ad 11 mm latum; squamae exteriores ad 5 mm longae apice recurvatae ovato-lanceolatae \pm purpurascens callosae—obsolete corniculatae, interiores cornutae vel corniculatae.

Calathium planum ad 2 cm diametro flavum. Ligulae marginales planae extus stria cano-violacea notatae. Antherae polliniferae; stylus et stigmata clare lutea. Floret vere.

Achenium stramineum parvum ad 3,5 mm longum (pyramide inclusa) costulatum superne spinulis subcrassis brevis praeditum, ceterum rugosum, in pyramidem cylindricam 0,5 mm longam costulatam spinulis saepe praeditam subabrupte abiens; rostrum 7 mm longum, pappus niveus 6 mm longus.

E sectione *Macrocornutorum* van Soest.

TYPE: Afghanistan: Jalalabad valley, L. Edelberg; 3rd Danish Exp. to Central Asia no. 20, 20.2.1948 (h.W).

Also: Afghanistan, Griffith no. 3359 (h.K., pro parte); Afghanistan, Sarobi, Grabenränder, 17.3.1952 Volk no. 2468 (h.W).

This species is easily distinguished from the other species of this section by the shape of the leaves; *T. neo-lobulatum* has side lobes of the leaves perpendicular to the median nerve, not recurved; *T. wallichii* has extremely divided leaves. *T. monochlamydeum*, likewise with a different leaf form, is distinguished by a clear or often faint pink colour of the stripes on the outside of the ligulas, by less purple petioles of the leaves, less spinulate achenes and by often strongly cornute outer involucre bracts.

***Taraxacum neo-lobulatum* van Soest nom. nov.**; *T. lobulatum* Bornmüller 1892 nomen nudum, Dahlstedt 1926, cum icones, non *T. lobulatum* Brenner 1907.

The description, given by Dahlstedt, is quite sufficient. This species is allied to *T. wallichii* De C., but, for instance, the leaves are very different already at first sight; for the specific differences I might refer to Dahlstedt l.c. The exsiccatum of Bornmüller, It. persico-turcicum 1892/1893 no. 5134, type material of the species, was taken by von Handel-Mazzetti (1907) for *T. wallichii*, but his interpretation of this latter species was in a much wider sense than that of De Candolle himself.

Besides Yesd in Iran (exs. Bornmüller), Dahlstedt has mentioned localities from Turkestan. To these I can add:

Iran, Kerman: Inter Mashir 2000 m et jugum Khan-e Sorck 2580 m, K.H. et F. Rechinger, It. Iran. II, 1948 no. 3058, pro parte, Plantae P. Aellen et E. Esfandiari coll. lect.

Iran, Kerman: in limos. salsis ad Nehbid inter Kerman et Bam 2250 m, 6.5. 1948, K.H. et F. Rechinger, It. Iran. II, 1948 no. 3565; furthermore, already identified by Haglund as *T. lobulatum* in sched.: no. 3556, 3559, 3562, 3564, 3566.

Iran, Isfahan: Djulfa, in aula monast. armen. 1500 m, 20.4.1948, K.H. et F. Rechinger, It. Iran. II, 1948, no. 2662.

Beluchistan: Hooker, pro parte, and 1951 J. E. Stocks (both h. K), both identified by H.M. as *T. wallichii*.

Also material collected by W. Koelz in India (Katrain, Kulu Himalaya, 19.4. 1931, no. 1885, h.W) seems to be *T. neo-lobulatum*.

SECTIO?

Taraxacum neo-kurdicum van Soest **nomen nov.**; *T. kurdicum* Haglund 1939, Botaniska Notiser: 537–538, cum icones; non von Handel-Mazzetti ex Nábělek 1925, Publ. Fac. Sc. Univ. Masaryk, Brno 52: 52.

This species only is known from Turkey!

REMARK

An older name for **T. kurdicum** H.M. ex Nábělek is *T. paradoxum* H.M., 1913, Ann. Nat. Hofmus. **37**. 1.: 457, a name not being valid, as it was used earlier by Somes 1907 and Palmgren 1910.

This species is a remarkable one: a rostrum is lacking, in which respect it is comparable with 1) *T. glaciale* Huet du Pavillon (sect. *Glacialia* H.M.) and 2) *T. assemani* Boiss. and *T. primigenium* H.M. (sect. *Rhodotricha* H.M.), but there is no further direct relation to those species.

To the area of this species, hitherto Turkey, I can add:

Iraq, Erbil, K.H. Rechinger, It. Orient. 1956–1957 no. 11457.

Sectio *Eu-Erythrocarpa* Dahlstedt em. van Soest

In 1926 Dahlstedt has split up *Taraxaca Erythrocarpa* H.M. in two parts: sect. *Erythroperma* and sect. *Eu-Erythrocarpa*.

The first section contained species with relatively small, reddish achenes. Afterwards Lindberg added to this group species only differing by straw-coloured achenes: Dahlstedt's section *Dissimilia*. The sect. *Erythroperma* Dahlst. em. Lindb. f is mainly european.

The second section, *Eu-Erythrocarpa*, contains species with relatively big, reddish achenes; hitherto nine species were recognized:

T. amborum Hagl.: Greece!

T. aequilonare H.M. sens. str.: European Alps!

T. calliops Hagl.: Syria!

T. calocephalum H.M. em. Dahlst.: Greece!; also recently found in Iran: K.H. et F. Rechinger, It. Iran. II, 1948 no. 2659 and 2661. Moreover, I know plants from Greece which seem to differ only by the straw colour of the achenes.

T. duriense v.S.: Portugal!

T. hoppeanum Griseb.: Balkans!, Banat.

T. phaleratum Hagl.: Syria!, Libanon!

T. pieninicum Pawłowski: the Carpathians!

T. poliochlorum Dahlst.: Greece!

If one is prepared, likewise as in sect. *Erythrosperma*, to add to sect. *Eu-Erythrocarpa* species with non-reddish achenes, but otherwise obeying to Dahlstedt's description of this section, the following species have to be mentioned:

T. fedtschenkoi H.M.: central and western Asia! This species was classed by von Handel-Mazzetti in his section *Scariosa*.

T. protractifolium Hagl.: central Asia!

T. pseudo-nigricans H.M. sens. str.: central Asia!; in addition possibly:

T. glaucanthum (Ledeb.) De C.: Russia! to Turkestan; *T. glaucanthum* is differing from all other species of this section by a remarkable long pappus (8–9 mm).

All the species mentioned above have achenes with long and cylindrical pyramids and a well developed, rather long rostrum; the achenes, certainly in their upper half, are strongly spinulate; the pappus is white, rarely a bit dirty. Next to these already known species, I can add the following new ones: *T. aellenii* (achenes reddish), *T. pseudo-calocephalum* (reddish, rarely straw-coloured), *T. pseudo-dissimile* (straw-coloured), *T. purpurei-petiolatum* (straw-coloured), *T. spinulosum* (straw-coloured) with ssp. *calocephaloides* (reddish).

