

## ***Taraxacum* sect. *Palustria* (Compositae) in Bulgaria**

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ABSTRACT: A taxonomic survey of *Taraxacum* WIGG. sect. *Palustria* (Compositae) in Bulgaria is provided. Four species known from Greece were found to occur in Bulgaria as well, viz. *T. scaturiginosum* HAGL., *T. reffectum* SONCK, *T. apiculatoides* MALECKA and *T. insolitum* KIRSCHNER, SONCK et ŠTĚPÁNEK. Four additional species are described: *T. turfosiforme*, a relatively isolated species, *T. glaucolivaceum* and *T. sophiae* of the group of *T. subolivaceum* SONCK and *T. arachnoideum* KIRSCHNER & ŠTĚPÁNEK, and *T. subudum*, a species close to the *T. vindobonense* and *T. scaturiginosum* groups. Chromosome numbers are given for most taxa studied.

KEYWORDS: Taxonomy, *Taraxacum* sect. *Palustria*, Compositae, Bulgaria, Chromosome numbers

Since 1988, we have been concerned with the genus *Taraxacum* in Bulgaria within the framework of the joint project supervised by prof. BOGDAN KUZMANOV of Sofia. However, the untimely death of Bogdan in 1991 interrupted the promising cooperation. It was BOGDAN's intention to prepare preliminary accounts of some critical *Taraxacum* sections before completing the material for *Flora Bulgarica*; the present article is devoted to the memory of our friendly Bulgarian collaborator and outstanding botanist.

Works summarizing the knowledge of the Bulgarian flora are very brief in mentioning the section *Palustria* of the genus *Taraxacum*. VELENOVSKÝ (1891: 646) gives one single locality of '*T. palustre*' (a name covering the whole section in most floras): 'In uliginosis ad radicem m. Vitoša (Šk) [=Škorpil]'. In more recent accounts (e.g., STOJANOV & STEFANOV 1948), the section is hidden under the name of *T. officinale* var. *lividum*.

Our long-termed studies in the section *Palustria* have also dealt with south European material. We have cultivated a number of samples from Greece, mostly collected by prof. C. E. SONCK of Helsinki, and studied his rich material of the section. These studies resulted in some joint publications (KIRSCHNER, SONCK et ŠTĚPÁNEK 1989, 1992), in some other works of C. E. SONCK we have contributed by cultivation or chromosome data. Papers by C. E. SONCK (1985, 1986) and MALECKA (1981) should be mentioned as a source of additional information.

Our field studies in Bulgaria revealed the fact that representatives of the section *Palustria* are not so rare in Bulgaria as suggested in the literature, and the agamospecies diversity of the section is relatively high. We have mostly explored localities in the Sofia vicinity. In particular, two very rich localities should be mentioned: large wet meadows in the northern slopes of the Ljulin planina (not far from the monastery), and a meadow near a spring and along a stream in the summit area of the Lozenska planina above Gorni Lozen. In these two stands, more than four *Palustria* species were found while the other places visited did not harbour more than one or two species. (It should be added that, in C. Europe, there are localities where about ten taxa of the section coexist within a few acres.) Some additional records or samples were received from our colleagues or found in herbaria.

The following key and the brief account does not provide a complete information; descriptions usually are referred to, and morphology is shortly annotated.

#### A key to the representatives of the sect. *Palustria* in Bulgaria

- 1a Leaves greyish glaucous-green,  $\pm$  entire; achenes almost smooth, thick (1.1-1.3 mm wide) . . . . . 3. *T. glaucolivaceum*
- b Leaves mid-green to dark green (never glaucous-green), lobate or deeply lobate, achenes spinulose above, less than 1.2 mm wide . . . . . 2
- 2a Leaves with elongated, lingulate terminal lobe . . . . . 3
- b Terminal lobe triangular, narrowly triangular, or not conspicuous, never elongated or lingulate . . . . . 4
- 3a Achenes large, 5.5-6.3 mm long . . . . . 1. *T. refectum*
- b Achenes smaller, 4.3-4.8 mm long . . . . . 6. *T. turfosisforme*
- 4a Leaves deeply lobed . . . . . 5
- b Leaves dentate to lobulate . . . . . 6
- 5a Outer bracts imbricate, ovate, with narrow very distinct pale border, broader than (3.5-) 3.7 mm . . . . . 7. *T. insolitum*
- b Outer bracts not imbricate, ovate-lanceolate or lanceolate, margins not distinct, often washed reddish, narrower than (3.8) 3.5 mm . . . . . 7

- 6a Outer bracts 12-14, achenes densely spinulose above, subabruptly narrowing into the cone, interior bracts elongate after flowering . . . . . 8. *T. sophiae*
- b Outer bracts 10-12, achenes sparsely to subdensely spinulose above, gradually narrowing into the cone, interior bracts not elongate after flowering . . . . . 2. *T. apiculatoides*
- 7a Outer bracts lanceolate to ovate-lanceolate, with broad (0.2-0.4 mm wide) margin, lateral leaf lobes often narrowly (linear)-triangular . . . . . 5. *T. scaturiginosum*
- b Outer bracts ovate-lanceolate, with narrow, not conspicuous, ca 0.2 mm wide margins, lateral leaf lobes triangular to hamate-triangular . . . 4. *T. subudum*

1. *Taraxacum refectum* C. E. SONCK, Ann. Bot. Fenn. 22: 256, 1985.

Typus: Olimbos. C.E. SONCK, H, no. det. 4788 (HT!), PR, no. det. 7195 (IT!)

Exsiccat: Taraxaca Exsiccata, no 324.

Description: SONCK 1985: 256-258.

Plants from Bulgaria: Lozenska planina, supra pagum Gorni Lozen (KIRSCHNER 29.5.1988, plantae cultae sub no JŠ 2908, PR, no. det. 9623). - Ljulin planina, ad viam turisticam haud procul a monasterio in decl. septentr. montium (KIRSCHNER 28.5. 1988, plantae cultae sub no JŠ 3084, PR, no. det. 9624). - Montes Vitoša: in loco Belite Brezi (Kuznjanov 14.5.1989, plantae cultae sub no JŠ 4735, PR, no det.9639).

Chromosome count from Bulgaria:  $2n = 32$  (Plant JŠ 2908, sub no. 15/93).

