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Three new *Hieracium* taxa (*Asteraceae*, *Cichorieae*) from Mt Cholomon, Chalkidiki, Central Makedonia, Greece

Abstract

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Three new subspecies, *Hieracium sparsum* subsp. *cholomonense*, *H. transiens* subsp. *levimaculatum* and *H. bohatschianum* subsp. *onosmoidiforme*, all from Mt Cholomon, Chalkidiki, Central Makedonia, Greece, are described and illustrated.

Additional key words: local endemic, taxonomy, *Compositae*

Introduction

The flora of Chalkidiki area was known from earlier floristic and vegetation studies (Ganiatsas 1963; Dafis 1966; Voliotis 1967; Pavlides 1976; Athanasiadis & Theodoropoulos 1990; Theodoropoulos 1991; Athanasiadis & al. 1992; Babalonas & al. 1998; Damianidis 2011; Karoussou & al. 2008). However, because of many other interesting plants which can be found in Greece, the genus *Hieracium* L. (*Asteraceae*, *Cichorieae*) has often not attracted necessary interest by field botanists in the past. Within a project of floristic investigation of Mt Cholomon, the Greek co-authors collected with special emphasis on *Hieracium*, because it is known that intensive botanical investigation of restricted areas often reveals local taxa, especially in apomictic genera such as *Hieracium*. The specimens collected were revised by G. Gottschlich. Among them three taxa proved to be undescribed.

Results and Discussion

1. *Hieracium sparsum* subsp. ***cholomonense*** Gottschl. & Melikoki, **subsp. nov.** – Fig. 1.
Holotype: Greece, Central Makedonia, Prefecture of Chalkidiki, Mt Cholomon, 40°26'14.7"N, 23°30'18.4"E, *Quercus frainetto* forest, 890 m, 6 Jul 2011, *K. Melikoki 12.4.2* (TAUF; isotypes: B, C, herb. Gottschlich 57781).
Paratypes: Mt Cholomon, 40°26'0.9"N, 23°30'20.2"E, *Quercus frainetto* forest, 860 m, 1 Jul 2010, *K. Melikoki 4.2.1* (TAUF); Mt Cholomon, 40°26'8.67"N, 23°30'14.96"E, slope of *Quercus frainetto* forest, 852 m, 6 Jul 2011, *K. Melikoki 12.1.4* (TAUF); Mt Cholomon, 40°26'9.1"N, 23°29'55.7"E, *Quercus frainetto* forest, 816 m, 6 Jul 2011, *K. Melikoki 13.3.3* (TAUF); Mt Cholomon, 40°26'14.6"N, 23°30'16.1"E, *Quercus frainetto* forest, 879 m, 6 Jul 2011, *K. Melikoki 12.3.2* (TAUF); Mt Cholomon, 40°26'4.1"N, 23°30'13.7"E, *Quercus frainetto*

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forest, 833 m, 6 Jul 2011, *K. Melikoki*, *13.5.5* (TAUF); Mt Cholomon, 40°26'37"N, 23°29'32.6"E, *Quercus frainetto* forest, 686 m, 9 Jul 2011, *K. Melikoki 15.2.1* (TAUF, herb. Gottschlich 57780).



Fig. 1. *Hieracium sparsum* subsp. *cholomonense* – A: habit; B: indumentum of involucral bracts. – Isotype: *K. Melikoki 12.4.2* (herb. Gottschlich 57781).