Taraxacum aellenii van Soest **spec. nov.** (Fig. 4)

Planta parva ad 6 cm alta, inferne dense longe pallide brunneo-araneosa.

Folia gramineo-viridia submaculata araneosa ad 5 cm longa petiolo violascenti inclusa, nervo mediano sordide rubescenti. Lobi laterales (utrinque 3–4) breves 4–6 mm longi triangulares saepe \pm retroversi subacuti dorso undulato-denticulati, interlobiis purpureo-marginatis sublatiusculis undulato-vel crispulo-denticulatis; lobus terminalis subhastatus subobtusus interdum paulo incisus, paulo denticulatus lobulis basis retroversis subacutis ca. 3 mm longis.

Scapi floriferi foliis subaequilongis dense araneosi cuprei.

Involucrum mediocre 13 mm longum obscure viride. Squamae exteriores laxe patentes apice recurvatae ovato-lanceolatae 2–3 mm

latae conspicue sublatae marginatae, pro parte callosae; squamae interiores apice purpureae obscure callosae.

Calathium subradians ad 2,5 cm diametro subpallide luteum. Ligulae marginales angustae extus stria cano-violacea notatae summis subnigrae. Antherae polliniferae; stylus et stigmata obscura. Floret vere.

Achenium rufum 4 mm longum (pyramide inclusa) superne spinulosum ceterum rugosum, in pyramiden subcylindricam 0,8 mm longam subabrupte abiens. Rostrum ca. 8 mm longum, pappus sericeo-niveus ca. 5 mm longus.

TYPUS: Iran, Gartenunkraut in Mahmudieh, 15 km nördlich Teheran 1250 m, IV 1948, P. Aellen (h).

T. aellenii is not very much allied to other species of this section. The dense and rather long hairy cover at the plant base is remarkable.

Taraxacum pseudo-calocephalum van Soest **spec. nov.** (Fig. 5)

Planta mediocris ca. 10 cm alta, basi fragmentis foliorum veterum incrassata, inferne araneoso-pilosa.

Folia canescentia subglabra lobata, petiolis nervoque mediano parte inferiore purpureo-colorato; lobi laterales (utrinque 3-4) triangulares subdentati vel denticulati acuti, interlobiis brevis saepe dentatis; lobus terminalis hastatus—subsagittatus apice subobtusus.

Scapi floriferi follis breviori basi purpurei ± araneosi.

Involucrum ± mediocre 13 mm longum viride. Squamae exteriores lanceolatae vel ovato-lanceolatae ad 2 mm latae sublatae albo- vel roseolo-marginatae apice purpureae laeves vel subcallosae; squamae interiores apice sub-erosae callosae vel corniculatae.

Calathium paulo(?) radians ad 2,5 cm diametro flavum. Ligulae marginales extus stria cano-violacea notatae. Antherae polliniferae; stylus et stigmata virescenti-lutea. Floret vere-aestate.

Achenium 4 mm longum (pyramide inclusa) obscure rubro-lateritium superne dense sublatae spinulosum ceterum rugosum, in pyramiden cylindricam 1 mm longam (spinulis saepe praeditam) subabrupte abiens. Rostrum ca. 8 mm longum, pappus albus ca. 5-6 mm longus.

E sectione Eu-Erythrocarporum Dahlstedt.

TYPUS: Iran, Khorasan: Montes Kopet-Dagh. In jugo Alamli, ca. 2000 m, 3.6.1958 K.H. et F. Rechinger, It. Iran. II, 1948, Plantae P. Aellen coll. lect., no. ?; also no. 4811 pro parte.

Furthermore:

Iran, Kerman: Kerman, in rud. irrig., 1700 m, 24.4.1948, K.H. et F. Rechinger, It. Iran. II, 1948, Plantae P. Aellen et E. Esfandiari coll. lect. no. 2948, 2949, 2953.

Probably also: Iran, M. Elburs centr., in jugo Kandawan, in decl. boreal. 2700-3000 m, 26.5.1937, K.H. Rechinger, It. Iran. 1937 no. 478c pro parte; this was identified by von Handel-Mazzetti as *T. laevigatum* Willd. (h.W).

f. STRAMINEA van Soest **FORMA NOV.** (achenia straminea):

With the species, no. 4811, *pro parte* (see above).

This species is allied to *T. calocephalum* H.M. em. Dahlst. and still more to *T. spinulosum* ssp. *calocephaloides* m. From the first one it differs by smaller flower heads on shorter scapes, narrower and less corniculate outer bracts of the involucre; the leaves have less side lobes which are more compact together. From the second one it is distinguished by smaller, more spinulate achenes of a bit darker colour, and by narrower outer involucral bracts; also the leaf form is different.

Taraxacum pseudo-dissimile van Soest **spec. nov.** (Fig. 6);
T. subdissimile Haglund in sched., non Dahlstedt 1933.

Planta mediocris ca. 5–10 cm alta, basi fragmentis foliorum vetustorum incrassata, inferne glabra.

Folia numerosa ad 10 cm longa (petiolo inclusa) ± glaucoviridia, juniora in costa dorsali paulo araneosa denique valde glabrescens, petiolis angustis nerveoque mediano praesertim parte inferiore purpureo-colorato. Folia exteriora lingulata dentata vel sublobata, interiora lobata, lobi laterales (utrinque ca. 4) triangulares vel falcati retroversi subacuti vel peracuti mucronati integres vel dorso saepe dentati et denticulati; interlobiis ca. 0,5 cm latis; lobus terminalis saepe indeterminatus elongatus sagittato-hastatus subobtusus vel subacutus, sublobatus vel dentatus, lobuli basis retroversi acuti.

Scapi 1–4 crassi subglabri, floriferi foliis breviori.

Involucrum mediocre 10–15 mm longum ad 15 mm latum subpallide viride. Squamae exteriores laxe patentes apice recurvatae, lanceolatae apice lineares, roseolae, late albo-marginatae, laeves; squamae interiores ca. 3 mm latae membranaceo-marginatae apice obscurae laeves.

Calathium planum radians ad 3 cm diametro flavum. Ligulae marginales planae extus stria cano-violacea notatae summis obscurae. Antherae polliniferae; stylus et stigmata obscura, siccis subnigra. Floret aestate.

Achenium brunneo-stramineum 5 mm longum (pyramide inclusa) superne spinulosum ceterum laeve, in pyramidem cylindricam 2 mm longam inferne interdum spinulis praeditam sensim abiens. Rostrum ca. 7 mm longum, pappus sordide albus ca. 5 mm longus.

TYPUS: Iran, Khorasan: in collibus ad Turbat-e Haidari, 1300 m; K.H. et F. Rechinger, It. Iran. II, 1948, Plantae P. Aellen et E. Esfandiari coll. lect., no. 4328.