In addition to green to dark green outer bracts with a rather inconspicuous border, the leaf shape and achenes are diagnostic for this species. Elongated, lingulate terminal lobe to the leaves is a constant feature of *T. refectum*. Achenes are extraordinarily large in Greek material, reaching 6.9 mm in length (incl. the cone). In Bulgarian cultivated material, achenes are up to 6.3 mm long. *T. refectum* is often compared with *T. scaturiginosum* Hagl. (= *T. albanicum* VAN SOEST). Morphologically, the above features safely distinguish the two species. Another difference consists in the chromosome number. MALECKA (1981), according to the picture (op. c., Plate 14, loc. Vodno), gives *T. refectum* under the name of *T. albanicum*, and reports  $2n = 32$  for this plant. The holotype of *T. refectum* (see above) proved to be tetraploid, as well, having  $2n = 34$  (det. JK under no. 110/85). On the other hand, several specimens of typical *T. scaturiginosum* from Greece (loc. Metsovon, leg. SONCK, PR, no. det. 4793) proved to be triploid ( $2n = 24$ ). In several works (particularly, in those by MALECKA), the chromosome number  $2n=32$  is given for *T. scaturiginosum* (*T. albanicum*). However, pictures of voucher specimens of counts given by MALECKA suggest that other taxa than *T. scaturiginosum* were examined by her (this surely concerns the plants from Poland because *T. scaturiginosum* s. l. does not occur in C. Europe; plants from Macedonia represent *T. refectum*).

**2. *Taraxacum apiculatoides* MALECKA, Acta Biol. Cracov., ser. bot., 23: 111, 1981.**

Typus: Mavrovo, leg. MALECKA, herb. Inst. Cytoembryol. Univ. Cracov. (HT, material lost, see below). **Neotypus hoc loco electus:** Graecia, oppidum Ioannina, ca 1 km situ bor. a Metsovo. leg. C.E. SONCK 21.5. 1985, plantae cultae in Průhonice sub no. JŠ 1827, PR, no. det. 9625.

Exsiccates: *Taraxaca* Exsiccata, no 326.

In 1981, we asked the late doc. J. MALECKA of Kraków to send us her material of the section *Palustria* on loan. After several years it turned out that a parcel containing also three holotype specimens was mailed in 1981 just at the time of the Polish crisis, and mysteriously disappeared (probably representing a suspicious object for a military control). Thus, holotypes of *T. skalinskanum*, *T. polonicum* and *T. apiculatoides* are no longer extant, which unfortunately also holds for the other *Palustria* specimens collected by J. MALECKA. According to the Code (ICBN), there is merely one legal source for the possible new type: a photograph accompanying the original description. However, in such an intricate group as agamospermous *Taraxacum* sect. *Palustria*, typification by means of a picture (of rather low quality) cannot be considered as a method contributing to the nomenclatural stability. The picture (MALECKA, op. c., Plate 15, fig. 4) provides some important morphological information (e.g., leaf shape) but the picture itself, even when the rest of the protologue is taken into account, is not sufficient for unequivocal diagnosing the taxon in comparison with similar species of the *T. vindobonense* or *T. scaturiginosum* groups. Safe interpretation of the name in question can be reached only by typification with a herbarium specimen. Any type other than the specimen would cause interpretation uncertainty, and the name *T. apiculatoides* would have to be considered as ambiguous, and abandoned. Thus (supposing that respective changes of the Code will be done during the next Botanical Congress), we select a neotype from among the rich material of *T. apiculatoides* from Greece.

The neotype material not only matches the original data in terms of morphology but also its chromosome number answers to the counts given by MALECKA, l.c. In the neotype sample, a tetraploid chromosome number has been ascertained,  $2n = 32$  (JŠ, 7/88).

Plants from Bulgaria: Ljulin planina, haud procul a monasterio in decl. septentr. montium. (KIRSCHNER 28.5. 1988, plantae cultae sub no. JŠ 3083, PR, no. det. 9626). - Lozenska planina, in valle angusto ca 0.5 km supra pagum Gorni Lozen. (KIRSCHNER 29.5. 1988, plantae cultae sub no. JK 105, PR, no. det. 9627). - Lozenska planina, locis uliginosis planitiei summit. supra pagum Gorni Lozen. (KIRSCHNER 29.5. 1988, plantae cultae sub no. JK 107, PR, no. det. 9628).

Chromosome count from Bulgaria:  $2n = 32$  (Plants JK 105, counted as 14/93; Plants JŠ 3083, counted as 13/93)

Description: Plants medium-sized, leaves erect to erecto-patent, 8-15 cm long, 1.2-1.5 cm wide, pale to mid green, sparsely araneous to subglabrous, deeply lobate, lateral lobes 2-3, entire, triangular, patent to slightly downward pointing, interlobes up to 1.2 cm long, 2-3 mm wide, entire or rarely with very few teeth, terminal lobe 1.1-2.8 cm long, subacute, petiole narrow, purplish at the base. Scapes slightly overtopping the leaves, green to greenish-purplish below the capitulum, subglabrous to sparsely araneous. Involucre 9-12 mm wide, slightly conical at the base, interior bracts up to 15 mm long. Exterior bracts adpressed to loosely adpressed, 10-12,  $\pm$  of the same length or subimbricate, the outermost ones often conspicuously narrower than the others, middle ones lanceolate, 5.5-7.5 mm long, 2.5-3.3 mm wide, green to dark green, membranaceous margin almost absent to 0.1-0.2 mm wide, border 0.5-0.9 mm wide, distinct (not contrasting) at the base, otherwise more or less gradually changing into the middle part, ciliate in the upper part. Outer ligules striped greenish-pinkish, stigmas greyish yellow, pollen present. Achenes greyish straw-brown, 4.6-4.9 mm long (incl. the cone), sparsely to densely spinulose above, gradually narrowing into a subcylindrical 1.0-1.1 mm long cone, rostrum 5.5-6.5 mm long, pappus 5-6 mm.