Description — *Planta* perennis. *Rhizoma* tenue vel crassum, horizontale vel obliquum. *Caulis* erectus, solidus, (25–)30–60(–70) cm altus, infra medium rubro- vel brunneo-viridis (ad basim saepe rubro-violaeus), supra viridis, subtiliter striatus, phyllopodus, pilis simplicibus infra sparsis, supra nullis vel solitariis, 1–1.5 mm longis, mollibus, albis, denticulatis, pilis glanduliferis nullis, pilis stellatis inferne sparsis, superne nullis. *Folia rosularia* (3 vel)4 vel 5(vel 6), petiolata; *petiolus* 1–2 cm longus, rubro-violaceus, pilis simplicibus subdensis vel densis, 1.5–2 mm longis, mollibus, albis, denticulatis, pilis glanduliferis perparvulis sparsis, pilis stellatis nullis; *lamina* late lanceolato-obovata vel elliptica, subpapyracea, 3–7 × 1.5–3 cm, obscure viridis vel olivacea, interdum pauce et indistincte brunneo-maculata, margine remote denticulata vel breviter et acute dentata, ad basim longe attenuata, apice acuta, supra calvescens vel pilis simplicibus sparsis, in marginem et subtus pilis modice densis, in costa dorsali subdensis vel densis, 1.5–2 mm longis, albis, mollibus, denticulatis, pilis glanduliferis perparvulis tantum in margine et in costa dorsali sparsis, pilis stellatisque nullis. *Folia caulina* 1 vel 2(vel 3), inferior lanceolato-obovatum, lamina petioliformiter attenuata, denticulata, reliqua lanceolato-lineata, sessilia, indumento nullo. *Synflorescentia* laxe paniculata; *rami* (3 vel)4–8(–10), stricti, tenues, 2–15 cm longi, quisque calathidiis 1–3(–5); *calathidia* (3–)5–20(–30); acladium 1.5–2 cm longum. *Pedunculus* tenuissimus (tantum <0.5 mm diametro), indumento nullo, sub involucro 2–5 bracteis dilute viridibus, basibus alatis, 1.5–2 mm longis. *Involucrum* 9–10 mm longum, anguste campanulatum. *Involucri phylla* pauciseriata, exteriora 2–5 mm longa, obscure olivacea, immarginata, ovata vel anguste ovata, subobtusa, interiora 9–10 mm longa, olivacea, pallide marginata, lanceolata, ad basim circa 1.5 mm lata, acuta, pilis simplicibus sparsis, 1 mm longis, mollibus, ad basim atris, partibus reliquis albis, pilis glanduliferis sparsis vel modice densis, 0.2–0.6 mm longis, capite luteis, pilis stellatis nullis. *Ligulae* lingulatae, luteae, glabrae. *Styli* lutei, papillis nigris. *Areolae* margine dentatae. *Achaenia* 3–3.1 mm longa, atrobrunnea. *Florescentia*: Iulio mense.

Taxonomy — As Szeląg (2003) pointed out, "the *Hieracium sparsum* group (*H. sparsum* Friv. s.l. sensu Zahn

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Table 1. Comparison of diagnostic characters of *Hieracium sparsum* subps. *cholomonense*, *H. sparsum* subsp. *macedonicum* and *H. sparsum* subps. *borbasii*.

Diagnostic character	***Hieracium sparsum* subsp. *cholomonense***	***Hieracium sparsum* subsp. *macedonicum***	***Hieracium sparsum* subsp. *borbasii***
Number of cauline leaves	1 or 2(or 3)	3–7	4–8
Peduncles			
stellate hairs	absent	few	moderate
glandular hairs	absent	absent	few to numerous
simple hairs	absent	absent	few to numerous
Involucre [mm]	9–10	9–12	10–12
Involucral bracts			
apex	acute	obtuse	subacute
stellate hairs	absent	absent	absent
glandular hairs	few to numerous	few to numerous	few to numerous
simple hairs	few	few to numerous	few to numerous
Distribution	N Greece	Albania, Republic of Macedonia, N Greece	S Carpathians: Retezat Mts[1]

[1)] Zahn (1922–1938) mentioned also a record from Bulgaria (as *Hieracium sparsum* var. *latifolium*), but it must be proved whether or not this taxon belongs to *H. sparsum* subsp. *borbasii*. Szeląg (2006) mentioned the same uncertain case concerning a record of *H. sparsum* subsp. *borbasii* from the Pojana Rusca Mts in Romania.