Furthermore:

Iran, Khorasan: Montes Hazar Masdjid 2000 m, ad fontem, 8.9.1948 K.H. et F. Rechinger, It. Iran. II, Plantae P. Aellen coll. lect., no. 5086 pro parte.

Iran, Damghan-Semnan: Zentral Elburs, im Gebiet des Kuh-i Nizwa, bei der Quelle, 10 km nördlich Djaschm, Sumpfwiese 2600 m, 28.7.1948, E. Behboudi & P. Aellen (h).

Iran, Sharud-Bustan: in declivibus australibus montium Shahvar supra Nekarman 2500 m, 20–26.6.1948; K.H. et F. Rechinger, It. Iran. II, 1948, no. 5937; the same at 2000 m, no. 5862.

Iran: Tshahar Tah, A. Gabriel (h.W); identified by H.M. as "*T. pseudo-nigricans?*"

Iran, Kerman: Montes Djamal Bariz, inter Bam et Djiroft, ad fontem, Deh Bakri 2100 m, 8-10.5.1948; K.H. et F. Rechinger, It. Iran. II, 1948, Plantae P. Aellen et E. Esfandiari coll. lect., no. 3835 pro parte.

Iran, Mazanderan: Zentral Elburs, im Einzugsgebiet des oberen Tedschenflusses, Garten von Kom-rud bala, 60 km östlich Firuzkuh, 2400 m, E. Behboudi & P. Aellen (b); also: unterhalb Kom-rud bala, lockere Gebüschvegetation, Felsschutt.

Iraq, Erbil: Montes Quandil ad confines Persiae, ca. 36° 30' N, 45° E., 2500 m, substr. calc., 28.7-1.8.1957; K.H. Rechinger, Itin. Orientalia 1956-1957, pro parte.

Afghanistan, Aoi Khurak, 9000', field, 28.8.1939, W. Koelz no. 13805 (h.W).
Afghanistan, Gardiz 8000', water course edge, 16.6.1937, W. Koelz no. 11904 (h.W).

Tadshikistan, Bapboda(?), 22.6.1945... no. 422 (h. BM), pro parte.

This species, is, according to the achenes, characteristic for species of sect. *Eu-Erythrocarpa*; the achenes, however, are straw-coloured; the rather narrow outer involucre bracts are brightly washed with pink; the bracts are lacking gibbositities.

Taraxacum purpurei-petiolatum van Soest spec. nov. (Fig. 7)

Planta sat parva ad 8 cm alta basi subincrassata, paulo araneosa.

Folia numerosa decumbentia canescenti-viridia glabra, petiolis angustis nervoque dorsali mediano praesertim parte inferiore vinoso-colorato. Folia interiora lobata, lobi laterales (utrinque ca. 3) breves ad 5 mm longi triangulares acuti apice \pm recurvatae, integres vel dorso denticulati; interlobiis subnullis; lobus terminalis elongato-sagittatus ad 3 cm longus subacutus vel acutus, retroverso-dentatus vel incisus.

Scapi ad 5, floriferi foliis breviori, glabri.

Involucrum mediocre ad 12 mm longum ad 15 mm latum crassiusculum viride. Squamae exteriores adpressae ovatae 4 mm longae anguste albo-marginatae, apice purpureae laeves; squamae interiores late lineares membranaceo-marginatae pro parte callosae.

Calathium planum radians ca. 2 cm diametro flavum. Ligulae marginales extus stria cano-violacea notatae. Antherae polliniferae; stylus et stigmata obscura, siccis subnigra. Floret aestate.

Achenium stramineum 4 mm longum (pyramide inclusa) superne subgrosse spinulosum ceterum rugosum—basi laeve, in pyramiden cylindricam 1 mm longam subabrupte abiens. Rostrum ca. 7 mm longum, pappus albus ca. 5 mm longus.

Typus: Iran, Khorasan: Montes Hazar Masdjid, 8-9.6.1948; K.H. et F. Rechinger, It. Iran. II, 1948, Plantae P. Aellen coll. lect., no. 5086, pro parte.

Furthermore:

Iran, Inter Kerman et Saidabad (Sirdjan) inter Mashiz 2000 m et jugum Khan-e Sorck 2580 m, 27.4.1948; K.H. et F. Rechinger It. Iran. II, 1948, Plantae P. Aellen et E. Esfandiari coll. lect., no. 3058 pro parte.

The achenes of this species are smaller in size than is normal in this section and therefore there might be some reason to place it in sect. *Erythrosperma* (*Dissimila*), but in the other characters it seems

more related to the *Eu-Erythrocarpa*; it reminds a bit of *T. pseudo-dissimile*, but it is smaller in practically all its parts, the achenes are more spinulate, the involucrel bracts are different in shape and colour, the outer ones appressed.

Taraxacum spinulosum van Soest **spec. nov.**, (Fig. 8)

Planta mediocris ca. 10 cm alta subglabra.

Folia numerosa canescenti-viridia subscariosa lobata, petiolis subangustis nervoque mediano praesertim parte inferiore purpureo-colorato. Lobi laterales (utrinque ca. 4) approximatis, hamati vel triangulares ad 1,5 cm longi utrinque valde argute dentati et denticulati subspinulosi apice mucronati; lobus terminalis hastatus interdum grosse dentatus ad 1,5 cm longus, lobulo apicali subacuto mucronato, lobulis basalibus acutis mucronatis.

Scapi ad 4 subcrassi, floriferi foliis subaequilongi, sub involucre araneoso-pilosi.

Involucrum mediocre ca. 13 mm longum ca. 15 mm latum basi rotundatum. Squamae exteriores erecto-patentes apice recurvatae ovato-lanceolatae 7 mm longae ad 3 mm latae inconspicue sublate marginatae subcallosae, apice purpureae; squamae interiores apice violaceae callosae vel corniculatae.

Calathium paulo radians ca. 2,5 cm diametro, flavum. Ligulae marginales planae extus stria cano-violacea notatae. Antherae polliniferae, stylus et stigmata fusco-virescentia denique subobscura. Floret aestate.

Achenium submagnum 4 mm (pyramide exclusa) dilute brunneum, superne grosse late squamulis saepe tricuspidatis praeditum, ceterum costulatum, rugosum—basi laeve, in pyramiden cylindricam 1,5 mm longam (spinulis saepe praeditam) abrupte abiens. Rostrum ca. 10 mm longum; pappus albus, 6–7 mm longus.

Typus: Iran, Montes Elburs centr.: in jugo Kandawan, in declivibus borealibus, 2400 m, 9.6.1937; K.H. Rechinger fil., It. Iran. 1937 no. 957 h; also 957 a.

Furthermore:

Iran, Sharud-Bustam: in declivibus australibus montium Shahvar ad Nekarman, 2000 m, 20–26.7.1948; K.H. et F. Rechinger, It. Iran. II, 1948 no. 5827.

Iran, Khorasan: in jugo Alamli 2000 m, 3.6.1948; K.H. et F. Rechinger, It. Iran. II, 1948, Plantae P. Aellen coll. lect., no. 4807.

