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"*Taraxacum hoppeanum*" and its allies (Studies in *Taraxacum* 4.)

Taxonomické problémy okruhu "*Taraxacum hoppeanum*" (Studie rodu *Taraxacum* 4.)

Jan Kirschner and Jan Štěpánek

Kirschner J. et Štěpánek J. (1985): "*Taraxacum hoppeanum*" and its allies (Studies in *Taraxacum* 4.). — Preslia, Praha, 57 : 111—134.

The taxonomy of "*Taraxacum hoppeanum*" agg. of the section *Erythrocarpa* in south-central Europe is dealt with. The name *Taraxacum hoppeanum* is shown to be illegitimate. The following new species are described: *T. erythrocarpum*, an endemic of the Western Carpathians, *T. janchenii*, a species occurring in Romania and Yugoslavia, *T. pseudohoppeanum* from the Alpes Maritimes, and a Near-Eastern relative of *T. calocephalum*, *T. cinnamomeum*. In addition, notes on *T. aquilonare*, *T. pieninicum* and *T. calocephalum* are given.

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INTRODUCTION

At the very beginning of the revision of the Slovak dandelions (for the 6th vol. of the Flora of Slovakia), remarkable plants attracted our attention that have been reported from Czechoslovakia as *Taraxacum hoppeanum* Griseb. At that stage of our studies it only became apparent that these plants differ substantially from those collected in other regions under the same name. This stimulated us to study the representatives of the section *Erythrocarpa* in south-central Europe more thoroughly. In particular, we have attempted to clarify the taxonomy of the plants usually included in (or referred to as) *Taraxacum hoppeanum* Griseb. in Griseb. et Schenk, about which much confusion has centred.

This investigation has brought to light some interesting facts the most important of them being presented in what follows.

TERMINOLOGICAL NOTE

Special morphological terms are used according to Richards (1972); their Czech equivalents can be found in Kirschner et Štěpánek (1983). In addition, the following term is used in the text:

Leaf-succession pattern (L-S pattern) = Characteristic leaf shape series developing sequentially at the plant base under natural conditions during the period from the earliest flowering (± bud stage) to the ripening of fruits (April and May, in the lowlands of central Europe). Two species may match in some (even in the majority of) elements of their leaf-succession patterns but theit L-S patterns are different when differing at least in one element. (The term "ontogenetic pattern" is used by Richards, op. c., for this phenomenon.)

MATERIAL

Our work is chiefly based on the examination of the herbarium material, except for the plants from Czechoslovakia.

To each specimen examined the number of our determination label is attached (no. det. ....).

The authors are indebted to the authorities of the following herbaria for the facilities they made available for loan important material: BP, BRA, BRNM, BRNU, FI, G, GE, GOET, K, KRA, KRAM, L, LD, LE, M, OLM, OXF, PR, PRC, S, SARA, SAV, SLO, W, WRSL, WU, Z and ZT. We are also grateful to prof. H. Melzer of Zeltweg, Dr. A. J. Richards of Newcastle upon Tyne, prof. K. H. Rechinger (Wien), MUDr. F. Černoch (Brno), and, particularly, to prof. C. E. Sonck of Helsinki for lending us an invaluable material.

We are indebted to Mr. C. I. Sahlin (Kullavik) who read critically the manuscript and suggested some useful and valuable changes, and to Mr. A. Roubal who revised the Latin descriptions.

HISTORICAL

At present, *Taraxacum* sect. *Erythrocarpa* is known to comprise 50—80 species which occur mainly on the territories extending from the eastern Mediterranean eastwards to Central Asia. The representatives of this section share usually the following features: plants often robust, outer involucral bracts lanceolate to broadly ovate with (often broad) pale (scarious) margin; achenes usually red to dark brown, large (often longer than 4.5—5.0 mm, including long cylindrical cone) and, as a rule, ± densely spinulose to papillose, with a long rostrum.

Taraxacum sect. *Erythrocarpa* was described validly as early as in 1907 (*T.* sect. *Erythrocarpa* Hand.-Mazz., Monogr. Gatt. Tarax., p. [XI], 1907 — cf. Kirschner et Štěpánek, Notes on infrageneric names in *Taraxacum*, in prep.), and the taxonomic conception of this name was later defined with more precision (Handel-Mazzetti 1923, Dahlstedt 1926, van Soest 1960).

The following chronological survey of the most important taxonomic contributions to *T.* sect. *Erythrocarpa* refers above all to the area under study (i.e. south-central Europe).

Before the end of the last century, *Taraxacum hoppeanum* was the only known European *Taraxacum* species of those that may be regarded as representatives of the section *Erythrocarpa* nowadays. Other two such species appeared in the "Monographie" (Handel-Mazzetti 1907) — *T. calocephalum* Hand.-Mazz. and *T. pindicola* (Bald.) Hand.-Mazz. (The other species included in the section by Handel-Mazzetti in 1907 were later transferred to other sections.) In 1911 (Handel-Mazzetti 1912), alpine plants, previously classed together with *T. hoppeanum*, were distinguished from it as a new species, *T. aquilonare* Hand.-Mazz. in Dalla-Torre et Sarnth. Another new species, *T. pieninicum* Pawłowski, was described from the west Carpathians in 1924, and, in 1930, *T. hoppeanum* was reported from central Europe for the first time (Suza 1930). The latest important contribution to the taxonomy of the section in south-central Europe is van Soest's work where *T. caespitosum* was described from the Alps (van Soest 1976).

Altogether, the following representatives of the section have been recorded within the area under study (Central Europe, including the Alps, the Carpathians and mountains of Yugoslavia) until recently: *Taraxacum hoppeanum* Griseb. in Griseb. et Schenk, *T. pindicola* (Bald.) Hand.-Mazz., *T. aquilonare* Hand.-Mazz., *T. pieninicum* Pawł. and *T. caespitosum* van Soest.

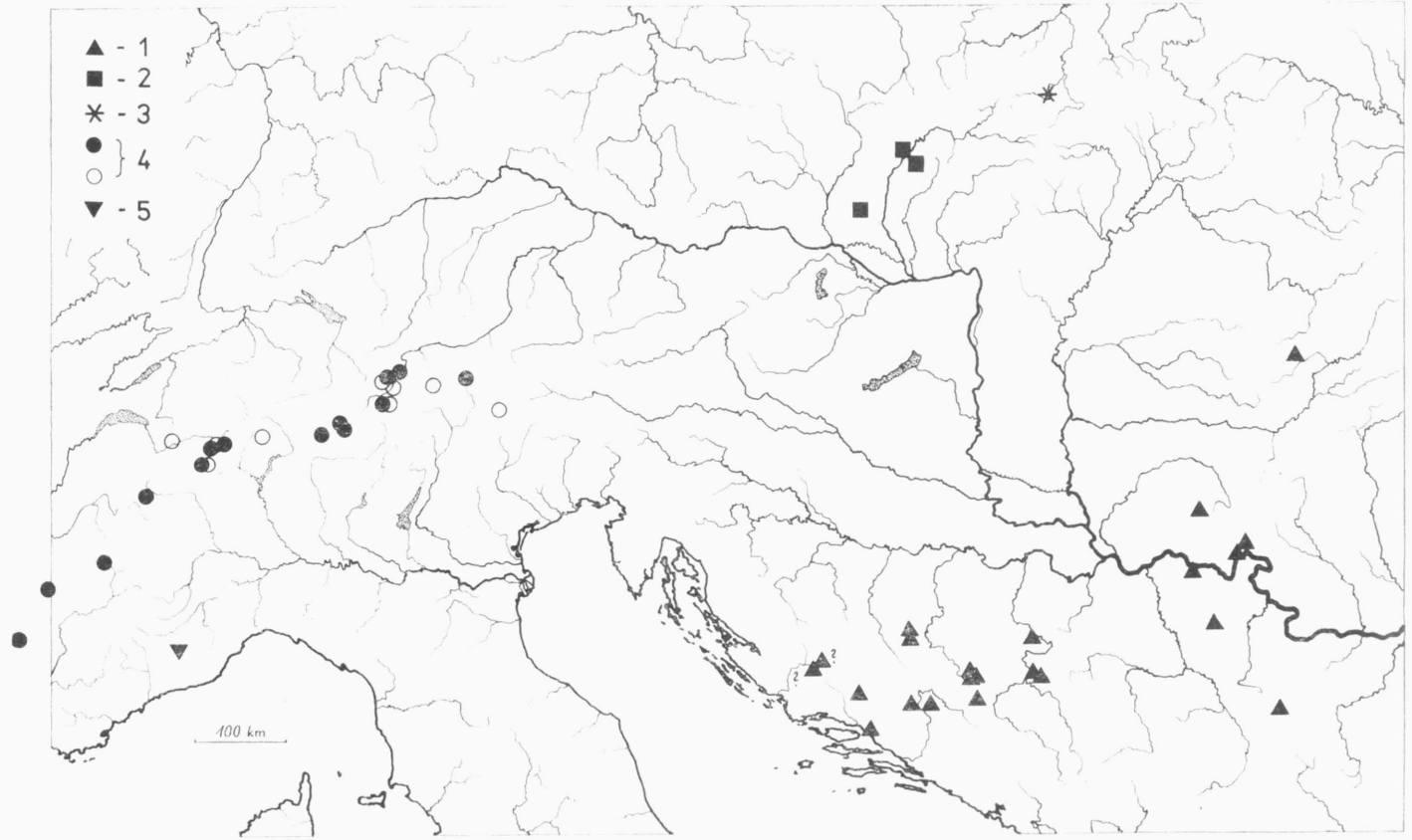

Fig. 1. — Geographical distribution of some species of the section *Erythrocarpa* in south-central Europe: 1 — *T. janchenii*, 2 — *T. erythrocarpum*, 3 — *T. pieninicum*, 4 — *T. aquilonare* (empty rings = literature data), 5 — *T. pseudohoppeanum*.

Introductory nomenclatural and taxonomic investigations concerned with the problem of correct interpretation of the name *T. hoppeanum* led to the conclusion that this name must be abandoned: it is illegitimate (cf. ICBN, Art. 63) since a legitimate name, *Leontodon taraxacoides* HOPPE et HORNSCHUCH 1818, is given in its protologue as a synonym. Upon closer examination of the protologue (GRISEBACH et SCHENK 1852 : 349), it became evident that the name *T. hoppeanum* was probably introduced merely to avoid using the combination *Taraxacum taraxacoides:* Firstly, *Leontodon taraxacoides* was given as the first synonym, and, secondly, the very etymology of the name *T. hoppeanum* indicates that it was used as "nomen novum", and should be regarded as a nomenclatural synonym of *Taraxacum taraxacoides:*

Taraxacum taraxacoides (HOPPE et HORNSCHUCH) WILLKOMM in WILLKOMM et LANGE, Prodr. Fl. Hispan. 2 : 231, 1870 Stuttgartiae.
≡ *Leontodon taraxacoides* HOPPE et HORNSCHUCH, Tagebuch einer Reise nach den Küsten des adriatischen Meers, p. 166, 1818 Regensburg.
≡ *Taraxacum hoppeanum* GRISENBACH in GRISENBACH et SCHENK, Arch. Naturgesch., Berlin, 18 : 349, 1852 [nomen novum pro *Leontodon taraxacoides* HOPPE et HORNSCHUCH].