### 3. *Taraxacum glaucolivaceum* KIRSCHNER & ŠTĚPÁNEK, sp. nov.

Typus: Bulgaria, urbs Sofia, montes Lozenska planina: in angusto cum rivum haud procul a coemeterio supra pagum Gorni Lozen (leg. KIRSCHNER 29.5. 1988, cultae sub no T380, PR, no. det. 9629 (HT), isotypi ibidem. - Paratypi: Lozenska planina: locis uliginosis planitiei summit. supra pagum Gorni Lozen, alt. ca 1000 m s.m. (leg. KIRSCHNER 29.5. 1988, cultae sub no 109, herb. auctorum.)

Exsiccat: Taraxaca Exsiccata, no 323.

Descriptio: Plantae parvae, 10-20 cm altae. Folia glauco-canescienti-viridia, subprostrata vel ascendentia, plerumque integra vel raro remote sinuato-denticulata, 8-13 cm longa, 0.7-1.0 cm lata, lineari-oblongata, subglabra, petiolis angustis, griseo-violaceis. Scapi (sub calathio) violacei, sparse araneosi vel subglabri. Involucrum ca 10-12 mm latum, basi  $\pm$  rotundatum, squamis interioribus 13-16 mm longis, squamis exterioribus numero 11-13, adpressis,  $\pm$  imbricatis (eis extremis non vel raro angustioribus), ovatis, breviter acuminatis, 5-6 (-7) mm longis, 2.8-3.5 mm latis, viridibus vel obscure viridibus apice rubescentibus, marginibus membranaceis angustis (0.1-0.2 mm) inconspicuis plerumque ciliatis necnon marginibus viridibus ad 1.2 mm latis, stria obscura media inconspicua vel ad 1.0 mm lata. Calathium luteum, paulo radians, ad 3.5 cm in diametro, ligulae marginales planae, subtus stria (griseo)violacea notatae, dentes ligularum rubescentes. Stigmata griseo-viridia, antherae polliniferae. Achenium pallide griseo-stramineum, ad basin laeve, superne sublaeve vel sparsissime breviter spinulosum, 4.7-5.0 mm longum (pyramide inclusa), crassum

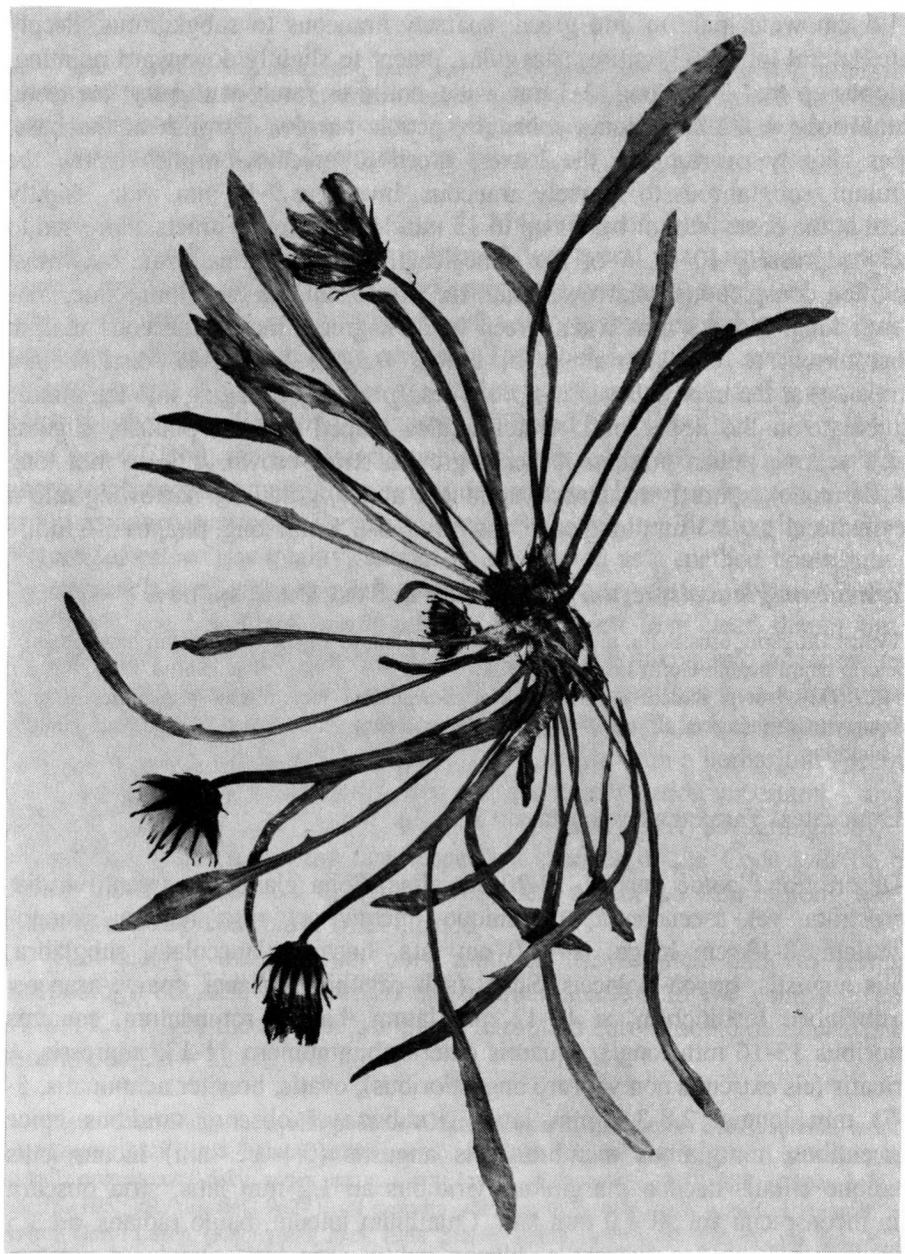


Fig. 1. - *T. glaucolivaceum* K. & Š. The holotype.

(1.1-1.3 mm latum), in pyramidem subcylindricam 1.1-1.5 mm longam subsensim abiens. Rostrum 5.5-6.0 mm, pappus 5-5.5 mm longi.

Chromosomatum numerus somaticus  $2n = 32$  (ex isotypo, sub no. 18/93).