Iran, Khorasan: Montes Hazar Masdjid, 8–9.6.1948; K.H. et F. Rechinger, It. Iran. II, 1948, Pl. P. Aellen coll. lect., pro parte.

This species is allied to *T. pseudo-nigricans* H.M. and *T. pseudo-dissimile* m; from both it is easily distinguished by the mucronate, nearly spinulate leaves (with clear purple petioles); those of *T. pseudo-nigricans* have palish petioles, its involucrel bracts have darker greyish-green outer bracts, with stronger cornicula, its achenes have thinner, more acute spinula's.

The petioles of the leaves in *T. pseudo-dissimile* also are purplish; the outer involucrel bracts, pale and purplish to pink-coloured as in

T. spinulosum out much more outspoken, are elongated in a narrow top; its achenes are more sharply spinulate, its rostrum is shorter.

T. spinulosum is found also with darker brown achenes:

Iran, Montes Elburs centr.: in jugo Kandawan 2700–3000 m, 26.5.1937; K.H. Rechner fil., Iter Iran. 1937 no. 478 b; in h. W, von Handel–Mazzetti identified this wrongly as *T. officinale*.

Furthermore this species is known with brown-red achenes; the collected plants show a great similarity to the others, only the form of the achenes also is slightly different:

spp. **calocephaloides** van Soest **nov. subspec.**

Differt ab *T. spinuloso* typico: acheniis badio-rubris, superne argute spinulosis, in pyramiden subsensim abiens; rostro 12 mm longo, pappo sordide albo.

TYPUS: Iran, Montes Elburs centr., in jugo Kandawan, in declivibus borealibus 2400 m, 9.6.1937; K.H. Rechner fil., Iter Iran., 1937, no. 957 c.

Furthermore:

Iran, Mazanderan: Elburs, feuchter Graben bei Gaduk 2200 m, 20.7.1948, E. Behboudi & P. Aellen (h).

This subspecies is a bit similar to *T. pseudo-calocephalum* m., but not only distinct by the leaf characteristics (mucronate to nearly spinulate, f.i.), but moreover by its bigger and darker achenes.

Sectio Erythrosperma Dahlst. em. Lindb. f.

Taraxacum persicum van Soest **spec. nov.** (Fig. 9)

Planta parva 6–10 cm alta basi \pm araneosa.

Folia ad 5 cm longa (petiolis pallidis inclusa) griseo-viridia subglabra lobata; lobi laterales (utrinque ca. 3) breve triangulares \pm retroversi acuti dorso breve dentato vel denticulato vel integro; interlobiis subnullis interdum dentatis; lobus terminalis indeterminatus vel sublobatus ad 12 mm longus obtusus paulo dentatus vel denticulatus, lobuli basis \pm acuti retroversi.

Scapi 1–2 paulo araneosi.

Involucrum obscure viride 11–12 mm longum 7–8 mm latum. Squamae pro parte subcallosae, exteriores laxe adpressae—reflexopatentes, lanceolatae ca. 4 mm longae inconspicue anguste marginatae; squamae interiores late lineares membranaceo-marginatae laeves.

Calathium paulo radians pallide luteum. Ligulae marginales planae, extus stria atroviolacea notatae. Antherae \pm polliniferae; stylus et stigmata subobscura. Floret vere.

Achenium parvum 3,5 mm longum (pyramide inclusa) rubro-lateritium superne spinulosum, in pyramiden cylindricam 0,6 mm longam subabrupte abiens. Rostrum 8–9 mm longum, pappus albus 5 mm longus.

E sectione Erythrospermorum Dahlstedt em. Lindberg f.

TYPUS: Iran, Asterabad: Bender Ges, in pascuis, 7 & 31.3.1901,

P. Sintenis, It. Transcaspico-persicum 1900/1901, no. 1433 (h.L, h.B.M. and h.K).

Furthermore:

Syria, inter urbem Haleb (Aleppo) et vicum Meskene ad Euphratem, ad rivum prope Adschuk, 400 m, 25.3.1010 von Handel-Mazzetti, Mésopotamien-Exped. 341, pro *T. laevigato*.

This species is related to *T. silesiacum* Dahlst.; the leaves are more or less similar. The outer involucrel bracts have only a very narrow margin, the bracts are practically without gibbositities; pollen is present and the rostrum is slightly longer. *T. silesiacum* is known from practically the whole of Europe, except the mediterranean region; furthermore it is introduced in the northeastern part of United States of America.

Sectio Spuria De C.

Taraxacum koelzii van Soest **spec. nov.** (Fig. 10)

Planta ca. 10 cm alta, basi dense araneosa.

Folia decumbentia subcanescentia denique parce araneosa, subcoriacea, in petiolis (nervoque mediano parte inferiore purpureo-colorato) longe truncata. Folia exteriora lingulata subintegra, interiora lobata; lobi laterales (utrinque ca. 3) anguste deltoidei vel lingulati acuti integri; interlobiis ad 7 mm longis ad 5 mm latis minute dentatis vel denticulatis; lobus terminalis \pm tripartitus, lobuli basis \pm deltoidei acuti, lobulo apicali subelongato subacuto integro.

Scapi ca. 2, dense araneosi denique recurvati.

Involucrum ca. 15 mm longum 12 mm latum. Squamae exteriores laxae adpressae numerosae imbricatae ovatae 3-7 mm longae sordide roseolo-coloratae late albo-marginatae apice purpureae, interdum inconspicue callosae; squamae interiores late lineares, late luteo-viride—membranaceo-marginatae apice purpureo-marginatae laeves.

Calathium paulo (?) radians 2,5 cm diametro flavum. Ligulae marginales planae 2 cm longae extus stria saturate purpurea ornatae. Antherae polliferae; stylus et stigmata aurea. Floret autumnno.

Achenium stramineum ca. 7 mm longum (pyramide inclusa) superne breve spinulosum, in pyramidem conico-cylindricam longam, spinulis praeditam sensim abiens. Rostrum ca. 7 mm longum, pappus sericeus ca. 9 mm longus.

E sectione Spuriorum De Candolle.

Typus: Afghanistan: Burchao Pass, dry slope 10.000', 13.10. 1939, W. Koelz 14142 (h.W).

In section *Spuria* *T. koelzii* is allied to *T. farinosum* Haussknecht & Bornmüller and to *T. roseum* Bornmüller ex H.M. The first one has small achenes, is flowering in spring and has halophytic and xerophytic characters. The second one is easily distinguished by its clear pink flowers. The three other species of this section are taller in size and bigger in dimensions: *T. syriacum* Boissier, *T. montanum* (C.A. Mey.) H.M. and *T. neospurium* m, all flowering in summer time.

Taraxacum neo-spurium van Soest **nov. spec.** (Fig. 11)

Planta ad 8 cm alta araneosa.