A question cannot be left unanswered: whether the name *Taraxacum taraxacoides* might refer to the plants usually identified as *T. hoppeanum.*

We have studied a syntype of *Taraxacum* (= *Leontodon*) *taraxacoides* in the herbarium PR (no. det. *2873*) — very likely a specimen of the series of exsiccata distributed by HOPPE et HORNSCHUCH as Plantae phanerogamicae selectae, decas prima, no. [7] (cf. HOPPE et HORNSCHUCH 1818 : 278). The plant studied is exceedingly similar to the picture of *Leontodon taraxacoides* that was made according to the authentic material collected by HOPPE et HORNSCHUCH, and published by STURM (1825). We are convinced that this delicate plant belongs to the sect. *Erythrosperma* DAHLST. of the genus *Taraxacum*, and has little in common with the group under study.

What epithet can then be applied to the European plants that have usually been named *Taraxacum hoppeanum*? This name has been used for various plants in various regions, usually without any consistent taxonomic concept; nevertheless, it included (and includes) most often the plants from Bosnia and Banat (it was understood in this way e.g. by HANDEL-MAZZETTI 1923, and, basing on their rich herbarium collections, also by JANCHEN and MALY).

A search of the *Taraxacum* literature failed to reveal any name applicable to these plants which have been collected and recognized for almost 150 years, and it is therefore necessary to describe them as a new species:

Taraxacum ***janchenii*** KIRSCHNER et ŠTĚPÁNEK, sp. nov.

Syn.: *Taraxacum hoppeanum* auct. pro parte max.

Plantae subgraciles vel subrobustae. Folia pallide griseo-viridia, (5–)6–9(–13) cm longa et 1.5–3.0 cm lata, lobo terminali vulgo majore, 2–3 cm longo et aeque lato (lobis lateralibus semper latiore), obtuso vel rotundato; lobis lateralibus numero (0)2–3(4), latis, obtusis usque obtuse acutis, retrorsum ± curvatis, ± integerrimis, basi nonnunquam paucis dentibus; interlobiis latis (0.5–1.5 cm) et brevibus; petiolo pallido (roseo vel violaceo). Involucrum basi (8–)10–11 mm in diametro, squamis exterioribus numero 10–14, adpressis, late ovatis et breviter obtuse apiculatis, eis extremis 4.3–6.0 mm longis et 3–4 mm latis, pallidis, interdum zona mediana lata viridia, apice marginisque roseis, margine albido, ca. 0.15–0.20 mm lato. Stigmata lutea; antherae polliniferae. Achenia saturate usque cinerea rufopurpurea, (4.5–)4.8–5.4(–5.5)

mm longa (pyramide inclusa) et 1.0—1.1(—1.3) mm lata; pyramide 0.9—1.4 mm, rostro (9—)10 usque 12(—13) mm, pappo 4.5—5.5(—6.5) mm longis.

Holotypus: "Süd Bosnien: Felsen bei Starigrad (Kreis Sarajevo)." MALY 1901. In herbario WU (no. det. *1096*) asservatur.

Note: HT = plant left below in Plate I (see also HANDEL-MAZZETTI 1907: Tab. 5, Fig. 7).

Description (see also Fig. 2 and Plate VIII):

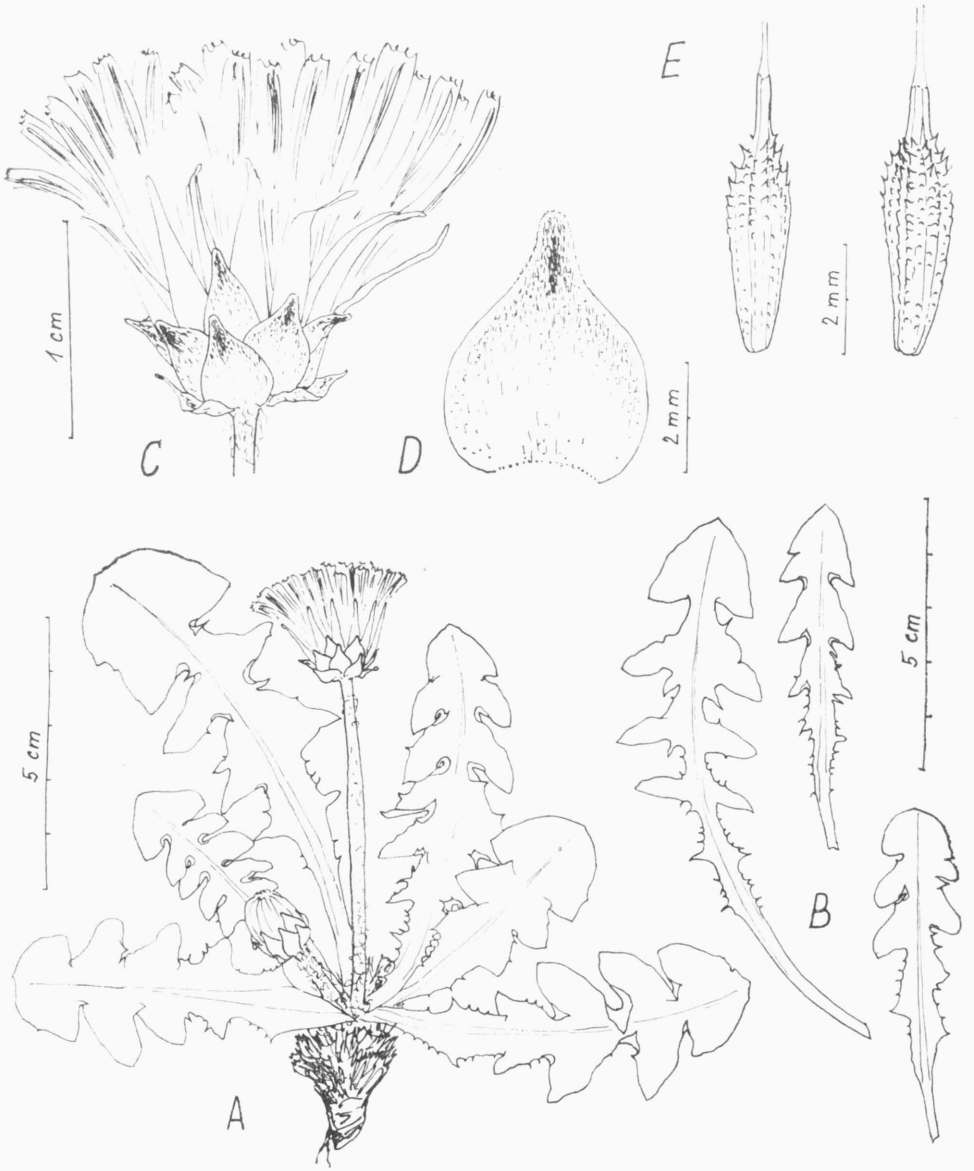

Fig. 2. — *Taraxacum janchenii:* A — general habit (no. det. *2294*), B — leaves (no. det. *2294, 2295, 2292*) C — capitulum (no. det. *1101*), D — outer bract (no. det. *1101*), E — achenes (no. det. *2292, 2295*).

Plants usually medium sized.

Leaves (5—)6—9(—13) cm long, 1.5—3.0 cm wide, glabrous to sparsely arachnoid at the base, greyish green.

Terminal lobe large, obtuse to rounded, entire, 2—3 cm wide (which represents the widest dimension of the leaf), up to 2.5 cm long.

Lateral lobes (0)2—3(4), broad, recurved (usually broadly triangular) obtuse to subacute, distal margin convex, proximal margin (often concave) only rarely dentate at the base. Interlobes broad, 0.5—1.5 cm wide, short, entire. Petiole short (1.5—2.0 cm), 0.2—0.3 cm wide, ± slightly purple. Leaves always with persistent bases.

Scapes 7—10(—13) cm long at the time of flowering, usually little longer than leaves, ± purplish to green, arachnoid at the base and below the capitulum,

Involucre (8—)10—11 mm wide at the base, interior bracts (in flower) (11—)14—16 mm long, ± flat or slightly callous at the apex.

Exterior bracts 10—14, adpressed, broadly ovate, ± abruptly tapering into an obtuse apex, the outermost bracts 4.3—6.0 mm long and 3—4 mm wide, pale yellowish green, pinkish bordered at the apex with darker 2.0 to 3.5 mm wide median zone in the upper half, and with narrow, 0.15—0.20 mm wide whitish margin.

Capitulum 2—3 cm in diameter, ligules yellow, greyish-purple striped.

Stigma yellow. Pollen present.

Achenes deep brownish red to greyish red, (4.5—)4.8—5.4(—5.5) mm long including cone, and ca. 1.9—1.1(—1.3) mm wide (achene body ± abrupty narrowing to form a ± cylindrical or narrowly conical, 0.9—1.4 mm long cone), usually spinulose above. Rostrum (9—)10—12(—13) mm long, pappus 4.5—5.5(—6.5) mm long.

Specima examinata:

Romania: "Turda, inter montes Scăriţa et Belioara" Futák 1964 SAV (no. det. *2484*). — "in cotti Krassoviensi" s. coll. 1835 BP (no. det. *1687*). — "Cazanele Mari, distr. Mehedinţi" Negrean 1964 M (no. det. *1265*). "... pod vrcholem Domugledu" Dvořák 1971 herb. Černoch (no. det. *3808*). — "In lapidosis montis Domaglett ad Thermas Herculis in Banatu" Heuffel s. dat. GOET (no. det. *648*). "Gipfel des Domugled" Fiek 1889 WRSL (no. det. *3578*). — "In saxis calcareis silvae meae Tentzompolyica-ensins" Haynald 1860 BP (no. det. *641*).

Jugoslavija: Srbija: "ad Zlot" Pančić 1869 G (no. det. *2247*), WU (no. det. *1099*). — "Pirot" s. coll. 1892 PRC (no. det. *1989*). — Bosna-Hercegovina: "In monte Vlassich versus Baglari" Sendtner 1847 [Sendtner, Pl. Bosn. Desicc., no. 357] M (no. det. *1267*), K (no. det. *2377*), G (no. det. *2244* et *2245*), W (no. det. *1104* et *1106*). — "Travnik" s. coll. 1884 BRNM (no. det. *1691*). — "Suhi dol bei Višegrad" Handel-Mazzetti 1909 WU (no. det. *1092*). — "Sarajevo" Gilliat-Smith 1931 K (no. det. *2375*). — "Starigrad" Maly 1899 PRC (no. det. 1987), 1900 BRA (no. det. *1226* et *1228*), 1900 FI (no. det. *2254*), 1900 BRNM (no. det. *1692*), 1901 BP (no. det. *643*), 1901 W (no. det. *1108*), 1901 WU (no. det. *1096*), 1903 W (no. det. *1101*). — "Moštanica prope Sarajevo" Maly 1931 OLM (no. det. *1009*). — "Am Trebović bei Sarajevo" Curcic 1902 W (no. det. *1107*), WU (no. det. *612*). — "Trebović" Ostermeyer s.d. LD (no. det. *3796*). — "Lapišnica prope Sarajevo" Maly 1919 BP (no. det. *642*), 1903 SARA (no. det. *2294*). — "Bistritz" Laus 1918 BRNU (no. det. *2269*). — "Bistrički potok" Maly 1899 SARA (no. det. *2292*), 1901 PRC (no. det. *1988*). — "Lipovac" Janchen 1906 WU (no. det. *1089*). — "Zli stup bei Sarajevo" Janchen 1906 WU (no. det. *1088*). — "Miljačkathal: . . . bei der Benbaša-Kafana" Maly 1900 SARA (no. det. *2243*). — "Han Bulog bei Sarajevo" Maly 1907 WU (no. det. *1097*). — "Nächst Han Setluci an der Strasse v. Sarajevo nach Pale" Maly 1902 BRA (no. det. *1225*). — "Han Sitluci" Maly 1907 herb. Rechinger in G (no. det. *3611*). — "m. Laze (Gradina) prope Sarajevo" Maly 1920 SARA (no. det. *2295*). — "Am Perjac bei Vražalice (-Banja Stijena)" Maly 1911 SARA (no. det. *2293*). — "Razdolina prope Dobrun" Maly 1912 BRNU (no. det. *882*). — "Prenj planina, . . . supra vicum Glogošnica" Sillinger et Deyl 1933 PR (no. det. *2261*). — "Prenj pl." herb. Schneider 1911 W (no. det. *1103*). — "Čvrsnica planina, . . . Trinača" Han-

DEL-MAZZETTI 1909 WU (no. det. *1093*), GE (no. det. *3581*). — "Mostar, Stolacfelsen" SAGORSKI 1910 S (no. det. *1269*). — Hrvatska (Croatia): "Dalmatien: Biokovo planina, Sveti Juro" JANCHEN 1908 WU (no. det. *1090*, *1094* et *1095*).