*Taraxacum glaucolivaceum* clearly belongs to the group of species discussed in SONCK (1986), viz. *T. olivaceum*, *T. arachnoideum* and *T. subolivaceum*. It is distinct in having subprostrate to ascending grey-green leaves, dark stigmas and thick, almost smooth achenes with very short rostrum. *T. subolivaceum* possesses achenes thinner, with sparse but conspicuous spinules above, and longer rostrum. Leaf colour and posture, and the characters of outer bracts are also diagnostic. *T. olivaceum* has different achenes and much paler stigmas. *T. arachnoideum* differs from *T. glaucolivaceum* by thinner achenes with shorter cone (0.9-1.0 mm), leaf shape and outer bract colour.

#### 4. *Taraxacum subudum* KIRSCHNER et ŠTĚPÁNEK, sp. nov.

Typus: Lozenska planina, in valle angusto ca 0.5 km supra pagum Gorni Lozen (KIRSCHNER 29.5.1988, cultae sub no T104) HT: no.det. 9638. Isotypi ibidem. - Paratypi: Bulgaria, urbs Sofia, montes Lozenska planina: in angusto cum rivum haud procul a coemeterio supra pagum Gorni Lozen (leg. KIRSCHNER 29.5.1988, culta sub no. T382, PR, no. det. 9630). - Sofia, montes Ljulin planina, in decl. udis non procul a monasterio (KIRSCHNER 28.5. 1988, cultae sub no. T97, herb. auct.). - Urbs Sofia, montes Vitoša, in prato subudo in parte occid. montium, non procul a 'TV transmission tower'. (KIRSCHNER 1990, cultae sub no. T700, herb. auct., no. det. 9637). - Urbs Sofia, montes Vitoša, in loco Belite Brezi. (KUZMANOV 1989, cultae sub no JŠ 4734, herb. auct., no det. 10556).

Descriptio: Planta mediocris, subrobusta. Folia suberecta, profunde divisa, plerumque 11-14 cm longa et 1.7-2.3 cm lata, gramineo vel subobscure viridia, sparse araneosa (nervo mediano araneoso, ad basin sublanuginosa), lobus terminalis elongate triangularis vel subsagittatus, acutus vel subobtusius, 1.2-2.5 cm longus, 1.5-2.2 cm latus, lobi laterales numero 3-4 (5),  $\pm$  triangulares, paulo deorsum vergentes, raro patentes, integerrimi vel sparsissime denticulati, marginibus distalibus saepe convexis. Interlobia angusta, ad 2-3 mm lata, breviter (2-6 mm), saepe paulo canaliculata, violacee marginata, integra vel sparse denticulata. Petiolus angustus, araneosus, violaceus. Scapus viridis vel brunneo-violaceus, araneosus. Involucrum basi rotundatum, 11-12 mm latum, squamis interioribus sub anthesi ad 15 mm longis, squamis exterioribus numero 11-13 (-17),  $\pm$ aequilongis (non imbricatis), adpressis, lanceolatis, 7-8 mm longis, (2.5-) 3.1-3.8 mm latis, obscure viridibus vel atroviridibus, saepe paulo rubescentibus, marginibus membranaceis inconspicuis ad 0.2 mm latis, non ciliatis, raro ad basin zona viridis praeditis. Calathium radians, ad 3.5 cm in diametro, ligulae marginales planae, extus stria atro-viridi notatae. Stigmata  $\pm$  viridia vel pallide viridia, antherae polliniferae. Achenium griseo-brunneum, 4.5-4.9 mm longum, ad 0.9 mm latum, ad basin laeve, superne acute spinulosum, in pyramidem