Folia numerosa decumbentia subobscure viridia lobata; lobi laterales ad 1,5 cm longi subfalcati acuti dorso dentati; interlobiis ad 1 cm longis ad 3 mm latis saepe crispulis, denticulatis vel interdum dentatis; lobus terminalis deltoideo-subsagittatus, lobuli basis paulo retroversi acuti integres vel 1 dente muniti, lobulo apicali acuto integro.

Scapi ad 6 interdum furcati, dense araneosi foliis breviori denique recurvati.

Involucrum magnum ad 2,5 cm longum ad 1,5 cm latum sordide viride. Squamae exteriores laxae adpressae imbricatae ovato-lanceolatae acutae ad 1 cm longae late pallide viride-marginatae sub apice purpureo-callosae; squamae interiores late lineares late membranaceo-marginatae, apice rufo-purpureae.

Calathium paulo radians flavum (?). Ligulae marginales angustae, extus concolores vel stria \pm purpurea notatae. Antherae vacuae; stylus et stigmata subpurpurea. Floret augusto.

Achenium fulvum ca. 9 mm longum (pyramide inclusa) superne breve et late spinulosum, in pyramidem conicam longam sensim abiens. Rostrum ca. 9 mm longum; pappus sordide albus ca. 10 mm longus.

E sectione *Spuriorum* De Candolle.

TYPUS: Iraq, Kurdistan: distr. Erbil, Mons Helgurd ad confines Persiae ca 36° 40' N, 44° 50' E. in valle supra pagum Nowanda, 2600–3000 m; 10–14.8.1957, K.H. Rechinger It. *Orientalia* 1956/57 no. 11891.

According to the involucre, the achenes and the dense indument this species is characteristic for the section *Spuria*; the leaves are more likely to those of section *Vulgaria* Dahlst. The colour of the achenes is exceptional in *Spuria*. The purple colour of the stigma's is very rare in the whole genus; I only know the same colour in *T. fontaniforme* m. in section *Cucullata* m from the European Alps, a species that has no relation to *T. neo-spurium*. The sometimes furcate scapes appear also rather normally in *T. montanum* (C.A.M.) De C.; in other sections furcation only represents a monstrous development.

SUMMARY

Eleven species of *Taraxacum* and one subspecies are described. For nomenclatorial reason two species have changed in name.

Sect.?: *T. iranicum* v.S.

Sect.?: *T. rechingeri* v.S.

Sect. *Macrocornuta* v.S. nov. sect. (typus: *T. wallichii* De C.), including *T. monochlamydeum* H.M. em Hagl., *T. neo-lobulatum* v.S. nov. nom. (*T. lobulatum* Dahlst., non Brenner) and new: *T. afghanicum* v.S.

Sect.?: *T. neo-kurdicum* v.S. nov. nom. (*T. kurdicum* Hagl., non H.M. ex Nábělek).

Sect. *Eu-Erythrocarpa* Dahlst. em. v.S.: a number of species with non-reddish achenes are joined to this group: *T. fedtschenkoi* H.M., *T. protractifolium* Hagl., *T. pseudo-nigricans* H.M. sens. strict.; new species are added: *T. aellenii* v.S., *T.*

pseudo-calocephalum v.S., *T. pseudo-dissimile* v.S., *T. purpurei-petiolatum* v.S., *T. spinulosum* v.S. with ssp. *calocephaloides* v.S.

Sect. *Erythrosperma* Dahlst. em. Lindb. f.: *T. persicum* v.S.

Sect. *Spuria* De C.: *T. koelzii* v.S., *T. neo-spurium* v.S.

ACKNOWLEDGEMENTS

The author expresses his gratitude to Mr. P. Aellen and Dr. K. H. Rechinger for sending important material to him in loan, to Dr. S. Ahlner (h. Stockholm) for bringing to his disposal type material of some species, described by Haglund. He is also thankful to Mr. C. L. Marks for preparing the photographs (published here by courtesy of the Director of the Rijksherbarium, Leiden).

REFERENCES

- CANDOLLE, A. P. DE. 1838. Prodr. Syst. nat. 7.
 DAHLSTEDT, H. 1926. Acta Horti Bergiani 9. 1: 3, 22-28, 32-34.
 HAGLUND, G. E. 1938. Botaniska Notiser: 307-317.
 ———, in Samuelsson, G. 1935. Arkiv f. Botan. 26: 25, 26.
 ———, in Rechinger f., K.H. 1959. Arkiv f. Botan. (2) 5: 1. 468-471.
 HANDEL-MAZZETTI, H. VON. 1907. Monogr. Taraxacum, Wien.
 PAWŁOWSKI, B. 1924. Bull. Int. Acad. Polon. Sc. et Lettr. B: 109.
 RECHINGER, f., K. H., see Haglund.
 SOEST, J. L. VAN. 1951. Agronomia Lusit. 13. 1: 5.
 ———. 1954. Collectanea Botan. 4: 1. 4.
 ———. 1959. Acta Bot. Neerland. 3: 122.