Addition: "Velebit, . . . Seline supra Karlobag" Vajda 1938 BP (no. det. *2993*). — "Velinac supra Karlobag" Vajda 1938 BP (no. det. *2992*). — "Mali Brisovac" Vajda 1938 BP (no. det. *2991*).

Plantae ut "*T.* cf. *janchenii*" determinatae: "in rupibus ad speluncam Golumbáctiensem" BORBÁS 1873 WU (no. det. *1098*). — "In rupestrib. calc. M. Malinik" PANČIĆ 1869 FI (no. det. *2256*). — "Bosnia" SENDTNER 1848 K [transcr.: "SENDTNER, no. 257"] (no. det. *2376*). — "Moštavicaschlucht bei Sarajevo" BECK 1885 PRC (no. det. *1991*). —"Kamešnica, auf der Kamme der Gipfel cota 1810 und Konj" HANDEL-MAZZETTI 1909 WU (no. det. *1086*). — "Veliki Koziak zwischen Vrlika und Knin" BAUMGARTNER 1906 WU (no. det. *1172*). — "Dinarische Alpen, . . . südl. des Dinara-Gipfels" JANCHEN et WATZL 1907 WU (no. det. *1091*). — Makedonija: "Bistra Planina, . . . near Badišah Češme" VAN OOSTSTROOM et HENNIPMAN 1965 L (no. det. *3488*).

As far as we can judge from the literature and herbarium labels, *Taraxacum janchenii* usually grows on calcareous rocks and slopes from 350 to ca. 2000 m. Its geographical range (see Fig. 1) extends from Dalmatia, Bosnia and Herzegovina to Serbia and central Romania [Ju, Rm].

Erythrocarpous plants that are found in subalpine belt of the Dinaric Alps pose a special taxonomic problem. Although usually determined as *T. hoppeanum* in some herbaria, they are only superficially similar to *Taraxacum janchenii*. These plants can be characterized by some conspicuous features: small, usually subentire leaves (often with small acute teeth), ± narrow outer bracts, and small achenes. Also their geographical distribution points to a rather isolated taxonomic position. Since merely non-flowering specimens have been seen[1]), the material is inadequate for a definite description as a new species, but, having a distinctive appearence, it seems worthy to give a brief diagnosis of the Dinaric plants (see also Fig. 3):

Plants small. Leaves 4—6 cm long and 1—2 cm wide, either with remote acute downwards pointing teeth only, or subdivided. Terminal lobe ± narrow, 1.0—1.5 cm long and up to 1.5 cm wide, subacute to acute. Lateral lobes (0)2—3(4), short, subacute to acute, downwards pointing, proximal margin sometimes dentate. Interlobes short.

Involucre (at the time of achene ripening) 9—10 mm wide at the base. Outer bracts adpressed, lanceolate to ovate-lanceolate, 5.0—5.5(—6.5) mm long, (2.0—)2.5—3.0(—3.5) mm wide, dirty green with darker median strip and with narrow, 0.1 mm wide whitish margin.

Achenes dark red to brownish red, spinulose (papillose below), 3.8—4.4 mm long (including 0.8—1.0 mm long cone), and ca. 0.9 mm wide. Rostrum 6.5—7.5(—8.0) mm long, pappus (5.0—)5.5—6.0 mm long.

Material examined:

Jugoslavija, Dinarske Alpe: "Am Abhang des Jankovo brdo gegen die Aldukovačka lokva" JANCHEN et WATZL 1907 WU (no. det. *1196*). — "auf dem Lišan" JANCHEN et WATZL 1907 WU (no. det. *1171*). — "In der Gipfelregion des Troglav" JANCHEN et WATZL 1907 WU (no. det. *1170*).

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[1]) We have also studied some flowering plants (yellow stigmas, usually without pollen) from subalpine sites of Prenj planina Mts. [SILINGER et DEYL 1933 PR (no. det. *2267*)] and from "Hranisava bei Pazarić" [MALY 1905 SARA (nó. det. *2296*)]. Many features of these plants match those of the Dinaric taxon, some others (e.g. shape of more deeply lobed leaves) indicate that these plants are rather different. These aberrant populations should be taken into consideration in further studies of the problem of the Dinaric plants.

At present, only a few representatives of the section Erythrocarpa are known from the Alps. HANDEL-MAZZETTI (1907) was the first to report one of them from this region: among the localities of *T. hoppeanum* some plants collected in Tyrol are listed by him. Later on (as early as in 1911, cf. HANDEL-MAZZETTI 1912), HANDEL-MAZZETTI abandoned this taxonomic conception and described these alpine plants as *T. aquilonare*[2]).

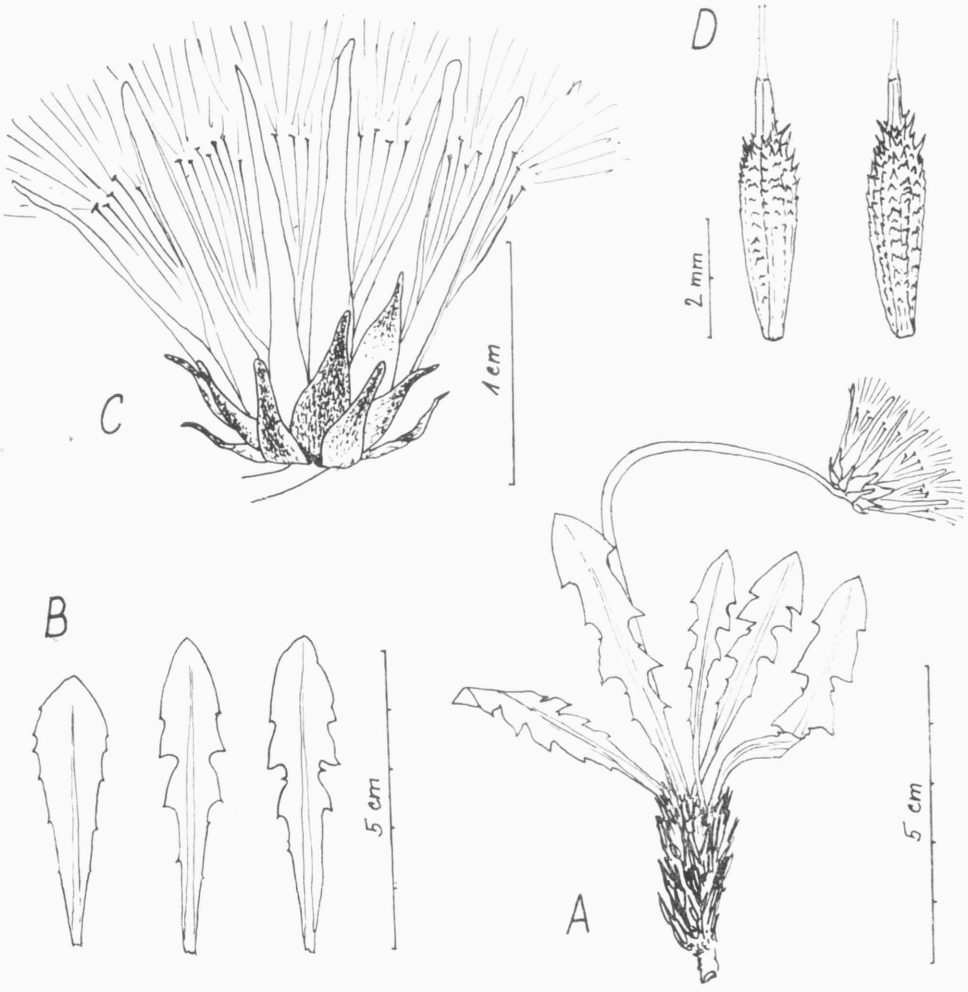

Fig. 3. — *Taraxacum* sp. (plants from Dinaric Alps): A — general habit (no. det. *1169*), B — leaves (no. det. *1170*), C — capitulum (no. det. *1169*), D — achenes (no. det. *1171*, *1170*).

[2]) Mr. C. I. SAHLIN (in litt.) directed our attention to the fact that the name *Taraxacum zermattense* DAHLST. 1907 might be referable to the plants described later as *T. aquilonare*. The former name has been possibly misinterpreted up to now.

Taraxacum aquilonare HANDEL-MAZZETTI in DALLA-TORRE et SARNTHEIM, Farn- und Blütenpfl. Tirol . . . 3 : 687, 1912.

Lectotypes hoc loco electus: "Tirol centr. Brenner. Gossensass. c. 1000 m s. m."[3]) HUTER 1882 [det. HAND.-MAZZ.: *Taraxacum hoppeanum*, revid. HAND.-MAZZ.: *T. aquilonare* HAND.-MAZZ.] W (no. det. 1111).

Brief description (see also Fig. 4):

Plants small.

Leaves (3.5—)4—5(—10) cm long and (1.0—)1.5—2.0(—3.5) cm wide, grey-green. Terminal lobe ± short, broadly triangular to ± trilobate, acute.