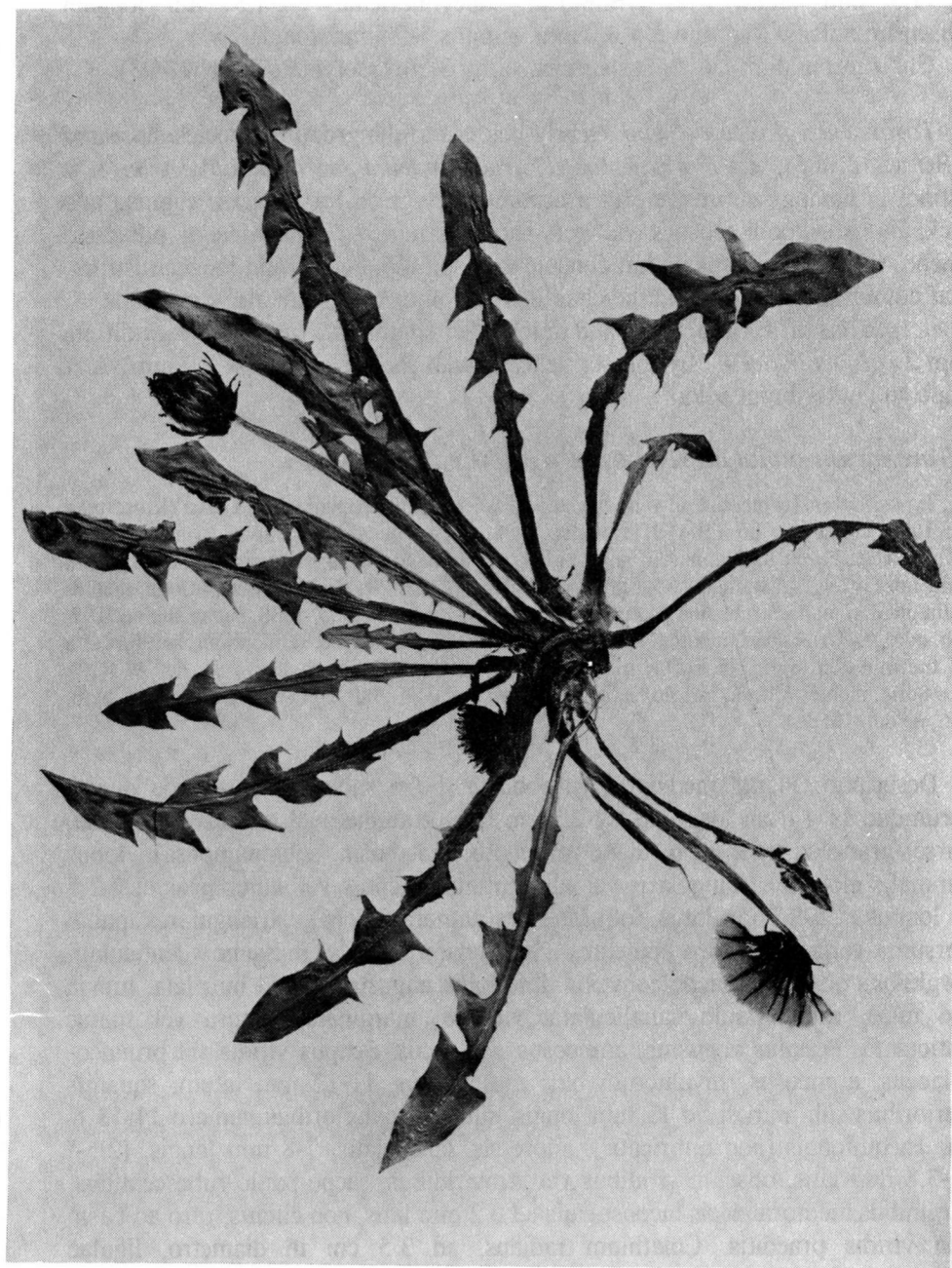


Fig. 2. - *T. subudum* K. & Š. The holotype.

cylindricam, 1.1-1.2 mm longam sensim abiens. Rostrum 8.0-8.5 mm, pappus ca 6.5 mm longi.

Chromosomatum numerus somaticus  $2n = 32$  (e planta T 700, sub no 17/93).

In its leaf shape *T. subudum* approaches *T. subalpinum* group (*T. pseudomurbeckianum* in particular) and some morphotypes of *T. scaturiginosum*. Its dark green, arancous leaves with bordered interlobes, equally long outer bracts with inconspicuous border, and narrow long achenes with long cone are diagnostic for our species. Another group to be compared with *T. subudum*, *T. vindobonense* s. l., can be distinguished by longer interlobes, usually paler outer bracts, much shorter achenes, shorter cone (with a more abrupt transition to the achene body) and longer rostrum. *T. subudum* seems to be comparatively widespread in the Sofia vicinity.

### 5. *Taraxacum scaturiginosum* Hagl. in Samuelss., Ark. Bot., Stockholm, 26A(5): 26, 1934.

Typus: Graecia, Phocis, Arachova, in scaturiginosis ca 1000 m, leg. Samuelsson no. 266 (S, HT studied by VAN SOEST 1975, 1977 but not traced recently). Our concept of this species is based on the only paratype specimen and its duplicates (PT: LD! Renkoei-Scala, leg. Sintenis, It. Troj. 1883, no. 260).

Syn.: = *T. albanicum* VAN SOEST, Acta Bot. Neerl. 14: 13, 1965 (HT: W, no. det. 1565!)

= *T. aganippeum* C. E. SONCK, Ann. Bot. Fenn. 22: 255, 1985 (HT: H, no. det. 3585!)

J.L. VAN SOEST, when writing his monograph of the section *Palustria*, did not interpret the name *T. scaturiginosum* Hagl. and described the same taxon under the name *T. albanicum*. Paratype specimen of the former name (and its duplicates) clearly belong to what was called *T. albanicum* by VAN SOEST. Later on, C.E. SONCK studied dwarf plants of the same taxon and described them as *T. aganippeum*. On the other hand, the name *T. murbeckianum*, often referred to the taxon in question, proved to be distinct from it (see above).

Exsiccatas: *Taraxaca* Exsiccata, no 272 - 275.

Description: Haglund, l.c.; VAN SOEST, l.c.; cf. also SONCK 1985, fig. 5C.

As discussed above, *T. scaturiginosum* s. str. proved to be triploid with  $2n = 24$ .

Plants from Bulgaria: Sofia, montes Lozenska planina: locis uliginosis planitiei summit. supra pagum Gorni Lozen, alt. ca 1000 m s.m. (leg. KIRSCHNER 29.5. 1988, plantae cultae sub no. T110, PR, no. det. 9631).

## 6. *Taraxacum turfosiforme* KIRSCHNER et ŠTĚPÁNEK, sp. nov.

Typus: Bulgaria, urbs Sofia, montes Ljulin planina: in pratis humidis in decl. boreal. haud procul a monasterio (leg. KIRSCHNER 28.5. 1988, planta culta sub no. T374, HT, PR, no. det. 9632), IT: herb. auct. - Paratypi: Ljulin planina, ad viam turisticam rubre signatam haud procul a monasterio (KIRSCHNER 28.5. 1988, cultae sub no. JŠ 3086, herb. auct., no det. 10557).

Exsiccates: Taraxaca Exsiccata, no 325.

Descriptio: Planta parva, ad 14 cm alta. Folia erecta, profunde divisa, plerumque 9-11 cm longa et 0.9-2.0 cm lata, gramineo viridia vel laete viridia, sparse araneosa vel arancosa, lobus terminalis subsobtusius triangularis, saepe lingulate elongatus, raro usque tripartitus, plerumque 1.5-3.5 cm longus et 0.9-1.4 cm latus, lobi laterales 2-3, anguste deltoidei, anguste triangulares vel hamati, patentes vel deorsum vergentes, marginibus distalibus convexis, integerrimi vel dentibus distalibus raris praediti. Interlobia angustissima longa, plerumque 1.5 mm lata et ad 1.4 cm longa, saepe obscure marginata, integerrima vel raro remote denticulata. Petiolus angustissimus inalatus, violaceus, araneosus. Scapus plerumque viridis vel subrubescens, dense araneosus, folia raro superans. Involucrum basi 10-12 mm in diametro,  $\pm$  rotundatum, squamis interioribus sub anthesi ad 14 mm longis, squamis exterioribus numero 8-17, adpressis vel laxe adpressis, non imbricatis, lanceolatis usque anguste lanceolatis, 6.0-7.5 mm longis, 2.0-2.5 latis, viridibus vel saturate viridibus (apice ad atro-viridibus), sine marginibus membranaceis, zona pallidior inconspicua plerumque praeditis. Calathium radians, ad 3 cm in diametro, ligulae marginales planae, stria griseo-viridia notatae. Stigmata pallide luteo-viridia, antherae polliniferae granulis pollinum diametro variis. Achenium pallide griseo-brunneum, 4.3-4.8 mm longum (pyramide inclusa), ad 0.9 mm latum, ad basin laeve, superne subdense breviter spinulosum, in pyramidem cylindricam vel subcylindricam, 1.2-1.3 mm longam sensim abiens. Rostrum 6.0-6.5 mm, pappus 5-6 mm longi.