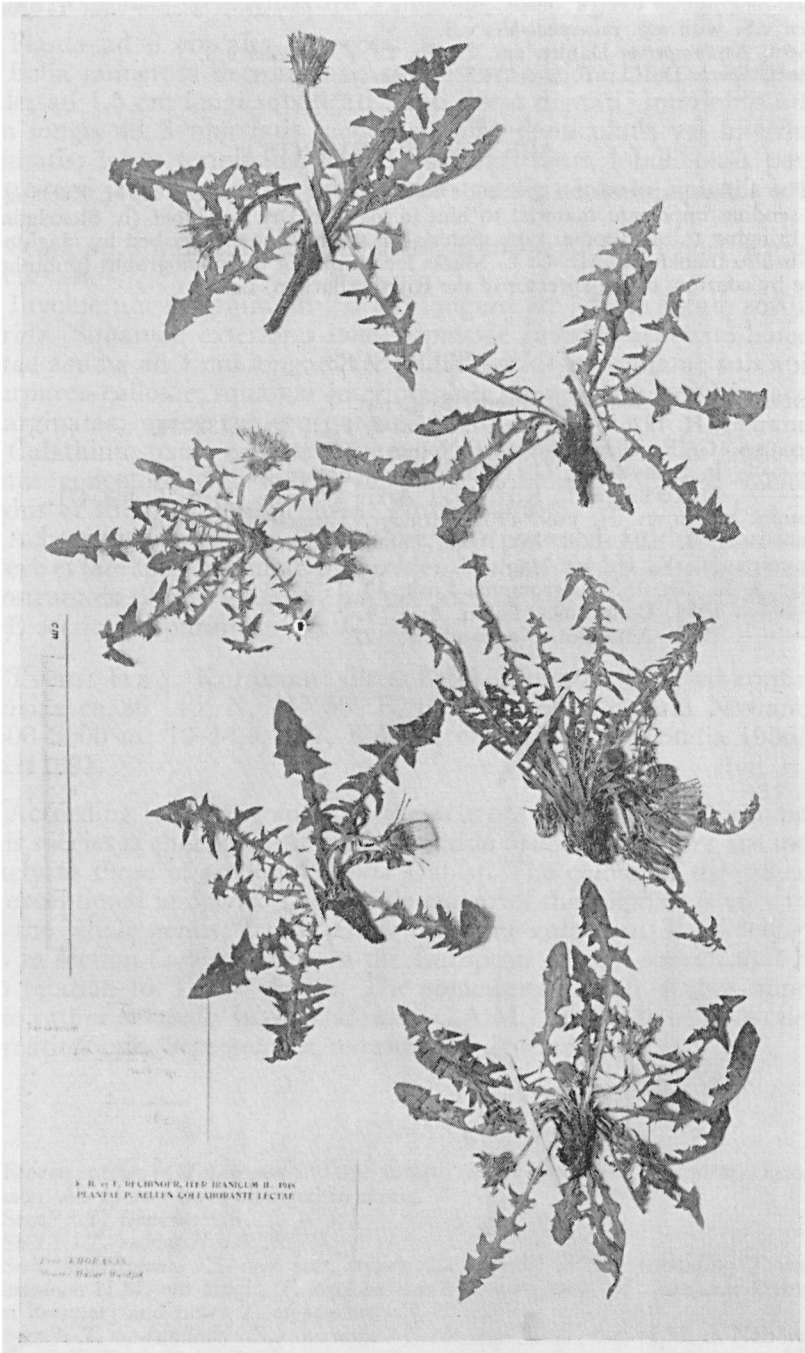


Fig. 1. *Taraxacum iranicum* v.S.; type material.



Fig. 2. *Taraxacum rechingeri* v.S.; type material.

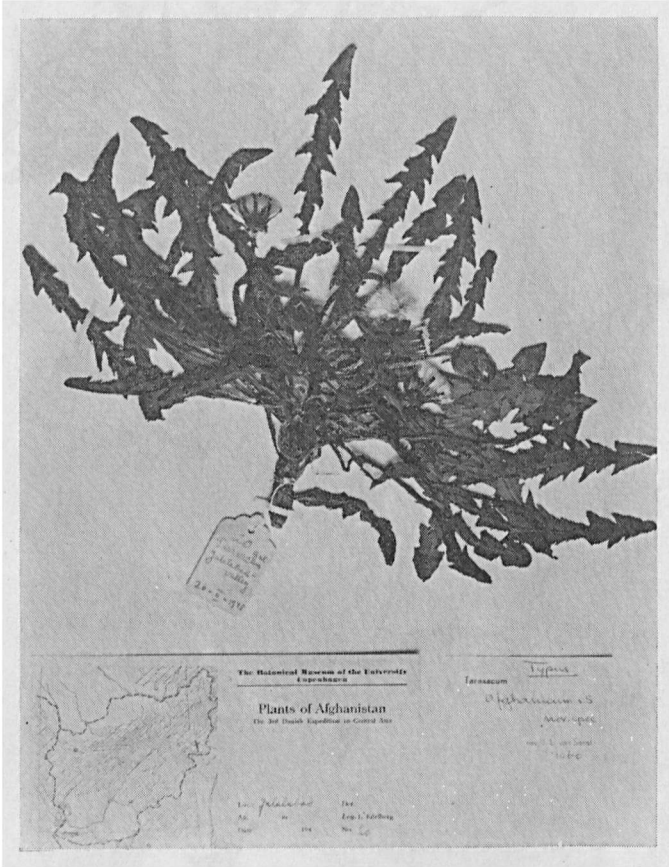


Fig. 3. *Taraxacum afghanicum* v.S.; type material.

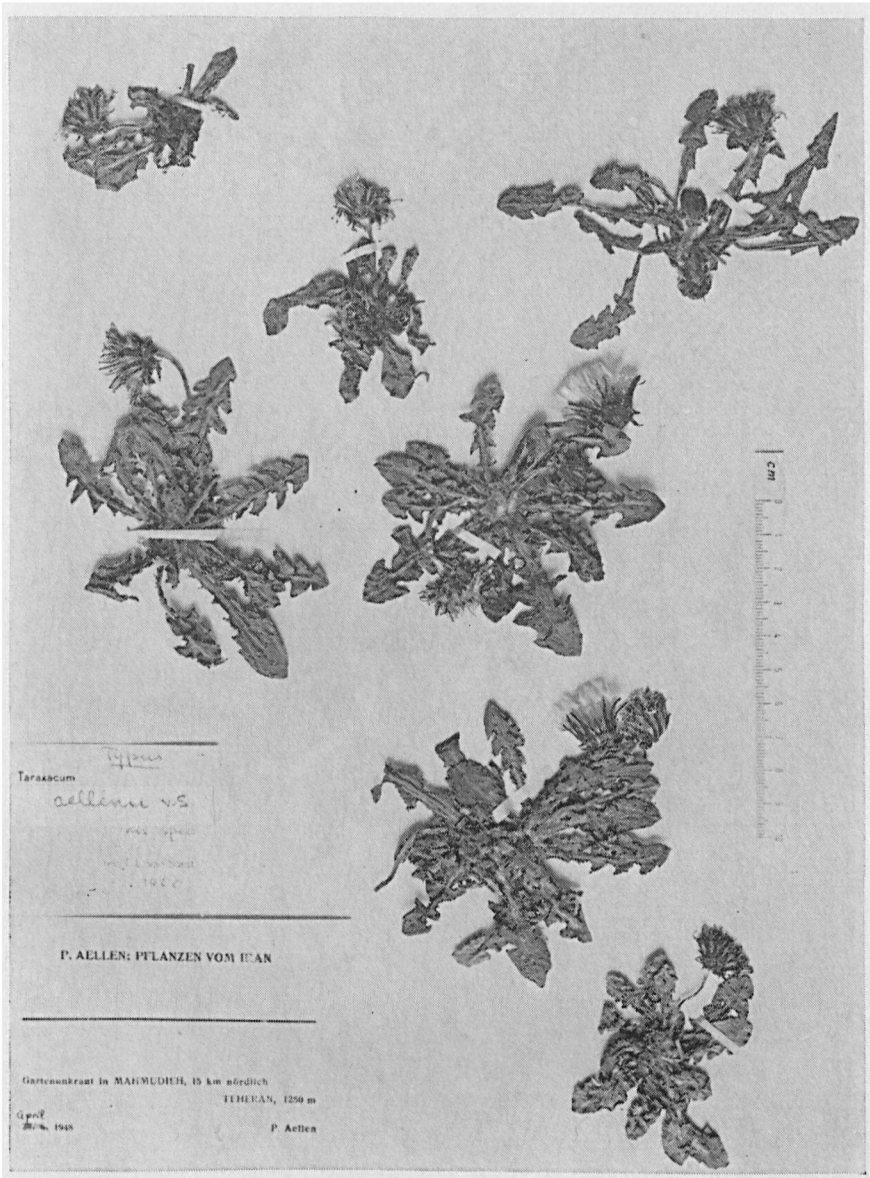


Fig. 4. *Taraxacum aellenii* v.S.; type material.