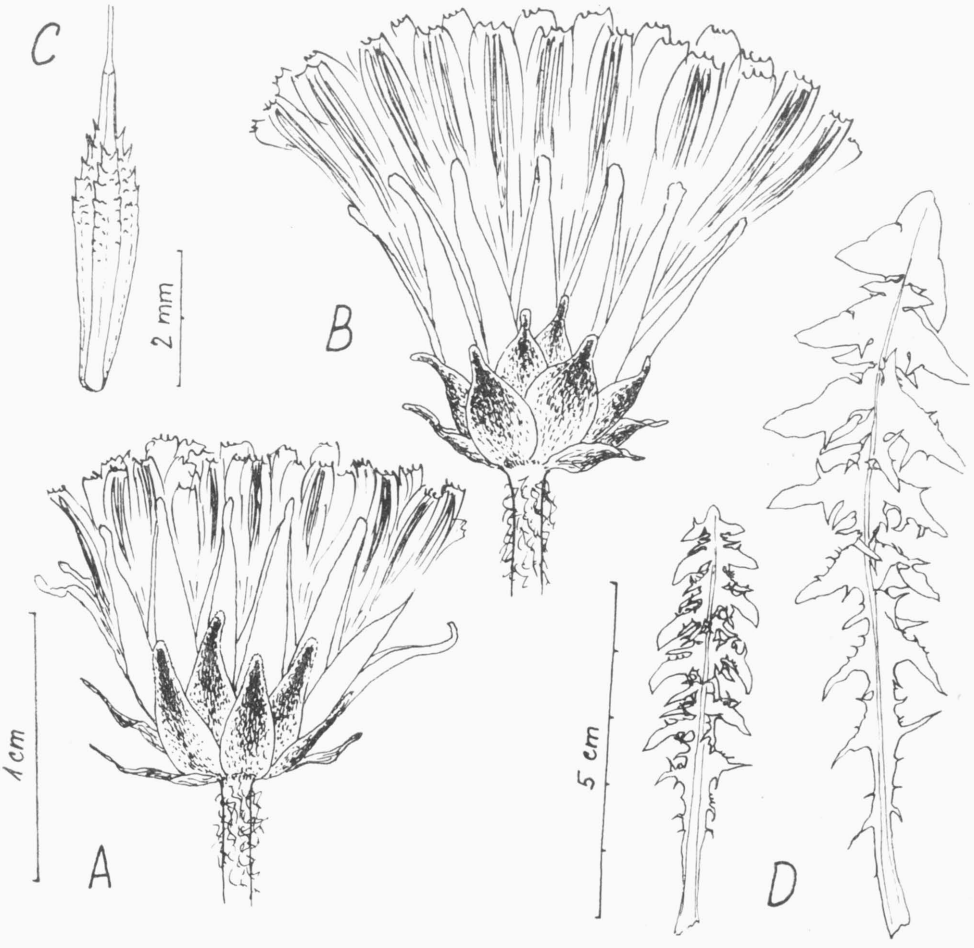

Fig. 4. — *Taraxacum aquilonare:* A — capitulum (no. det. *1111*), B — capitulum (no. det. *2278*), C — achene (no. det. *2481*), D — leaves (no. det. *2278*, *2279*).

[3]) HUTER himself gives only this brief form of the locality description. A more detailed form published in HANDEL-MAZZETTI (1907, 1912) is based on HANDEL-MAZZETTI's personal knowledge of the Gossensass region.

Lateral lobes 3—4, patent, acute, 3—7 mm wide, with large teeth to both distal and proximal margins, only rarely ± entire. Interlobes narrow, 0.5—1.5 cm long, with teeth and lobules. Petioles brownish rose.

Scapes ± densely arachnoid.

Involucre 8—9(—10) mm wide at the base. Exterior bracts 11—17, adpressed, lanceolate to ovate-lanceolate, (4.0—)4.8—5,3(—5.5) mm long, (1.5)—2.0—2.7(—3.0) mm wide, ± acuminate, with dark green median strip (the strip is pale green below) and 0.2—1.0 mm wide whitish to pale green margin.

Stigmas (yellowish) green. Pollen absent.

Achenes brownish red, (4.5—)4.6—5.0 mm long (including 0.9—1.3 mm long cone), and 0.8—0.9 mm wide, ± sparsely spinulose above, otherwise ± smooth. Rostrum 8—10 mm long, pappus 5.0—5.5 mm long.

Agamospermous.

FÜRNKRANZ (1965) reports a triploid chromosome number (2n = 24) for *Taraxacum aquilonare*.

Geographical distribution (see Fig. 1):

Taraxacum aquilonare is confined to the Alps. The localities known hitherto are scattered along the mountain ranges extending from the Tyrolese Alps and the Graubündener Alpen to the Walliser Alpen and Haute Savoie [Au, Ga, He, It].

Specimina examinata:

Österreich (Austria): "Brenner. Gossensass." HUTER 1882 W (no. der. *1111*). — "prope Gossensass ad pedem austr. jugi Brenner" HANDEL-MAZZETTI 1904 K (no. det. *1978*). — "Sub rupibus erectis prope Gossensass . . ." Hermann HANDEL-MAZZETTI 1906 G (no. det. *2246*), FI (no. det. *2255*), LE (no. det. *3580*). — "Stubental bei Pfunds" VETTER 1926 W (no. det. *1102*).

Helvetia (Switzerland): "Gornergrat" W. KOCH 1939, 1940 ZT (no. det. *2273*, *2277*, *2278*, *2481*, *2482*), MELZER 1961 herb. MELZER (no. det. *3229*). — "Zermatt, boven Tuftern" VAN SOEST 1972 L (no. det. *3486*). — ". . . Grünseegebiet onder Gornergrat" VAN SOEST 1972 L (no. det. *3483*). — "Graubünden: Bergell, Val Maroz" MAURIZIO 1972 L (no. det. *3484*). — "Unterengadin, Val Sesvenna, an der Südseite des Piz Cornet . . . oberhalb Alpe Marangun" MELZER 1957 herb. MELZER (no. det. *3228*). — "Zermatt . . ." MELZER 1961 herb. MELZER (no. det. *3230*). — "Nikolaital: . . . von Kalpetran nach Grächen" W. KOCH 1950 ZT (no. det. *2279*). — "Simplon" CHENEVARD 1891 G (no. det. *2248*). — "Albula" LEHMANN 1876 ZT (no. det. *2276*). — "Brattas" BRANGER 1911 ZT (no. det. *2281*). — "Höhe des Ofenpasses" W. KOCH 1953 ZT (no. det. *2280*). — "Compatsch" W. KOCH 1931 ZT (no. det. *2274*).

Italia: "Flora valdostana: Pinolo S. Bernardo" VACCARI 1897 FI (no. det. *2253*).

France: "Hautes Alpes. Col de Lautaret" A. J. RICHARDS 1974 herb. A. J. RICHARDS (no. det. *1249*). — "Drome. Lus-la Croix Hte. Sommet du Haut Bouffet" FABRE 1975 L (no. det. *3485*). — Vaucluse. Mt. Ventour" BERNARD 1975 L (no. det. *3480*).

Plausible record: Espaňa, Pyrenees: "prov. Huesca" herb. JACA, C. I. SAHLIN (in litt.).

The second species of the section *Erythrocarpa* in the Alps, *T. caespitosum* VAN SOEST (probably a local endemic of the Walliser Alpen), was discovered recently (VAN SOEST 1976). We do not consider it necessary to deal with this taxon in detail, since the delicate Erythrosperma-like plants with ± yellow stigmas, lacking pollen, and with small achenes (cf. ZT, no. det. *2275*) can hardly be confused with any other European member of this section.

At the beginning of this century, FIORI and BÉGUINOT distributed erythrocarpous plants of a most distinctive appearence also under the name *Taraxacum hoppeanum* (Flora Italica Exsiccata, no. 1995). We have studied these plants in several herbarium collections. By comparison with the morphologically clostest species, the plants examined proved to differ from

them in a series of important features. A survey of the geographical distribution of some European *Erythrocarpa* (Fig. 1) also suggests that the above plants collected in the Italian part of the Alpes Maritimes occupy an exceptional position among the representatives of the *T. hoppeanum* agg.

They can be easily distinguished from *Taraxacum janchenii* by their green stigmas, and, upon closer examination, their L—S pattern is substantially different from that of *T. janchenii*. Some distinguishing characters also can be found in the outer bracts. Furthermore, it is not difficult to draw a line

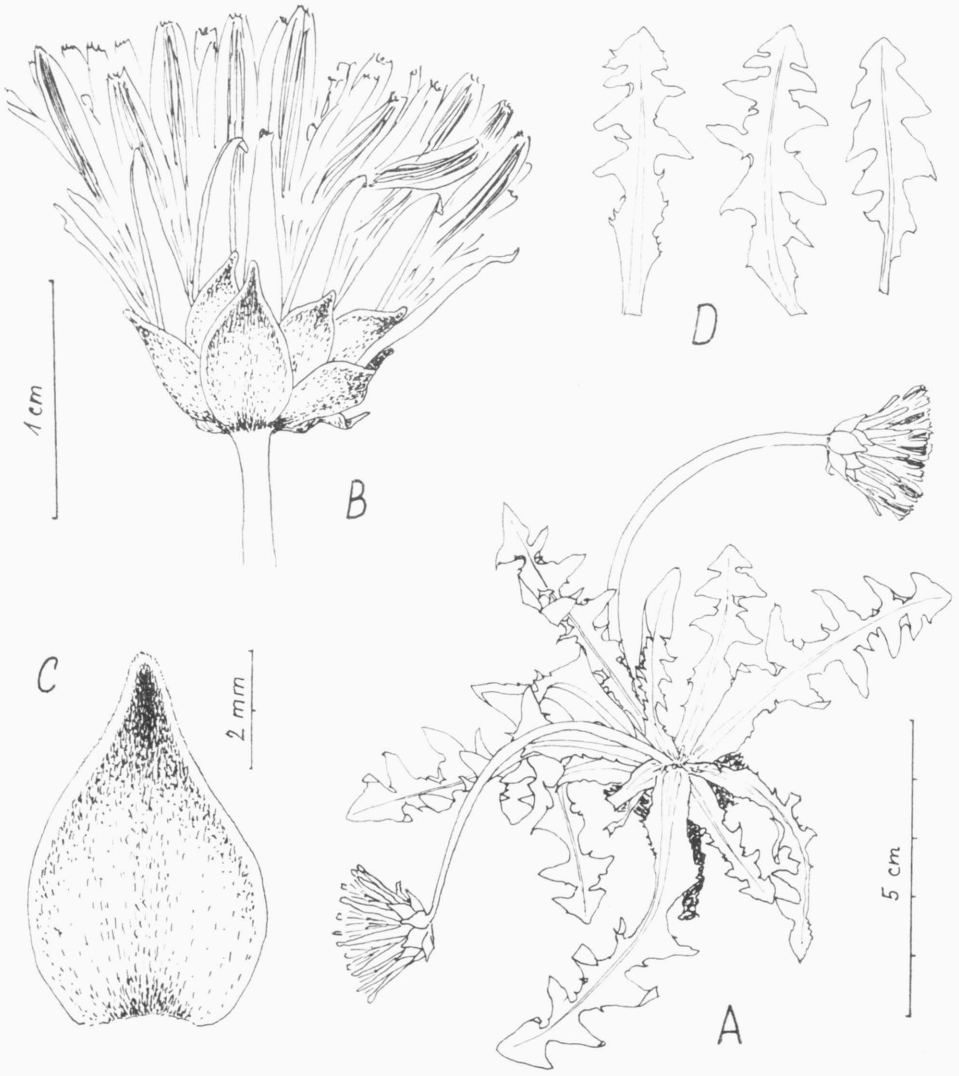

Fig. 5. — *T. pseudohoppeanum:* A — general habit (no. det. *2374*), B — capitulum (no. det. *2374*), C — outer bract (no. det. *2374*), D — leaves (no. det. *1995*).

between the Italian taxon and *Taraxacum aquilonare:* the former possesses poliniferous anthers, and also the L—S patterns and exterior involucral bracts represent considerable differences.

In spite of the fact that these plants were collected repeatedly only in a single locality, we are convinced that the material available is sufficient (i.e. involving the range of plasticity of the population sampled) to form a basis for describing the noteworthy Italian plants as a new species.

Taraxacum ***pseudohoppeanum*** KIRSCHNER et ŠTĚPÁNEK, sp. nov.