*Taraxacum turfosiforme* is a very distinct species, characteristic in leaf shape, outer bracts and achene characters. Its outer bracts are green, without conspicuous border or sometimes with paler borders at the base, lanceolate (narrow) and often loosely adpressed. Leaves are very distinctive in having remote, often hamate lateral lobes and long narrow interlobes, terminal lobe often is conspicuously elongated. Its achenes are not long but they have relatively long cone, rostrum is short (less than 7 mm). All these features qualify *T. turfosiforme* as an isolated species without close relatives within the section.

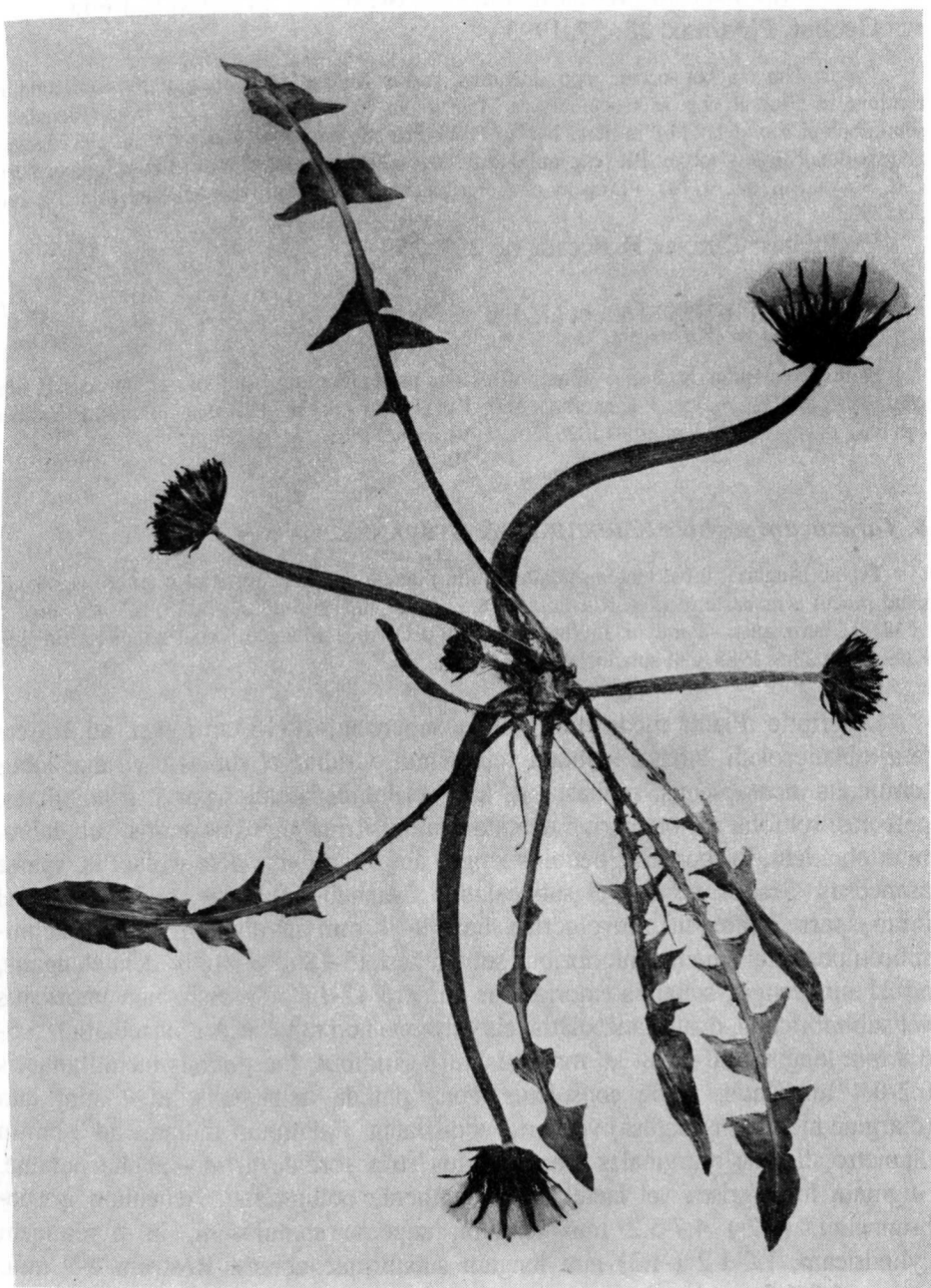


Fig. 3. - *T. turfosi-forme* K. & Š. The holotype.

**7. *Taraxacum insolitum* KIRSCHNER, C.E. SONCK & ŠTĚPÁNEK, Folia Geobot. Phytotax. 28: 57, 1993**

Typus: Graccia bor.-occid., opp. Ioannina, pagus Katara: in decl. graminosa secundum rivulum, ca 5 km ab opp. Metsovo. Alt. ca 1450 m s.m. leg. C.E. SONCK 23.5. 1985 (Plantae e seminibus pl. 'no. det. 4114' in horto bot. in Průhonice sub no. JŠ1836 cultae et a. 1987 lectae) H! (no. det. 8735). - Isotypi: PR (e.g. no. det. 7180). - The parental plant of the holotype: herb. C.E. SONCK (no. det. 4114). - Progeny of the original collection cultivated in Helsinki: PR (no. det. 8932).

Exsiccates: *Taraxac* Exsiccata, no 258, 259.

Description: KIRSCHNER et al., l. c.

Plants from Bulgaria: Sofia, montes Vitoša: in pratis humidis et ad vias circum casam alp. Aleko, ca 1800 m s.m. leg. J. KIRSCHNER & B. KUZMANOV 3.6.1988 (Plantae cultae in Průhonice sub no T383 et T416 e seminibus JŠ2936, a. 1991 lectae) PR (e. g. no. det. 8931).