1921–1923) constitutes a separate and morphologically fairly uniform complex of mountain, especially subalpine, taxa occurring in SE Europe and W Asia". In Europe there exist two diversity centres: the Balkan Peninsula and the Southern Carpathians. Taxa described during the 19th century mostly were established at the species level. Later, Zahn (1921–1923, 1922–1938) treated them at the rank of subspecies within one collective species. Alone or together with his local contributors he described numerous further taxa at the rank of subspecies or even variety, subvariety or form. Recently Szeląg (2003), who generally favours species rank within the *H. sparsum* complex, listed in his "Synopsis of *Hieracium* sect. *Cernua* (*Asteraceae*)" 43 species and 30 subspecies. In his "Taxonomic revision of *Hieracium* sect. *Cernua* (*Asteraceae*) in the Carpathians, Sudetes and Alps" (Szeląg 2006) he dealt with all taxa at species rank. In the Med-Checklist (Greuter 2008) the Central European taxonomic concept with collective species and subspecies was still maintained. In the ongoing Checklist for Greece this concept will also be used. Although morphological features already hypothesize that there may exist taxa of different value within the *H. sparsum* complex, we accept here for practical reasons, i.e. working on a steady base, the concept of the Med-Checklist. Future molecular analyses may bring more light into this complex. For a first study, dealing with two taxa of *H.* sect. *Cernua* R. Uechtr., see Ronikier & Szeląg (2008).

To classify taxa of *Hieracium sparsum* some important features must be considered: shape and indumentum of basal leaves; number, shape, insertion and indumentum of stem leaves; and ramification, size and indumentum of capitula. Considering these features, the new *H. sparsum* subsp. *cholomonense* is closely related to *H. sparsum* subsp. *borbasii* (R. Uechtr.) Zahn and *H. sparsum* subsp. *macedonicum* (Boiss. & Orph.) Zahn. The diagnostic characters of these three taxa are compared in Table 1.

2. *Hieracium transiens* subsp. ***levimaculatum*** Gottschl. & Melikoki, **subsp. nov.** – Fig. 2.

Holotype: Greece, Central Makedonia, Prefecture of Chalkidiki, Mt Cholomon, 40°25'56.6"N, 23°33'34.5"E, *Quercus frainetto* forest, 751 m, 8 Jun 2011, *K. Melikoki 7.3.3* (TAUF; isotypes: B, C, herb. Gottschlich 57839).

Paratypes: Mt Cholomon, 40°26'8.8"N, 23°32'18.3"E, *Quercus frainetto* forest, 778 m, 8 Jun 2011, *K. Melikoki 7.11.1* (ATHU, B, C, TAUF, W, herb. Gottschlich 57779).

Description — *Planta* perennis. *Rhizoma* tenue vel crassum, horizontale vel obliquum. *Caulis* erectus, solidus, (35–)40–50(–60) cm altus, infra medium rubro- vel brunneo-viridis (ad basim saepe rubro-violaeus), supra viridis, subtiliter striatus, phyllopodus, pilis simplicibus infra sparsis, supra sparsis vel nullis, 1–1.5 mm longis, mollibus, albis, denticulatis, pilis glanduliferis perparvulis (circa 0.05 mm tantum) sparsis, pilis stellatis nullis vel sparsis. *Folia rosularia* (3 vel)4 vel 5(–7), petiolata; *petiolus* (1.5–)2–3(–3.5) cm longus, rubro-violaceus, pilis simplicibus subdensis vel densis, 1.5–2 mm longis, mollibus, albis, denticulatis, pilis glanduliferis perparvulis sparsis, pilis stellatis nullis; *lamina* anguste elliptica vel late lanceolata, 3–6 × 1.5–2 cm, supra plusminusve glauco-viridia vel olivacea, disperse vel modice brunneo-maculata, subtus rubro-violacea, margine denticulata vel