Plantae subgraciles usque subrobustae. Folia (3.5—)4—6(—10) cm longa et 1.5—3.0 cm lata, lobo terminali pro more lobis lateralibus angustiore, persaepe acuminato, interdum obtuso, integerrimo vel margine distali basi asymmetrice inciso, lobulis basalibus ± patentissimis, acutis; lobis lateralibus numero (2)3—4(5), anguste usque late triangularibus, ± patentissimis vel retrorsum ± curvatis, plerumque integerrimis; interlobiis 4—8(—10) mm longis, dentibus angustis paucis; petiolo alato, pallido (roseolo?). Involucrum basi (8—)9—11 mm in diametro, squamis exterioribus adpressis, numero 10—12, ovatis usque late ovatis, 5.5—6.5 mm longis, 2.9—3.9 mm latis, pallidis (pallide viridis?), in tertia parte superiore zona mediana ± obscure chlorina, apice roseis, margine albido, ca. 0.2—0.3 mm lato. Stigmata pallide (lutee) viridia; antherae polliniferae. Achenia ± rufa, (3.6—)4.1—4.5 mm longa (pyramide inclusa) et 0.8 usque 1.0 mm lata; pyramide 0.7—1.2 mm, rostro 6.5—7.0 mm, pappo 4.0—5.5 mm longis.

Holotypus: "Alpes Maritimae. — Prov. di Cuneo: Pian Tendasco supra Val Casterino di Tenda, in pratis alpinis, alt. 2000 m, solo calcareo" BICKNELL et POLLINI 1911 [FIORI et BÉGUINOT, Fl. Ital. Exs., no. 1995] K (no. det. *2379*).

Specimina examinata: [ibidem] BP (no. det. *2374*), OXF (no. det. *1242*), Z (no. det. *2250*) ZT (no. det. *2282*), LE (no. det. *3579*). — "Pian Tendasco di Tenda" BICKNELL 1912 KRA (no. det. *3315*). — "Supra Baissa di Peciafica [?], V. Casterino di Tenda" BICKNELL 1914 GE (no. det. *3582*).

Description (see also Fig. 5 and Plate X)

Plants small to medium sized.

Leaves (3.5—)4—6(—10) cm long and 1.5—3.0 mm wide, usually sparsely arachnoid at the base, ± yellow-green.

Terminal lobe ± short, usually narrower than the middle part of leaf, ± broadly triangular, acute or sometimes subacute, often with basal (proximal) acute ± patent lobules, sometimes almost trilobate or asymmetrically subdivided.

Lateral lobes (2)3—4(5), narrow to triangular, 0.5—1.5 cm long, patent to recurved, acute (sometimes with convex distal margin), usually ± entire, rarely with small distal basal teeth. Interlobes ± long, usually 4—8(—10) mm, and 3—6 mm wide, usually with 1—2 (or more) narrow acute patent teeth.

Petiole winged, at least 4 mm wide, 1.5—2.0 cm long, ± pale green to pale purplish. Leaves usually with persistent bases.

Scapes 8—10(—11) cm long at the time of flowering (little longer than leaves), probably purplish, sparsely arachnoid.

Involucre (8—)9—11 mm wide at the base. Interior bracts (in flower) 11—14 mm long, callous to ± corniculate (rarely flat) at the apex.

Exterior bracts 10—12, adpressed, ovate to broadly ovate, outermost bracts 5.5—6.5 mm long and 2.9—3.9 mm wide, pale green at the base, with darker median strip and suffused with purple in the upper third, with narrow (0.2—0.3 mm) scarious margin, ± flat.

Capitulum 2.0—2.5 cm in diameter; ligules yellow, striped purplish grey.

Stigma (yellowish) green. Pollen present.

Achenes light red-brown, (3.6—)4.1—4.5 mm long including cone, and

0.8—1.0 mm wide [achene body ± abruptly narrows to form a cylindrical (0.7—)0.8—1.0(—1.2) mm long cone], spinulose (to papillose) above, otherwise ± smooth. Rostrum 6.5—7.0 mm long, pappus 4.0—5.5 mm long.

"*TARAXACUM HOPPEANUM*" IN CZECHOSLOVAKIA

In 1930, the Czech botanist J. SUZA came across remarkable dandelions in the Biele Karpaty Mts. (W. Slovakia), and sent them promptly to H. von HANDEL-MAZZETTI who identified these plants as *Taraxacum hoppeanum* (SUZA 1930).

Fig. 6. — *Taraxacum erythrocarpum:* General habit (no. det. *3701*).

The examination of the voucher specimens left no doubt that these Carpathian plants [discovered later also in the Malé Karpaty Mts. (SUZA 1937) and Strážovská hornatina Mts. in the same region (see Fig.1)] have little in common with any of the other taxa that have been included in *Taraxacum hoppeanum*. Particularly, the spreading-recurved exterior bracts of the above plants should be emphasized as a feature that can be found neither in *T. janchenii*, *T. aquilonare*, nor in *T. pseudohoppeanum*.

At first we assumed that the plants collected by SUZA may refer to *Taraxacum pieninicum* PAWŁ., a species which also occurs in the Western Carpathians (Pieniny Mts.), and which was described a short time before 1930. However, it was not until we examined cultivated plants from the Biele Karpaty Mts. in detail and re-evaluated the original material of *T. pieninicum* (herb. PAWŁOWSKI in KRAM), that we realized that the Slovak populations represented a distinct species:

Taraxacum ***erythrocarpum*** KIRSCHNER et ŠTĚPÁNEK, sp. nov.

Plantae subgraciles usque mediocres. Folia subgriseo-chlorina, (4—)6—7(—12) cm longa, (1.0—)1.3—1.8(—2.0) cm lata, lobo terminali late triangulari vel triangulari, obtuse acuto vel acuto, quodammodo parvo, 1.0(—1.5) cm longo et 1.0—1.2 cm lato; lobis lateralibus numero 3—4, angustis, divaricatis, retrorsum curvatis, in parte basali in marginibus proximalibus vel etiam distalibus ± denticulatis; interlobiis (3—)5—7(—10) mm longis, saepe inaequaliter acute denticulatis vel obtuse grosse dentatis; petiolo angusto vel anguste alato, saepe viridi vel pallide roseo-violaceo. Involucrum basi (8—)10—11 mm in diametro, squamis exterioribus numerosis (17—19), patentissimis usque reclinatis, lanceolatis usque anguste triangularibus, 4—6(—7) mm longis et (2.0—)2.3—2.6(—3.2) mm latis, albide roseis, margine albido, ca. 0.2 mm lato. Stigmata mere lutea; antherae polliniferae. Achenia saturate rufopurpurea, (4.0—)4.5—5.1(—5.7) mm longa (pyramide inclusa) et 0.9—1.2 mm lata; pyramide (1.1—)1.3—1.5(—1.6) mm; rostro

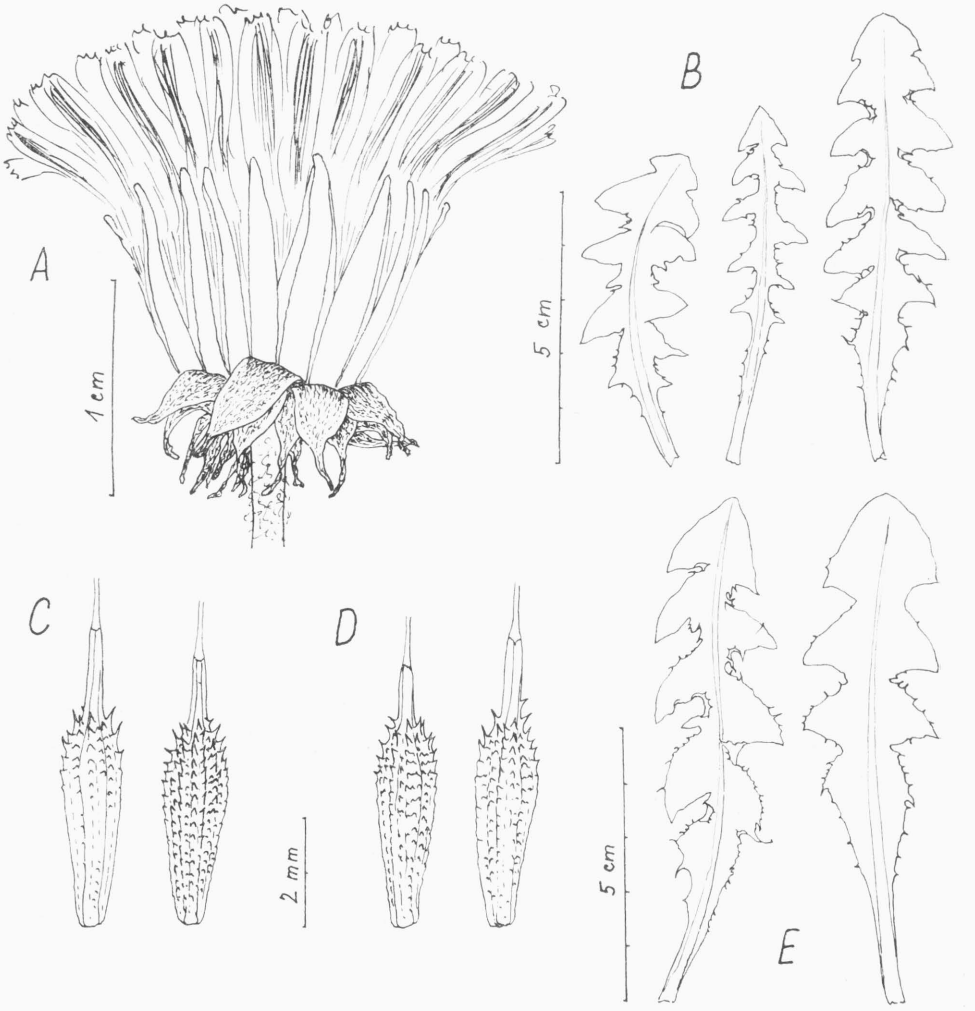

Fig. 7. — *Taraxacum erythrocarpum:* A — capitulum (no. det. *2875*), B — leaves (no. det. *2284, 2875*), C — achenes (no. det. *109, 2284*); *T. pieninicum:* D — achenes (no. det. *2444*), E — leaves (no. det. *1446, 2444*).

8—9(—9.5) mm, pappo (5.5—)6—7 mm longis. Chromosomatum numerus 2n = 32. Species agamosperma.

Holotypus: "ČSSR. Slovakia occidentalis, montes Malé Karpaty: in rupibus calcareis in jugo ca. 0.5 km situ orientali a ruina arcis Ostrý kameň, inter pagos Buková et Smolenice. Alt. ca. 660 m s. m." KIRSCHNER 1984. In herb. PR (no. det. *3701*) asservabitur.

Isotypi: ibidem (no. det. *3699*, *3592*, *3700*, *3702*).

Specimina examinata: "Malé Karpaty, Smolenice: Ostrý kámeň — Burian, in rupib. calc., c. 450—550 m s. m." SUZA 1937 BRNU (no. det. *110*), PRC (no. det. *36*). — "Malé Karpaty, Smolenice: in valle 'Padlá voda', in rupib. calc., c. 350 m s. m." SUZA 1937 BRNU (no. det. *109*), PRC (no. det. *35*). — "Bílé Karpaty, Vršatec: in rupib. calc., 700 m s. m." SUZA 1930 BRNU (no. det. *2284*). — "Bílé Karpaty, Vršatec" ŠTĚPÁNEK 1982 [Plantae cultae in horto experimentale in Průhonice sub no. JŠ 215] herb. auct. (no. det. *2875*). — "Vršatec, skalnatá stráň nad Vršateckým Podhradím" FUTÁK 1958 SAV (no. det. *1718*). — "Skály Babek nad Červeným Kamenem ve skupině Vršatce" ČERNOCH 1958 herb. ČERNOCH (no. det. *3762*). — „Strážovská hornatina, Vápeč, pod vrcholom, 960 m" ZAHRADNÍKOVÁ 1962 SAV (no. det. *2483*). — "na jižním svahu M. Manína" HADINEC 1976 MP (no. det. *3827*).