**8. *Taraxacum sophiae* KIRSCHNER & ŠTĚPÁNEK, sp. nov.**

Typus: Bulgaria, urbs Sophia, montes Ljulin planina, ad viam turisticam (rubre signatam) haud procul a monasterio (leg. KIRSCHNER 28.5. 1988, cult. sub no. JŠ 3085, HT, PR, no. det. 9633), IT herb. auct. - Paratypes: Ljulin planina, in declivibus udis non procul a monasterio (leg. KIRSCHNER 28.5. 1988, cult sub no. 96, herb. auct.).

Descriptio: Planta mediocris. Folia  $\pm$  suberecta, 10-16 cm longa, ad 1.5 cm lata, oblanceolata, lobata, lobulata vel dentata, viridia vel sublaete viridia, lobus terminalis inconspicuus, subhastatus, lobi vel lobuli laterales parvi, triangulares, patentes, vel folia remote pariter dentata dentibus triangularibus acutis, subglabra. Interlobia lata, integerrima, petiolus longus angustissimus, laete violaceus, sparse araneosus. Scapus viridis vel sub calathio brunneo-violascens, glaberrimus vel initio sparse araneosus. Involucrum basi 9-11 mm in diametro, subconicum-subrotundatum, squamis interioribus sub anthesi 15-18 mm longis, dein elongatis, ad 21 mm longis, squamis exterioribus numero 12-14, adpressis, non imbricatis vel subimbricatis, ovato-lanceolatis (eis extremis non raro lineari-lanceolatis), 5.5-6.8 mm longis, (2.0-) 2.8-3.3 mm latis, atro-viridibus, marginibus membranaceis 0.2-0.4 mm latis, saepe conspicuis, zona pallida marginalis ad 1 mm lata (margine membran. inclusa) vel rarior indistincta. Calathium radians, ad 3 cm in diametro, ligulae marginales planae, extus stria sordide griseo-rubella notatae. Stigmata luteo-grisea vel laete viridia, antherae polliniferae. Achenium griseo-brunneum, (4.2-) 4.7-5.2 mm longum, superne spinulosum, in pyramidem cylindricam, 1.0-1.2 (-1.3) mm longam subabrupte abiens. Rostrum 8-9 mm, pappus 6.0-6.5 mm longi.

Chromosomatum numerus somaticus  $2n = c. 32$  (ex isotypo sub no. 19/93).

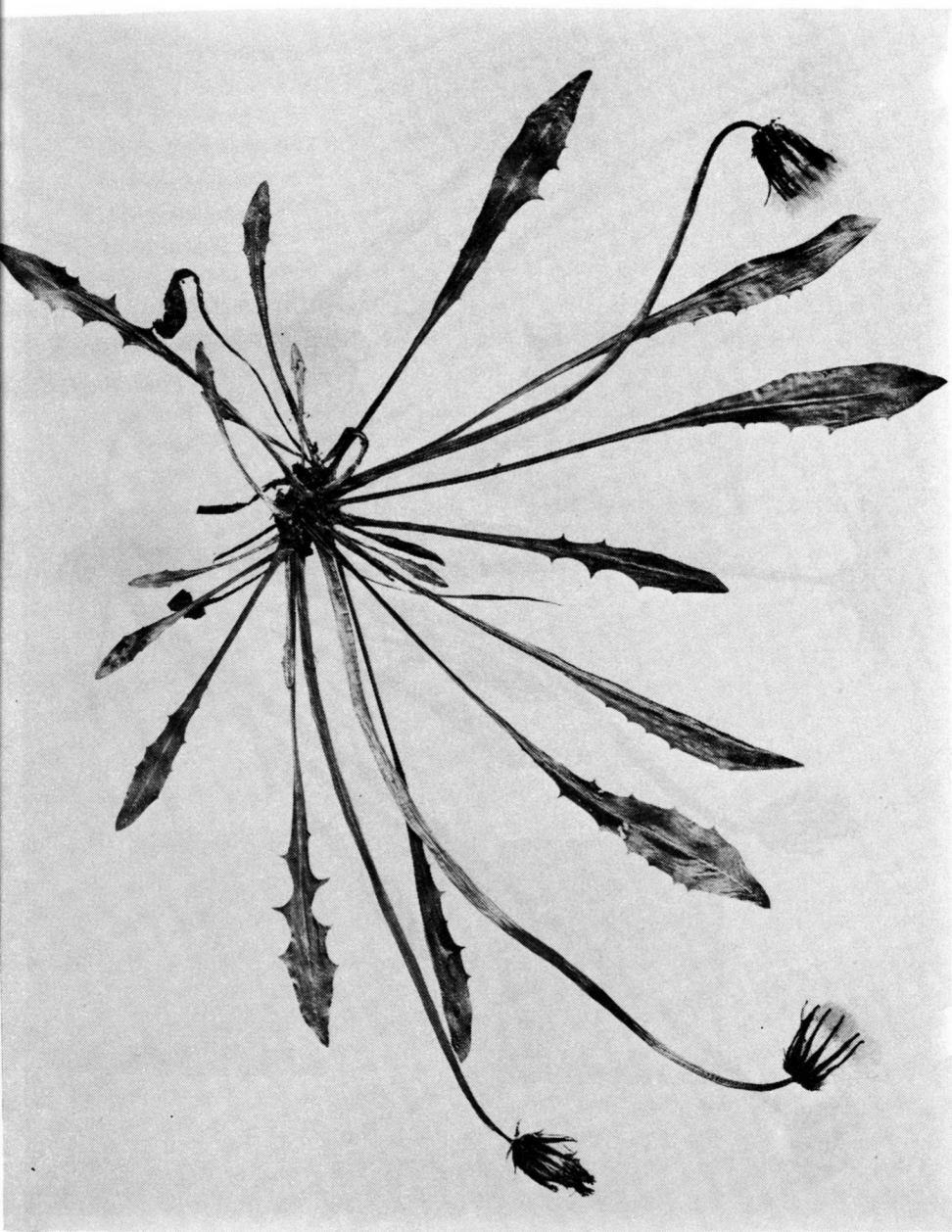


Fig. 4. - *T. sophiae* K. & Š. The holotype.