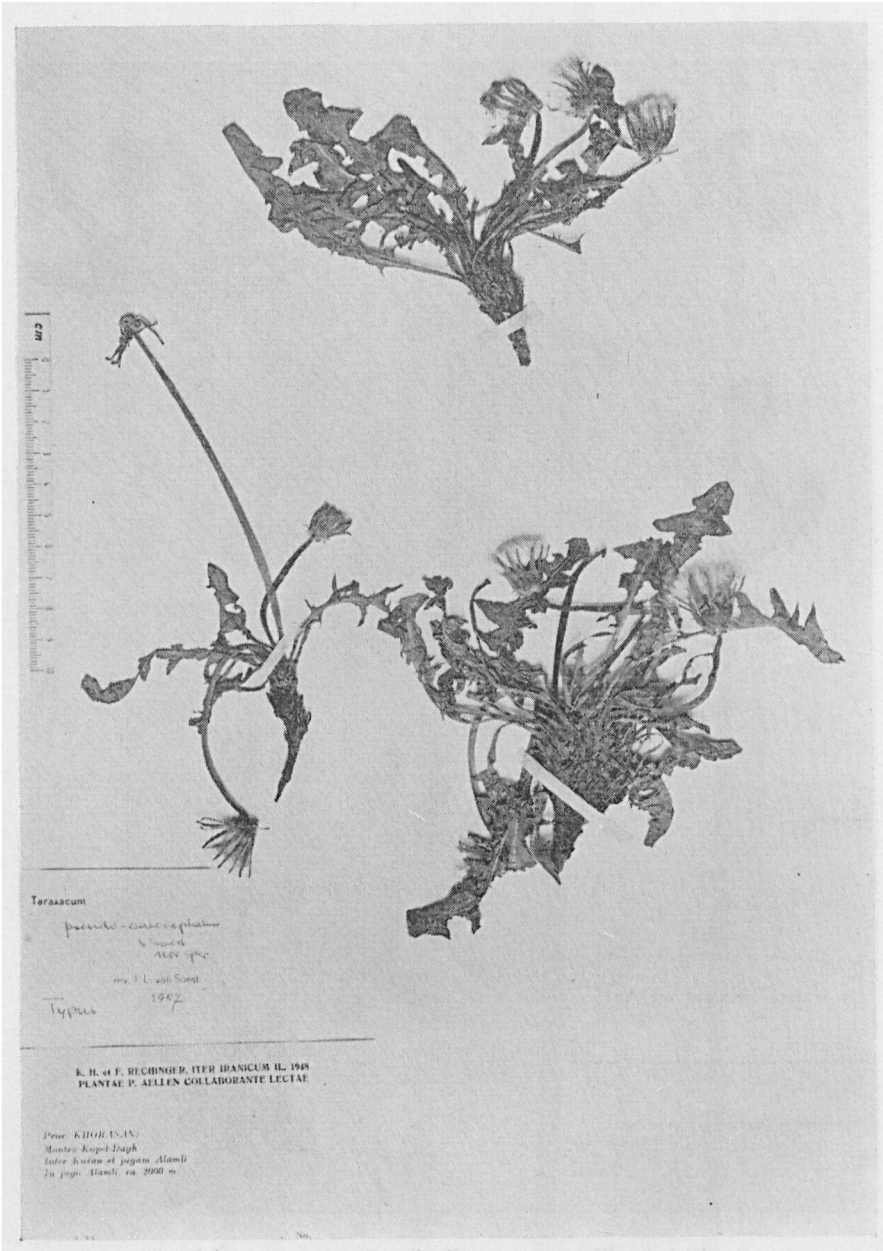


Fig. 5. *Taraxacum pseudo-calcephalum* v.S.; type material.



Fig. 6. *Taraxacum pseudo-dissimile* v.S.; type material.

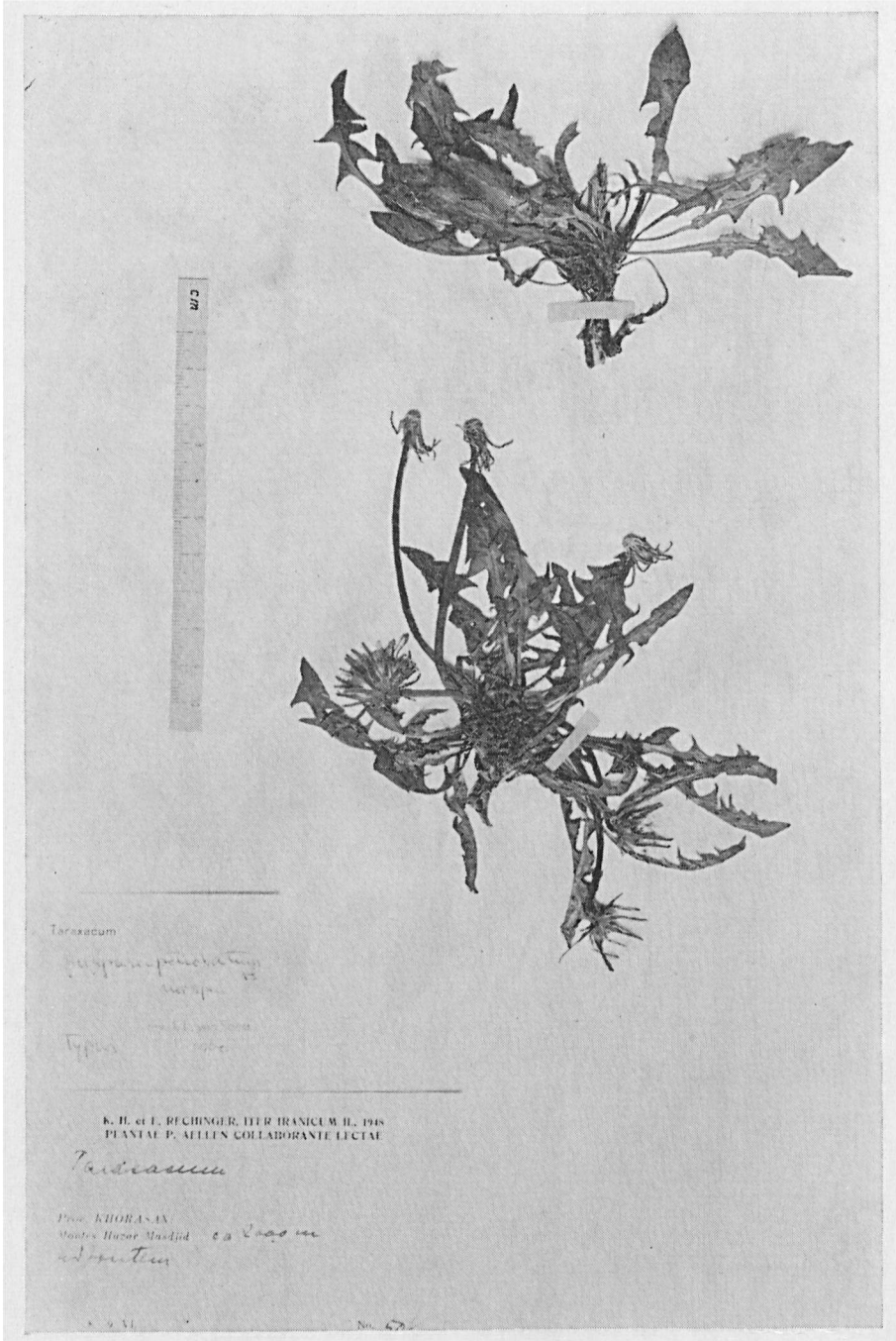


Fig. 7. *Taraxacum purpurei-petiolum* v.S.; type material.