Plausible record

Bílé Karpaty Mts., below the summit of Mt. Chmelová, 926 m (SUZA 1930).

Description (see also Figs. 6 and 7):

Plants small to medium sized.

Leaves ± narrow, (4)6—7(12) cm long, (1.0—)1.3—1.8(—2.0) cm wide, usually sparsely arachnoid, greyish deep green.

Terminal lobe ± small, 1.0—1.2 cm wide and 1.0—1.5 cm long, broadly triangular to triangular, subacute to acute, ± entire, rarely with 1—2 lateral lobules, usually narrower than the widest dimension of the leaf.

Lateral lobes 3—4, ± narrow, narrowly triangular, recurved (distal margin often convex), usually entire or with small proximal and/or distal teeth at the base.

Interlobes ± long [(3—)5—7(—10) mm], usually narrow (3—4 mm), usually with small teeth or more rarely with lobules.

Petiole narrow to narrowly winged, 2—4 mm wide, usually green to pale pinkish. Leaves with persistent bases.

Scapes 6—11 cm long at the time of flowering, little longer than leaves, purplish at the base, sometimes with 1(—2) rudimentary linear bract.

Involucre (8—)10—11 mm wide at the base. Interior bracts (in flower) 9—13 mm long, usually with a small thickening at the apex.

Exterior bracts 17—19, spreading (or slightly recurved), narrowly triangular to lanceolate, 4.0—6.2(—7.0) mm long and (2.0—)2.3—2.6(—3.2) mm wide, pale green at the base, otherwise pinkish, with inconspicuous (rarely distinct) darker median strip in the upper third, and with a narrow (0.2 mm) white margin. Apices to the bracts flat to corniculate.

Capitulum 2.0—2.5 cm in diameter, ligules yellow, striped greyish pink.

Stigma yellow. Pollen present.

Achenes deep brownish red, (4.0—)4.5—5.1(—5.7) mm long including cone, and 0.9—1,2 mm wide [achene body ± abruptly narrowing into a ± narrow cylindrical (1.1—)1.3—1.5(—1.6) mm long cone], spinulose above, otherwise papillose. Rostrum 8.0—9.0(—9.5) mm long, pappus (5.5—)6.0—7.0 mm long.

Chromosome number: 2n = 32.

Agamospermous.

Taraxacum erythrocarpum very likely represents an endemic of the Western Carpathians [Cz]. It has only been recorded from the basin of the river Váh,

being confined to several limestone or dolomite cliffs dominating the mountain ranges of the Biele Karpaty Mts., Malé Karpaty Mts. and Strážovská hornatina Mts. (see Fig. 1). The possibility cannot be excluded that *T. erythrocarpum* occurs also in other similar sites in this region.

T. erythrocarpum grows exclusively on steep rocky slopes or scree with sparse vegetation; this type of habitat probably has never been covered with wood during the Holocene. SUZA (1930) regards "*Festucetum glaucae*" as a typical plant community for *T. erythrocarpum*,

The following phytocoenological relevé (very likely a marginal community of *Seslerio-Asterion alpini* HADAČ 1962) can serve as a good example of the vegetation at Vršatec hill (the Bielé Karpaty Mts.) with *Taraxacum erythrocarpum* present.

(Locality: S.S.E. slope of the limestone cliff, ca. 750 m a. s. l., disintegrating scree stabilized by tufts of *Sesleria*. Inclination: 40°.Area: 2 m². Coverage [E_1]: 60 %. 12. 7. 1982.)

E_2: *Sorbus aria* agg. — 10 %.

E_1: *Sesleria albicans* KIT. ex SCHULT. 3, *Aster alpinus* L. 1—2, *Saxifraga paniculata* MILLER 1—2, *Festuca pallens* HOST 1, *Leontodon incanus* (L.) SCHRANK 1, *Taraxacum erythrocarpum* 1, *Teucrium montanum* L. s. str. 1, *Erysimum odoratum* EHRH. +, *Euphorbia cyparissias* L. +, *Sempervivum* sp. +, *Seseli osseum* CRANTZ +.

Taraxacum erythrocarpum, a tetraploid agamospermous species, resembles to a certain extent the sexual diploid, *T. pieninicum* PAWŁ, (cf. MAŁECKA 1961, see also the comparison below). In addition-to morphological similarity, the geographical distribution suggests that these two species are closely related phylogenetically, as well.

Taraxacum pieninicum PAWŁOWSKI, Bull. Acad. Polon. Sci. Lett., cl. math.-natur., ser. B (sci. natur.), Cracovie, 1924 : 109, 1924.

Brief description

(For a detailed one see PAWŁOWSKI 1924 and TACIK 1980; see also Fig. 7 and Plate IX)

Plants medium sized to robust.

Leaves (9—)10—13(—15) cm long and 2.0—3.5 mm wide, grey green. Terminal lobe large, broadly triangular, little narrower to broader than the widest dimension of the leaf, subacute, 2.5—3.0 cm long and 1.5—3.0 cm wide, entire or with small recurved teeth. Lateral lobes 3—4 (6), usually broadly triangular, recurved and distally convex, with minute teeth to distal as well as proximal margins. Interlobes up to 7 mm long, broad, entire or with small teeth. Petiole narrowly winged, pale (brownish) pink.

Involucre 10—11(—13) mm wide at the base. Outer bracts 16—19, subrecurved (± patent with recurved apices), lanceolate to narrowly triangular, 7.0—8.0(—9.5) mm long and (2.5—)3.0—3.8(—4.2) mm wide, pale green above, with pinkish upper part and pinkish border, and with a narrow (0.1—0.2 mm) white margin.

Stigmas clear yellow. Pollen present.

Achenes deep brownish red, (4.5—)5.3—5.6 mm long including cone, and 1.0—1.2 mm wide [achene body narrows into (1.1—)1.4—1.6 mm long cone], spinulose above, otherwise papillose. Rostrum (7.5—)8.0—10.0 mm long pappus 5.0—6.5 mm long.

Chromosome number: 2n = 16 (MAŁECKA 1958, 1961, 1962).

Sexual.

Lectotypus [a T. Tacik in a. 1982 electus]: "Trzy Korony w Pieninach. Skały wapienne . . . obok Okrąglicy" Pawłowski 1922 herb. Pawłowski in KRAM (no. det. *2444*) [Two plants with ripe fruits.].

The description was compiled considering also the following specimens from the same locality: no. det. *2446* (a plant in flower), *2441*, *2442*, *2443*, *2445*, *3234*. This material is not always well preserved; however, it probably represents the complete evidence available. (The species is now believed to be extinct.)

Taraxacum pieninicum, apparently an endemic of the Pieniny Mts., has so far been found to occur only in the Polish part of this mountain range; its occurrence in Czechoslovakia (cf. Domin 1936, Dostál 1950 etc.), although not impossible, has never been confirmed [?? Cz, Po].

On comparison, the following differences between *Taraxacum pieninicum* and *T. erythrocarpum* can be observed: The plants of *T. pieninicum* are more robust and in many parts larger (e.g. longer and broader leaves, substantially longer and broader outer bracts, longer scapes, and larger flower heads). The L—S pattern also provides useful differential characters: in *T. pieninicum*, terminal lobe to the middle leaves is larger, little narrower or broader than the other parts of leaf blade, broadly triangular, ± subacute to subobtuse, while *T. erythrocarpum* has ± small, narrow, triangular and acute to subacute terminal lobe to the leaves. In *T. pieninicum*, the lateral lobes are broadly triangular, usually with shortly dentate distal and proximal margins, while in *T. erythrocarpum*, these lobes are narrow, subentire or only with basal teeth.

Karyology, embryology and the breeding system of *T. pieninicum* were thoroughly examined by J. Małecka (1961). This important work revealed the presence of sexual reproduction and diploidy in the plants examined. On the other hand, cultivated plants of *T. erythrocarpum* (locality: Vršatec, Bielé Karpaty Mts.) have proved tetraploid (as well as those from the type locality), having $2n = 32$, and agamospermous (isolated flower heads yielded a full set of achenes; this simple method, however, does not exclude autogamy, which we consider hardly possible).

Preliminary observation of the pollen size showed that *T. erythrocarpum* possesses much more variable pollen grains (with higher proportion of abortive pollen grains).

"*TARAXACUM HOPPEANUM*" VERSUS *TARAXACUM CALOCEPHALUM*

The section *Erythrocarpa* exhibits a great diversity in the southern part of the Balkan Peninsula and eastwards of this region; these eastern representatives of the section are, however, only distantly related to the group of taxa under study (*Taraxacum hoppeanum* agg.). This is also the case of *Taraxacum calocephalum* Hand.-Mazz. and related taxa. Richards and Sell (1976) introduced an interesting taxonomic idea recently, having relegated *Taraxacum calocephalum* to the synonymy of *Taraxacum hoppeanum* in the Flora Europaea.

With respect to the importance of their account of European *Erythrocarpa*, we should like to add some comments on this eastern group of taxa.

Taraxacum calocephalum shares only a few characteristics with the plants

referred to *Taraxacum hoppeanum* agg. — perhaps they have in common chiefly the general feature that both names covered a mixture of taxa in HANDEL-MAZZETTI's Monograph.

Despite the fact that HANDEL-MAZZETTI (1907) included in *Taraxacum calocephalum* a series of various plants collected in the area extending from the eastern Mediterranean to Iraq, it seems probable that this name is based on the examination of a rich and well-preserved collection of Greek plants that had been distributed by SINTENIS (P. SINTENIS, Iter Thessalicum 1896, no. 182). This opinion is strongly supported by the fact that the Greek plants answer very well to the protologue and, especially, to the drawing (HANDEL-MAZZETTI, op. c., Tab. III, fig. 9). The usage of this name in some later works (e.g. DAHLSTEDT 1926, VAN SOEST 1960, 1977) corresponds to this taxonomic concept, although the name has not been formally lectotypified. Furthermore, *Taraxacum calocephalum* s.str. is probably the only member of the eastern group that is known more satisfactorily:

Taraxacum calocephalum HANDEL-MAZZETTI, Monogr. Gatt. Tarax., p. 106, 1907.

Brief description (see also Fig. 8 and 10, and Plate XI).

Plants medium sized to robust.

Leaves usually 10—18 cm long. Terminal lobe broadly triangular to triangular, (2)3—4 cm long and ca. 4 cm wide, acute, ± entire. Lateral lobes (3)4(5), triangular to narrowly triangular, slightly downwards pointing, acute, usually dentate proximally. Petiole unwinged, narrow, purplish.

Involucre 10—12 mm wide at the base. Outer bracts ca. 17—20, loosely adpressed to erect-spreading, lanceolate to ovate-lanceolate, (6.5—)7.5 to 9.0(—10,0) mm long and (2.5—)3.3—4.0(—4.5) mm wide, (blackish) green (reddish at the apex), with conspicuous, 0.3—0.7 mm wide white margin.

Stigmas dark green. Pollen present.

Achenes (pale) greyish red to light brownish red, (4.8—)5.0—5.5 mm long including cone, and 1.1—1.2 mm wide [achene body ± gradually narrows into 1.2—1.5 mm long cone], spinulose above. Rostrum (8—)9—10 mm long.