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breviter et acute dentata, ad basim cuneata, apice acuta, pilis simplicibus sparsis, in marginem et subtus in costa dorsali subdensis , 1–1.5 mm longis, albis, mollibus, denticulatis, pilis glanduliferis stellatisque nullis. *Folia caulina* 1 vel 2, inferior ut in foliis rosularibus, petiolatum, reliquum multo angustius, saepe lineariformiter reductum. *Synflorescentia* laxe paniculata; *rami* 3–5(vel 6), stricti vel arcuato-ascendetes, tenues, (3–)5–10(–25) cm longi, quisque calathidiis 1–3(–6); *calathidia* (4 vel)5–8(–10); acladium 1–1.3 cm longum. *Pedunculus* tenuis, pilis simplicibus sparsis vel modice densis, atris (apice albis), 0.5–1 mm longis, pilis glanduliferis sparsis vel modice densis, 0.3–0.5 mm longis, capite obscure luteis, pilis stellatis sparsis vel subdensis, sub involucro 1 vel 2 bracteis atro-viridibus, 1.5–2 mm longis. *Involucrum* 9–10 mm longum, anguste campanulatum. *Involucri phylla* pauciseriata, exteriora 4–5 mm longa, obscure olivacea, anguste marginata, anguste ovata, subobtusa, interiora 9–10 mm longa, dilute viridia, lanceolata, ad basim 1–1.1 mm lata, acuta, pilis simplicibus subdensis, circa 1 mm longis, atris (apice albis), pilis glanduliferis sparsis, 0.2–0.3 mm longis, capite luteis, pilis stellatis in marginem subdensis, apice barbulata. *Ligulae* lingulatae, luteae, glabrae. *Styli* lutei. *Areolae* margine fibrilloso-dentatae. *Achaenia* circa 3 mm longa, obscure brunnea. *Florescentia*: Iunio et Iulio mense.



Fig. 2. *Hieracium transiens* subsp. *levimaculatum* – A: habit; B: indumentum of involucral bracts. – Isotype: *K. Melikoki 7.3.3* (herb. Gottschlich 57839).

Taxonomy — Hieracium transiens is morphologically intermediate between *H. sparsum* and *H. murorum* L. As a result of the great morphological variation of the presumptive parental species there exist numerous often locally endemic taxa. In shape and mottling of leaves and in indumentum there exist no hitherto described taxa that correspond with the new subspecies. The most similar is *H. transiens* subsp. *zygosense* (Zahn) Greuter, described from Thessalia (Zahn 1921–23: 1043), but that taxon has more lanceolate, unspotted leaves and long acute involucral bracts with fewer stellate hairs.

3. *Hieracium bohatschianum* subsp. ***onosmoidiforme*** Gottschl. & Melikoki, **subsp. nov.** – Fig. 3.

Holotype: Greece, Central Makedonia, Prefecture of Chalkidiki, Mt Cholomon, 40°30'13.6"N, 23°33'13.5"E, slope of road, rocky position, 547 m, 6 Jun 2011, *K. Melikoki 6.12.3* (TAUF; isotypes: ATHU, B, C, FI, LD, PAL, UPA, W, herb. Gottschlich 57774).

Paratype: [Greece, Central Makedonia, Prefecture of Chalkidiki], Cholomon-Gebirge, zwischen Arnaea und der Passhöhe, Silikatschutthang, 800 m, 14 Jun 1979, *A. Polatschek* (W 1979-16038).

Description — Planta perennis. *Rhizoma* tenue vel crassum, horizontale vel obliquum. *Caulis* erectus, solidus, (20–)25–40(–50) cm altus, infra medium rubro- vel brunneo-viridis (ad basim saepe rubro-violaeus), supra viridis, subtiliter striatus, phyllopodus, pilis simplicibus infra subdensis, supra nullis, 3–5 mm longis, mollibus, albis, denticulatis, pilis glanduliferis nullis, pilis stellatis

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Fig. 3. *Hieracium bohatschianum* subsp. *onosmoidiforme* – A: habit; B: indumentum of involucral bracts. – Isotype: *K. Melikoki 6.12.3* (herb. Gottschlich 57774).