Fig. 8. *Taraxacum spinulosum* v.S.; type material.



Fig. 9. *Taraxacum persicum* v.S.; type material.

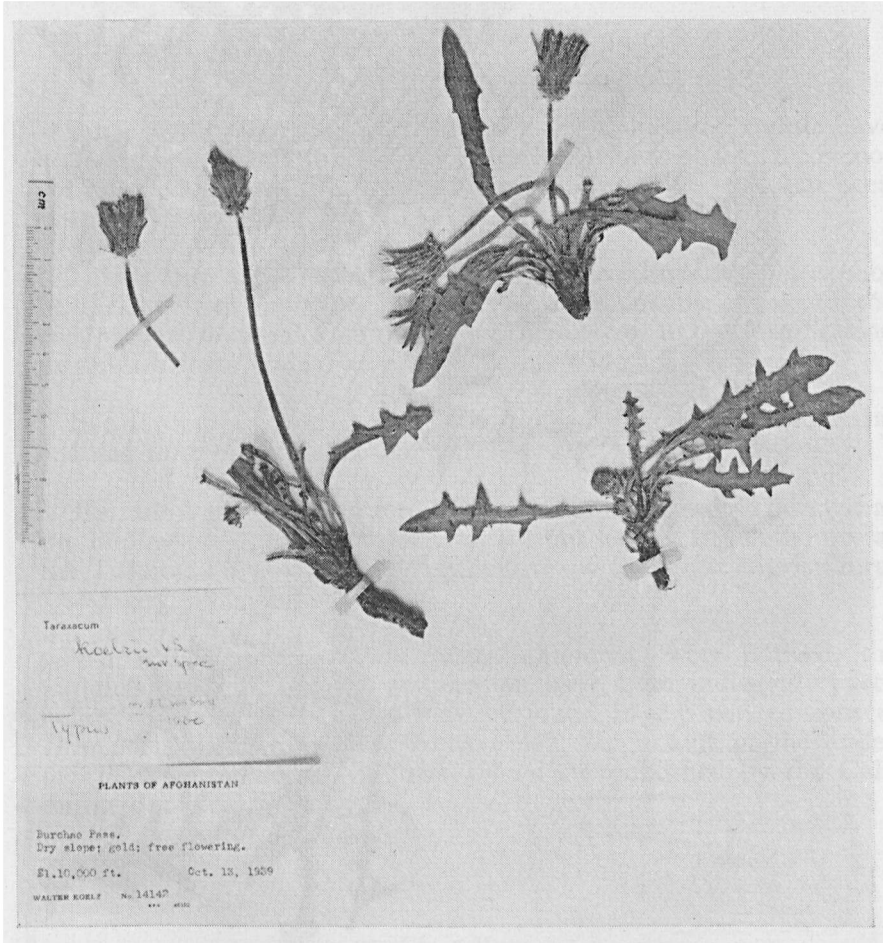


Fig. 10. *Taraxacum koczii* v.S.; type material.

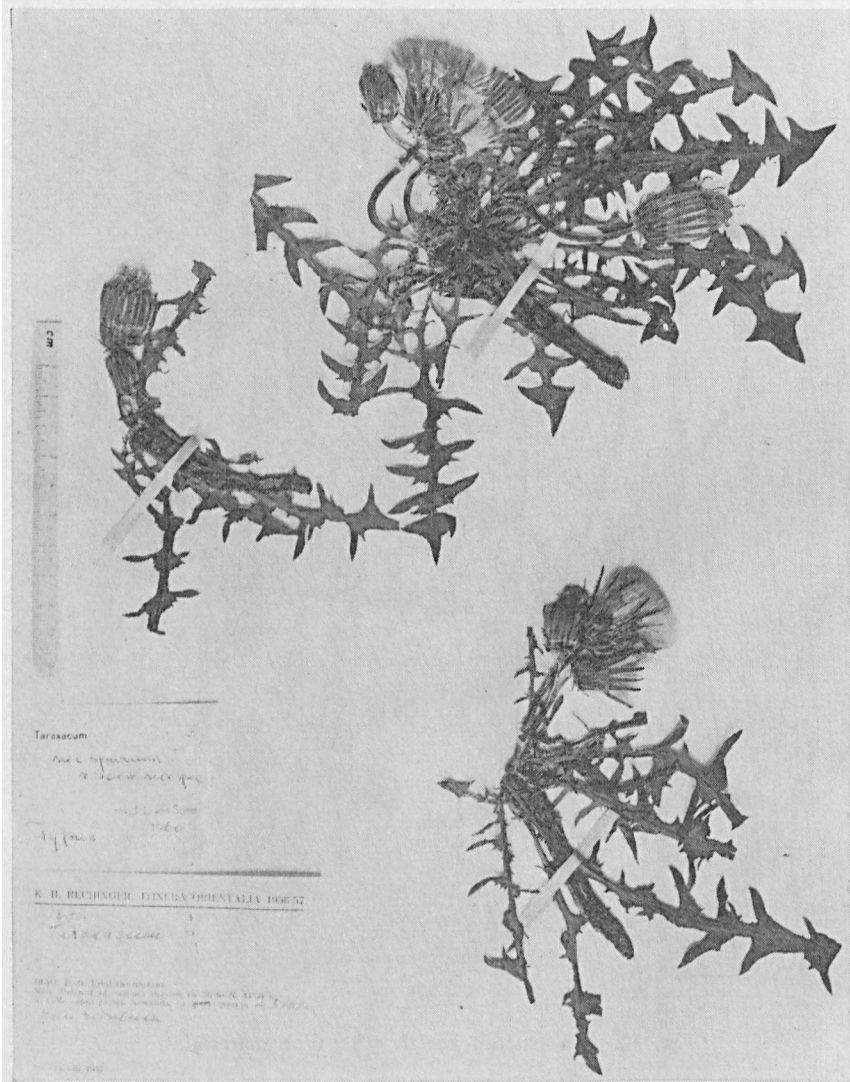


Fig. 11. *Taraxacum neo-spurium* v.S.; type material.