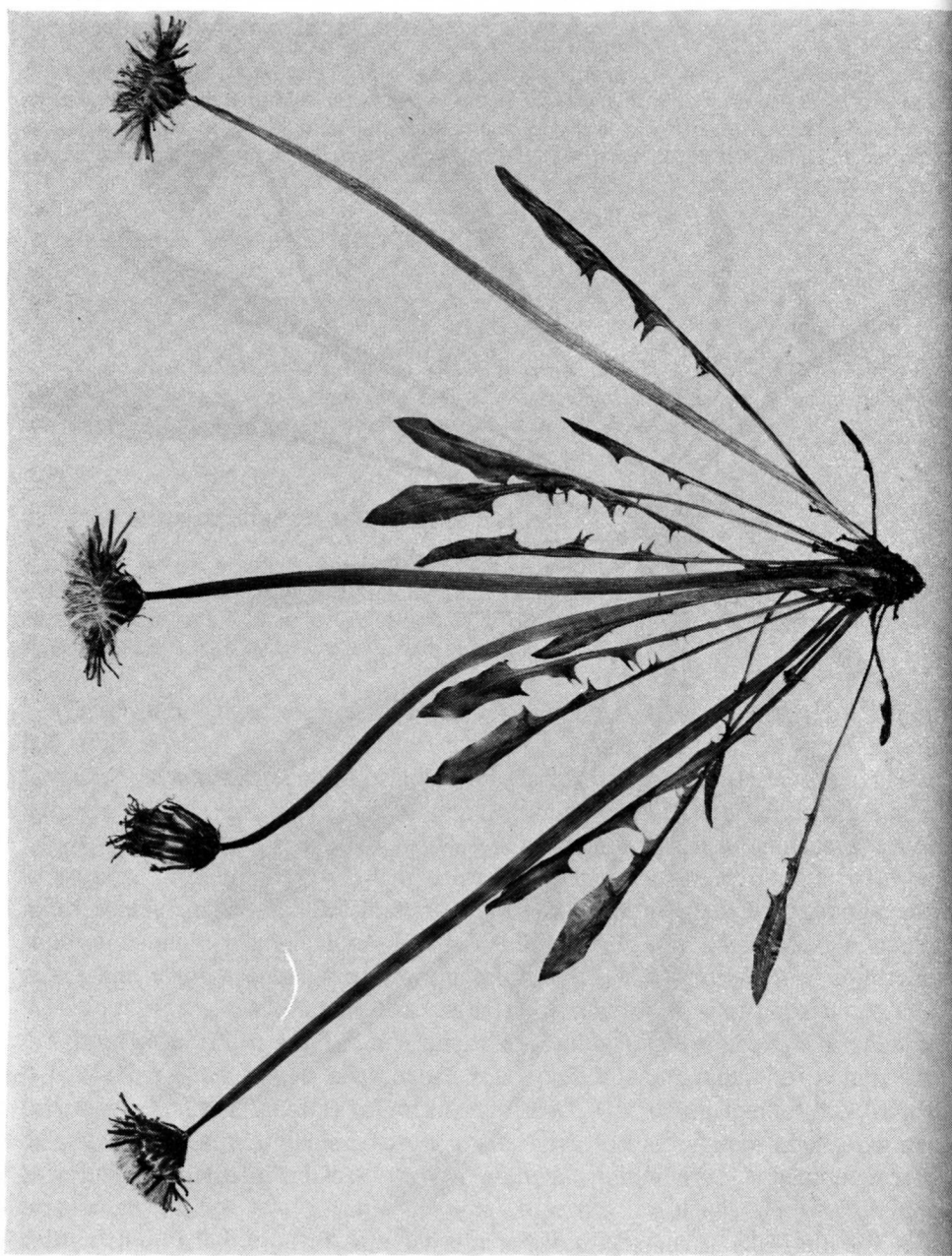


Fig. 5. - *T. apiculatoides* MALECKA. (no. det. 9625)

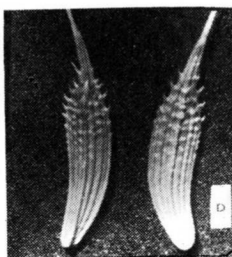
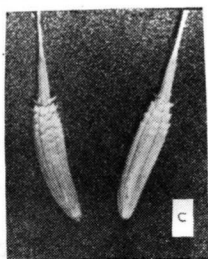
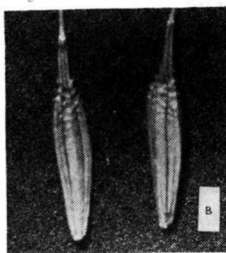
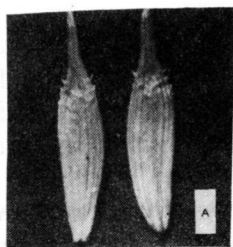


Fig. 6. - Achenes of (a) *T. glaucolivaceum*, (b) *T. subudum*, (c) *T. turfosoforme*, (d) *T. sophiae*. Bar = 1 mm.

*Taraxacum sophiae* undoubtedly belongs to the group of *T. subolivaceum*. It has relatively densely spinulose achene bodies subabruptly narrowing into the cone, a character absent from the other members of the group, leaves without greyish colour, outer bracts close to those of *T. subolivaceum*, subglabrous scapes, and interior bracts conspicuously elongated at the end of flowering, which is a feature otherwise only found in *T. skalinskanum* from C. Europe. The characteristic indentation of leaves (patent acute teeth or flat triangular lobules) is a conspicuous phenomenon in the group with typically subentire leaves.

### Concluding remarks

The account given above cannot be considered as a complete survey of the section *Palustria* in Bulgaria. First, there are a few Bulgarian samples that could not be assigned to any of the above species, and require further examination. Secondly, the section seems to be common at suitable sites in Bulgaria, and a number of additional species may be found there.

The section *Palustria* in Bulgaria has four representatives known from Greece, and, except for the isolated *T. turfosisforme*, the other members of the section have their closest relatives in the Balkans as well. We have failed to find any connection between the C. European and Bulgarian *Palustria*, the only exception being *T. insolitum* that might be related to *T. subalpinum* Hudziok. However, this does not mean that the section in Bulgaria is morphologically monotonous; very different groups are represented, viz. *T. scaturiginosum* agg., *T. subalpinum* agg., *T. subolivaceum* agg. and an isolated taxon, *T. turfosisforme*. This diversity suggests that taxa of other groups of the section may be detected in Bulgaria in future.

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