sparsis. *Folia rosularia* (2 vel)3 vel 4(vel 5), petiolata; *petiolus* 1–2 cm longus, rubro-violaceus, pilis simplicibus subdensis vel densis, 3–5 mm longis, mollibus, albis, denticulatis, pilis glanduliferis perparvulis sparsis, pilis stellatis nullis; *lamina* late lanceolato-obovata vel elliptica, 5–8 × 2.5–3.5 cm, supra canescenti-viridis vel glauco-viridis, subtus rubro-violacea, margine integra vel denticulata, apice acuta, supra calvescens, versus marginem pilis simplicibus sparsis, subrigidis, in marginem modice densis, in costa dorsali densis, 2.5–4 mm longis, albis, submollibus, denticulatis, pilis glanduliferis perparvulis tantum in margine et in costa dorsali sparsis, pilis stellatis nullis. *Folia caulina* (2 vel)3(vel 4), inferior late lanceolatum, reliqua anguste ovata, denticulata, sessilia vel subamplexicaulia, color et indumento ut in foliis basalibus. *Synflorescentia* laxe paniculata; *rami* 3–6, stricti, tenues, 2–5(–8) cm longi, quisque calathidiis 1 vel 2; *calathidia* (3–)5–7(–10); acladium 1–2 cm longum. *Pedunculus* tenuis, pilis simplicibus sparsis, 1.3–1.7 mm longis, mollibus, ad basim atris, partibus reliquis albis, pilis glanduliferis sparsis, 0.2–0.3 mm longis, capite luteis, pilis stellatis sparsis, sub involucro 1 vel 2 bracteis viridibus, 1.5–2 mm longis. *Involucrum* 9–10 mm longum, semi-ellipsoideum. *Involucri phylla* pauciseriata, obscure olivacea, late pallide marginata, lanceolata, ad basim 1–1.2 mm lata, acuta, pilis simplicibus sparsis, circa 1 mm longis, mollibus, ad basim atris, partibus reliquis albis, pilis glanduliferis modice densis, 0.2–0.3 mm longis, capite luteis, pilis stellatis sparsis. *Ligulae* lingulatae, luteae, glabrae. *Styli* lutei. *Areolae* margine breviter dentatae. *Achaenia* circa 3 mm longa, obscure brunnea. *Florescentia*: Iunio mense.

Taxonomy — *Hieracium bohatschianum* Zahn was originally described from Mt Trescovaț in Romania (Zahn 1910). Later another two subspecies, each only known from one locality in the Republic of Macedonia, were described: *H. bohatschianum* subsp. *platytrigonodon* O. Behr & al. from Mt Korab (Behr & al. 1937) and *H. bohatschianum* subsp. *heterodontophyes* O. Behr & al. (Behr & al. 1939). In 1989 the first author received for determination a specimen from A. Polatschek, Vienna, collected in 1979 on Mt Cholomon. Because of its intermediate characters we already then assumed that it must belong to *H. bohatschianum*. Not having seen the type specimen or the other described subspecies we added a "sensu lato" to the determination. In the meantime we could study type material of *H. bohatschianum* subsp. *platytrigonodon* issued within the exsiccata series "Herbarium Hieraciorum", ed. Otto

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Behr, Forst, Lusatiae No. 975 (B, BASBG, HBG, M). Recently Szeląg (2011) re-collected *H. bohatschianum* at the type locality. Because of the lack of a holotype in BP he selected a neotype and added an instructive figure to his publication. Szeląg confirmed the intermediate morphological position ("sparsum – schmidtii") of *H. bohatschianum*. Comparing all this we came to the conclusion that the collection from Mt Cholomon is new to science. It more closely resembles the type specimen of *H. bohatschianum* than the two taxa described from the Republic of Macedonia, both of which have more elongated leaves and only one stem leaf; furthermore their leaves are more toothed. The newly described *H. bohatschianum* subsp. *onosmoidiforme* differs from *H. bohatschianum* in having basal leaves with distinct and longer petioles and stem leaves less amplexicaul.

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