Chromosome number: 2n = 32 (localities: Dodoni, no. det. *3734*, and Metsovo, no. det. *3740*).

Lectotypus hoc loco electus: "Kalampaka. Hagios Stephanos" SINTENIS 1896 PRC [SINTENIS, Iter Thessal., no. 182][4]) (no. det. *2139*)

Isolectotypi: "Pindus Tymph.: Kalampaka: in fauce Karawa prope Hag. Stephanos" [The original label of no. 182 of the series, written by SINTENIS] SINTENIS 1896 BRNM [herb. FREYN] (no. det. *1693*). — "Kalampaka. Hagios Stephanos". SINTENIS 1896 K (no. det. *1986*), WU (no. det. *611*) etc. (vide etiam HANDEL-MAZZETTI 1907: 107).

Fig. 8. — *Taraxacum calocephalum:* A — achenes (no. det. *611*), B — capitulum (no. det. *1109*); *T. cinnamomeum:* C — capitulum (no. det. *1623*), D — achenes (no. det. *1487*), E — outer bract (no. det. *1623*), F — leaf (no. det. *1487*).

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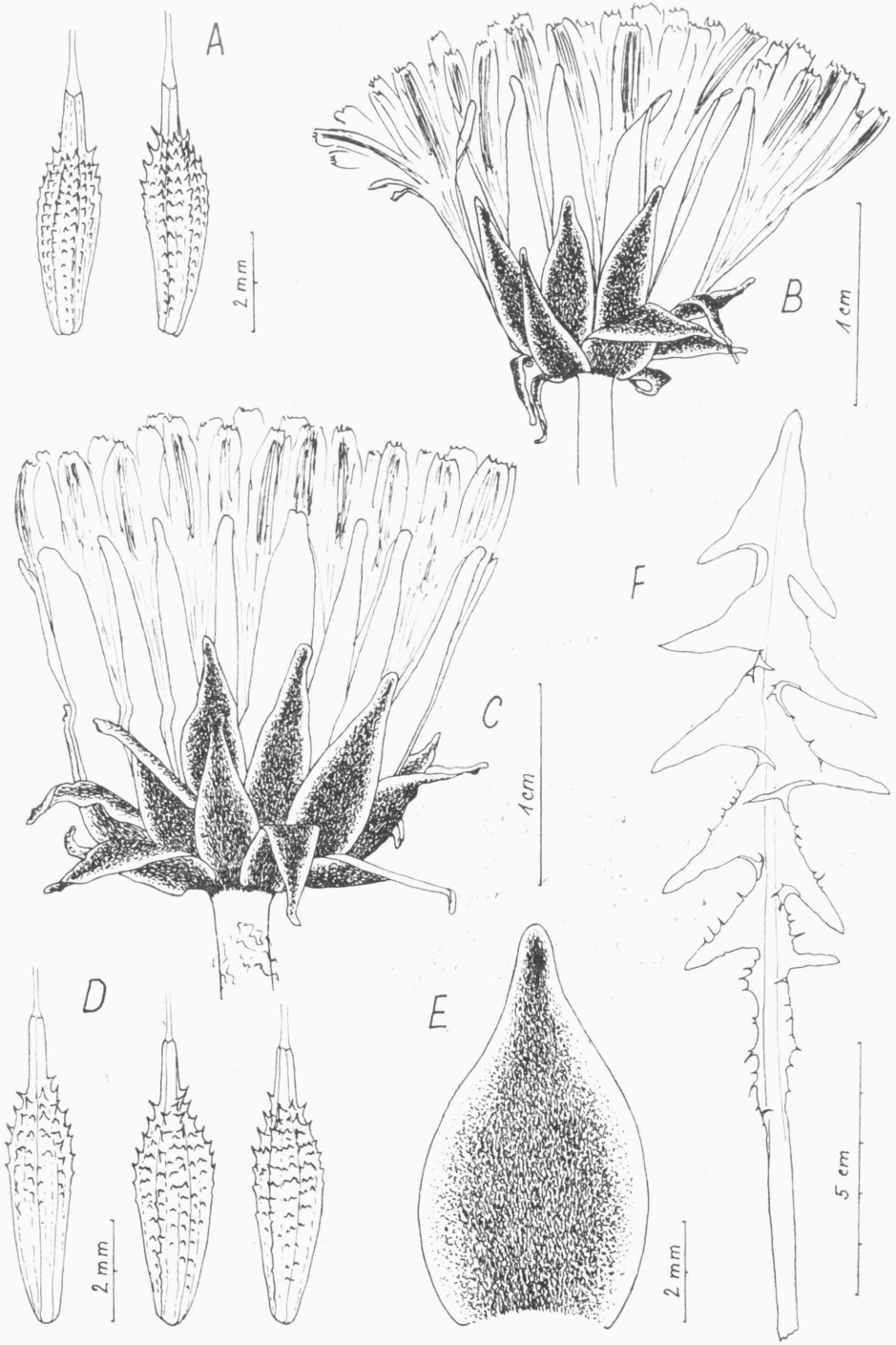
[4]) The importance of no. 182 of this series of exsiccata was recognized by DAHLSTEDT (1926) and by VAN SOEST (1977) but they unfortunately failed to select only one single specimen as the type. We consider the specimen deposited at PRC as the best preserved one of the equivalent collections listed in the text.


A
2 mm
B
1 cm
C
1 cm
D
2 mm
E
2 mm
F
5 cm

Specimina cetera examinata:

Shqiperi (Albania): "Mittel-Albanien: inter Prizren et Debra, M. Galica-Lums . . ." KÜMMERLE 1918 WU (no. det. *1168*).

Hellas (Greece): "In monte Parnassos supra Delphos" [plantae in Scandinavia cultae] SAMUELSSON 1921 S (no. det. *1480* et *1599*), W (no. det. *1109*), 1925 LD (no. det. *3798*). — "Kalampaka: Hagios Stephanos, in fauce Karawa" SINTENIS 1896 LD (no. det. *3797*). — "Thessalia, Litochron. Sluttn. av Olympos" SONCK 1981 herb. SONCK (no. det. *3739*). — "Thessalia. Olympos" SONCK 1982 herb. SONCK (no. det. *3736*). — "Thessalia, Trikala, Koridallos, vid vägen ca 2 km mot Metsovo" SONCK 1984 herb. SONCK (no. det. *3740*). — "Epiros, Ioannina, Dodoni" SONCK 1984 herb. SONCK (no. det. *3734*). — "Epiros, Ioannina, Monodendri" SONCK 1984 herb. SONCK [Tar. Exs., no. 26] (no. det. *3733*). — "Olympos,... mellan Stavros och Litochron" SONCK 1983 herb. SONCK (no. det. *4574*). — "Trikala, Trigona" SONCK 1984 herb. auct. (no. det. *4575*). — "Ioannina, Vitsa" SONCK 1984 herb. auct. (no. det. *4577*). — "Magnesia, Portaria" SONCK 1982 herb. auct. (no. det. *4578*). — "Lakonia, ca. 1 km along the road to Karyé" SONCK 1984 herb. auct. [Tar. Exs., no. 27] (no det. *4576*).

Provided that our knowledge of the distribution of *T. calocephalum* is reasonably complete, this species is confined to the southern part of the Balkan Peninsula [Al, Gr]. Of the other specimens of *T. calocephalum* that HANDEL-MAZZETTI had at his disposal and/or listed in his Monograph (HANDEL-MAZZETTI 1907 : 107), we have studied the following material from Iraq: "Terek" HAUSSKNECHT 1867 G (no. det. 2136), and "Egin" SINTENIS 1890 BRNM (no. det. 1990). These plants, however, do not belong to *T. calo-*

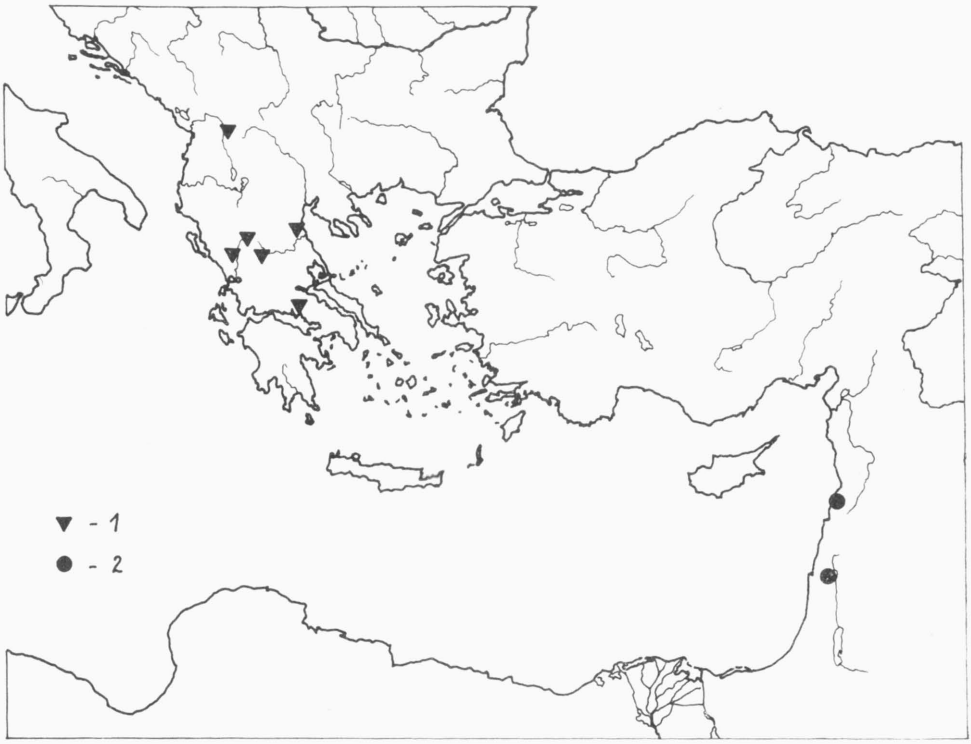


Fig. 9. — Geographical distribution of *Taraxacum calocephalum* (1) and *T. cinnamomeum* (2).

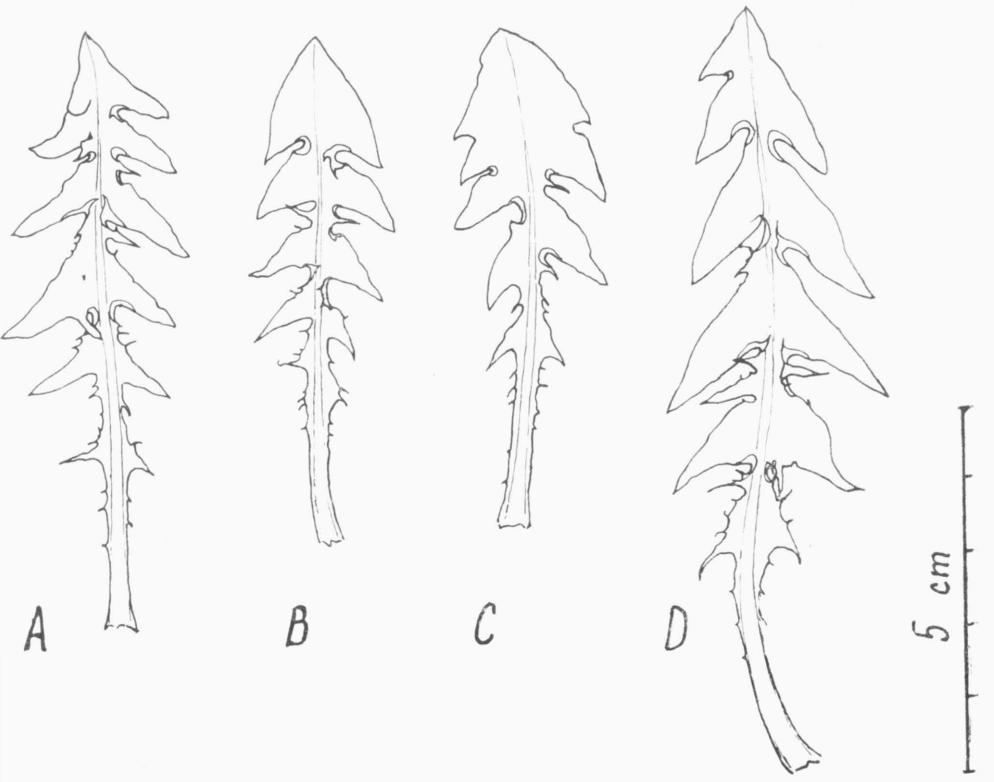


Fig. 10. — *Taraxacum calocephalum* — leaf plasticity: A — no. det. *3733*; B—C — no. det. *3735*; D — no. det. *3740*.

cephalum. There are also some doubts about the occurrence of this species in some regions reported by VAN SOEST (1977 : 263). In particular, the plants from Italy should be re-examined, and the specimen from Bulgaria identified by VAN SOEST as *T. calocephalum* "f. *straminea*" ["montes Rhodope . . ." RECHINGER fil. 1930 herb. RECHINGER in G (no. det. *3698*)] differs substantially from the Greek plants.

Robust erythrocarpous plants from Lebanon and Israel rank among the most remarkable ones of those that have been believed to belong to *T. calocephalum* HAND.-MAZZ. In fact, these plants are superficially similar to *T. calocephalum* but their achenes are light brown (without reddish tinge), their anthers do not produce pollen, and their L—S patterns also show some different features. These (and other) differences led us to adopt the opinion that these Near-Eastern plants are sufficiently distinct to be accorded specific status.

Taraxacum ***cinnamomeum*** KIRSCHNER et ŠTĚPÁNEK, sp. nov.

Plantae robustae. Folia ad 20 cm longa et 3—6(—7) cm lata, lobo terminali elongato, anguste triangulari, acuto, ca. 3—6 cm longo, integerrimo, saepe asymmetrice in 0—2 segmenta brevia

reflexa inciso; lobis lateralibus numero (2)3—4(5), ad 3.0—3.5 cm longis, divaricatis, acutis, margine distali basi convexo, integerrimis vel in marginibus distalibus remote acute dentatis; petiolo angusto, roseolo. Involucrum basi 1.2—1.4 cm in diametro, bracteis exterioribus numero (14)18—22, laxe adpressis usque erecto-patentibus, eis extremis ovatis vel ovato lanceolatis, (7.5—)8.0—10.0 mm longis et (2.5—)3.0—3.8(—4.4) mm latis, obscuris, in tertia parte superiore roseis, zona mediana atrochlorina, margine albo, ca. 0.2—0.3(—0.4) mm lato et zona transitoria 0.5—0.8 mm lata. Stigmata luteoviridia; antherae vacuae. Achenia cinnamomea (cf. SÉGUY 1936: plusminus no. 131 vel 162, 176), (5.0—)5.5—6.0 mm longa (pyramide inclusa) et 1.1—1.2 mm lata; pyramide (1.2—)1.5—1.8 mm, rostro 10—12 mm, pappo 6—7 mm longis.

Species agamosperma.

Holotypus: "Libanon. Bân prope Ehden" [plantae cultae] SAMUELSSON 1933 S (no. det. *1623*).

Specimina cetera examinata:

Lubnánija (Lebanon): "Bân prope Ehden" [cult.] SAMUELSSON 1933 S (no. det. *1487* isotypus).

Jisrael (Israel): "Flora Palestina. Tiberias." ALONZO 1934 S (no. det. *1488*).

Description (see also Fig. 8 and Plate III):

Plants robust.

Leaves (12—)15—18(—20) cm long and 3—6(—7) cm wide, usually sparsely arachnoid.

Terminal lobe elongated (approximately 3—6 cm long), ± narrowly triangular to triangular, acute, ± entire, sometimes asymmetrically subdivided into a few (0—2) shallow lateral lobules or lobes.

Lateral lobes (2)3—4(5), recurved, ± triangular, up to 3.0—3.5 cm long, sometimes with a small distal hump at the base and with attenuated apex, ± entire, distally remotely filiform-dentate.

Interlobes ± narrow, 7—8 mm wide and up to 5—10 mm long, entire or rarely with (usually one) long acute tooth.

Petiole narrow (5—7 mm), usually 5—8 cm long, pinkish.

Scapes not rarely more than 20 cm long at the time of flowering, little longer than leaves, slightly purplish at the base and arachnoid below the capitulum.

Involucre 12—14 mm wide at the base. Interior bracts 17—18 mm long, ± flat or slightly callous at the apex.

Exterior bracts (14)18—22, loosely adpressed to erect-spreading, the outermost bracts narrowly ovate to ovate-lanceolate, (7.5—)8.0—10.0 mm long and (2.5—)3.0—3.8(—4.4) mm wide, blackish green (with reddish apical part), with 0.2—0.3(—0.4) mm wide white margin and 0.5—0.8 mm wide transition zone. Apices to the bracts slightly callosed to flat.

Capitulum 3—4 cm in diameter; ligules yellow, striped.

Stigma yellowish green. Pollen absent.

Achenes light brown (cf. SÉGUY 1936: ca. no. 131 (162, 176), without reddish tinge), (5.0—)5.5—6.0 mm long including cone, and 1.1—1.2 mm wide [achene body ± gradually narrowing into a ± cylindrical — slightly conical at the base — (1.2—)1.5—1.8 mm long cone], sparsely spinulose above. Rostrum 10—12 mm long, pappus 6—7 mm long.

Agamospermous.

SUMMARY

A survey of *Taraxacum* sect. *Erythrocarpa* HAND.-MAZZ. in south-central Europe is given. Attention was paid to the plants referred to as *Taraxacum hoppeanum* GRISEB. in GRISEB. et SCHENK. This name is shown to be illegitimate (superfluous). The name *T. hoppeanum* covered

usually plants from Yugoslavia and Romania, these are described as a new species, *T. janchenii*. Italian "*T. hoppeanum*" differs considerably from the morphologically closest species; the plants recorded as *T. hoppeanum* in the Italian part of the Alpes Maritimes are described as a new species, *T. pseudohoppeanum*. Since 1930, *T. hoppeanum* has been also reported in the framework of Czechoslovak flora. However, the plants given under this name from western Slovakia have little in common with those from southern Europe. They are closely related to *T. pieninicum*, and represent a tetraploid, agamospermous endemic confined to some mountain ranges along the basin of the river Váh (W. Slovakia). It is described as *T. erythrocarpum*. *Taraxacum calocephalum* HAND.-MAZZ. is shown to be distinct from "*T. hoppeanum*", although it is not homogenous. The typical *T. calocephalum* seems to be confined to southern part of the Balkan Peninsula, the other plants given under this name requiring further study. The plants from Lebanon and Israel rank among the most conspicuous of them; they are described as a new species, *T. cinnamomeum*. In addition, some results of the revision of *T. taraxacoides*, *T. pieninicum*, *T. aquilonare* and *T. calocephalum* are given (the two latter species are lectotypified in the present paper).

SOUHRN

Práce zahrnuje rozbor sekce *Erythrocarpa* HAND.-MAZZ. rodu *Taraxacum* ve střední Evropě a přilehlých územích, přičemž zvláštní pozornost byla věnována rostlinám zahrnovaným pod jménem *Taraxacum hoppeanum*. Toto jméno však je nutno považovat za neoprávněné (nadbytečné) ve smyslu Kódu botanické nomenklatury. Pod tímto jménem byly nejčastěji uváděny rostliny z Jugoslávie a Rumunska, popisované zde jako nový druh, *T. janchenii*. V Italské části pohoří Alpes Maritimes byly sbírány pod jménem *T. hoppeanum* nápadné rostliny, výrazně odlišné od *T. janchenii* i *T. aquilonare* HAND.-MAZZ.; jsou popisovány jako *T. pseudohoppeanum*.

Ve starších pracích (od r. 1930) je jako druh československé květeny uváděno i *T. hoppeanum*. Bližší studium ukázalo, že se jedná o taxon dosti blízký *T. pieninicum*, avšak odlišný od dosud známých zástupců sekce. Tento tetraploidní apomiktický endemit Považí (Biele Karpaty, Malé Karpaty a Strážovská hornatina) je popisován jako nový druh *T. erythrocarpum*.

V díle Flora Europaea (RICHARDS et SELL 1976) je pod jménem *T. hoppeanum* zahrnut i druh *T. calocephalum*. Jedná se však o druh samostatný, pravděpodobně s užším (balkánským) areálem než se dosud předpokládalo. Z řady rostlin, které byly mylně uváděny pod jménem *T. calocephalum*, jsou zvláště nápadné rostliny z Libanonu a Izraele, popisované zde jako *T. cinnamomeum*.

V práci jsou uvedeny některé výsledky revize vybraných dalších taxonů: *T. taraxacoides*, *T. pieninicum*, *T. aquilonare* a *T. calocephalum* (pro poslední dva druhy jsou vybrány lektotypy).

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See also plates VIII—XI in the Appendix

L. Nover, M. Luckner & B. Parthier [red.]:

Cell Differentiation

Molecular Basis and Problems
Springer-Verlag, Berlin—Heidelberg — New York 1982, 650 str., 228 obr., 65 tab., váz., cena neuvedena. (Kniha je v knihovně ČSBS.)

V prvním vydání vyšla tato kniha německy v nakladatelství Fischer v Jeně r. 1978. Jestliže v r. 1982 vydává nakladatelství Springer, Berlin, anglicky druhé, rozšířené a přepracované vydání této knihy, je zbytečné šířit se o jejích kvalitách. Chtěl bych však podtrhnout, že toto nové vydání, o němž zde referujeme, vychází anglicky, čímž je přístupné i pro ty zejména mladší kolegy, kteří němčinu neznají. Koncepce knihy zůstala stejná, tj. po úvodní části věnované biochemii exprese genu a části obecné, probírající molekulárně genetické základy diferenciace buňky, následuje speciální část, v níž se čtenář seznámí s řadou v této oblasti studovaných experimentálních systémů pro- i eukaryotních, včetně rostlinných. Nemá smysl zjišťovat, jak byly aktualizovány jednotlivé kapitoly. Přibyly 3 kapitoly nové — o restrikčních endonukleázách, o biosyntéze a působení inzulínu a o onkologických aspektech poruch cytodiferenciace. Československý čtenář si bude muset sám zařadit do kontextu knihy u nás dosažené výsledky v tomto oboru, neboť kniha se opírá především o údaje uváděné v analogických dílech z anglosaské oblasti. Tím, že je uvedena řada konkrétních experimentálních systémů, vyhne se čtenář tomu, aby viděl problematiku cytodiferenciace eukaryot pouze očima pracovníků s prokaryotními objekty. Kniha předpokládá základní znalosti oboru, je určena pokročilým studentům a začínajícím vědeckým pracovníkům. Jistě se v ní však poučí také pracovníci zkušeností i věkem pokročilejší. Doporučuji ji seriozního zájmu naší vědecké veřejnosti.

K. Beneš