

Nomenclature, history and taxonomic identity of *Aconitum pseudanthora* Błocki (Ranunculaceae)

Andriy NOVIKOV &
Józef MITKA



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Nomenclature, history and taxonomic identity of *Aconitum pseudanthora* Błocki (Ranunculaceae)

Andriy NOVIKOV

Department of Biosystematics and Evolution,
State Museum of Natural History of the NAS of Ukraine,
Teatralna 18, Lviv 79008 (Ukraine)
novikoffav@gmail.com

Józef MITKA

Institute of Botany, Jagiellonian University,
Gronostajowa str. 3, 30-387, Kraków (Poland)
j.mitka@uj.edu.pl

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ABSTRACT

Aconitum pseudanthora Błocki (1895) *nom. illeg.* is a rare endemic plant growing in Ukraine with a controversial naming history. In this paper, we discuss the history and origin of the name and its synonymy, considering the nomenclatural types for *A. tenuisectum* Schur (1876) and *A. florecoeruleo* Błocki (1884). The original author's material was not found; therefore, neotypes were designated. We propose *Aconitum anthora* subsp. *coeruleum* (Błocki) Novikov & Mitka, stat. nov. instead of the widely misapplied name *A. pseudanthora*.

RÉSUMÉ

Nomenclature, histoire et identité taxonomique d'Aconitum pseudanthora Błocki (Ranunculaceae). *Aconitum pseudanthora* Błocki (1895) *nom. illeg.* est une plante endémique rare poussant en Ukraine avec une histoire de dénomination controversée. Dans cet article, nous discutons de l'histoire et de l'origine du nom et de sa synonymie, en considérant les types nomenclaturaux pour *A. tenuisectum* Schur (1876) et *A. florecoeruleo* Błocki (1884). Le matériel original de l'auteur n'a pas été trouvé; par conséquent, des néotypes ont été désignés. Nous proposons *Aconitum anthora* subsp. *coeruleum* (Błocki) Novikov & Mitka, stat. nov. au lieu du nom largement mal appliqué *A. pseudanthora*.

INTRODUCTION

Aconitum pseudanthora is a rare plant endemic to Podillia, Ukraine (Zaverukha 1985; Kagalo 2009). It belongs to the subgenus *Anthora* (Rapaics) Peterm. (Novikoff & Mitka 2015; Mitka *et al.* 2021) or the section *Anthora* DC. within the subgenus *Aconitum* (Luferov 2000; Tzvelev 2001). *Aconitum pseudanthora* differs from other representatives of this group distributed in Ukraine by having a dirty violet or variegate (violet and yellow) perianth. Despite its isolated range in Podillia, Paczoski (1927) suggested that *A. pseudanthora* is probably identical to the Caucasian *A. versicolor* (Steven ex Ser.) Steven ex Ledeb. Similarly, Rapaics (1907) confused this species with *A. versicolor*. However, Gáyer (1909) distinguished these two species as clearly isolated. Later, Steinberg (1937) reported that these two taxa differ by inflorescence pubescence and Luferov (2000) made a combination *A. confertifolium* var. *versicolor* (Stev. ex Ser.) Luferov.

Aconitum pseudanthora has a controversial naming history. Usually, it is cited as *A. pseudanthora* Błocki ex Pacz. (Wissjulina 1953; Mosyakin & Fedoronchuk 1999; Tzvelev 2001; Ziman *et al.* 2015), following Paczoski (1927: 21) in the “Flora of Poland”.

The present paper aims to track the history of taxa names and establish the proper name according to the priority rule (Turland *et al.* 2018). The taxon belongs to the *Aconitum anthora* group, which is globally represented by several species, five of which are commonly recognized for Ukraine (i.e., *A. anthora* L., *A. eulophum* Rchb., *A. jacquinii* Rchb., *A. nemorosum* M. Bieb. ex Rchb. and *A. pseudanthora*) (Steinberg 1937; Wissjulina 1953; Tzvelev 2001; Mitka & Novikov 2011). *Aconitum anthora* s.l. is distributed in Europe, Western and Eastern Siberia, and Central Asia (Tutin 1993; Liangqian & Kadota 2001; Luferov 2004).

MATERIAL AND METHODS

The collections of the herbaria KW, CHER, LWS, LWKS, LW, KRA, KRAM, WU, W, P, and PR (see Thiers 2021 for herbarium codes) were revised during 1999–2020 using light microscopy. The work is also based on a comprehensive analysis of the protologues and relevant publications.

HERBARIUM SPECIMENS EXAMINED

Ogród T. Wilczyńskiego, Lwów, 1913, *Wilczyński T. s.n.* (KRAM[KRAM257102, KRAM257103]). — Okazy z Ogródu A. Wróblewskiego pochodzące z Ostrowca (Pokucie stepowe), 1913, *Wilczyński T. s.n.* (KRAM[KRAM257101]). — Ogród T. Wilczyńskiego, Lwów, 15.VIII.1914, *Wilczyński T. s.n.* (KRAM[KRAM257104, KRAM257105, KRAM257106]). — Podole, Sztromince, 29.IX.1934, *Środoń A. s.n.* (KRAM[KRAM000669]). — Kamienna góra w [?] pod Podhajce, 01.IX.1872, *Anonymous s.n.* (KRAM[KRAM132428]). — Boryszczkowce, Jaroczanka, 25.VIII.1876, *Ślędziński A. s.n.* (KRAM[KRAM132429]). — Dubienko pr. Monasterzyska (Galiciae orient.-austr.) in col-

libus calcareis dumetuis, loco Książa Góra dislo, 1890, *Błocki B. s.n.* (PR). — Dubienko c. Monasterzyska (Galiciae orient.) in collibus eglareis, 1888, *Błocki B. s.n.* — In rupibus et clivibus ad ripam fluvii Seret, Galicia (Austria), VIII.1884 (in F. Schultz, Herbarium Normale, nov. ser. Cent 20), *Błocki B. s.n.* (KRAM[KRAM132432]). — Ivano-Frankivsk region, outskirts of Chernelytsia village, over Dnister river, 1857 *Hölzl s.n.* (LWS[LWS35863, LWS35864]). — Galizien, Probabin bei Horodenka, 1887, *Błocki B. s.n.* (W[W1994-04527]). — Galizien, Probabin bei Horodenka (S.O. Galizien), IX.1887, *Błocki B. s.n.* (W[W1961-20134]). — Probabin pr. Horodenka (Galiciae orientali-austr.) in collibus calcareis, frequens, 1888, *Błocki B. s.n.* (WU). — Probabin pr. Horodenka (Galiciae orientali-australis) in collibus gypsaceis, IX.1887 *Błocki B. s.n.* (LW[LW060242]). — Żezawa pr. Zaleszczyki (Galiciae podoliae), in rup. calc. ad Tyram, IX.1887, *Błocki B. s.n.* (LW[LW060243]). — Żezawa pr. Zaleszczyki, 1887, *Błocki B. s.n.* (LW[LW060244]). — Żezawa pr. Zaleszczyki (Galiciae orient.austr.), in dumetis ad ripas praenytas saxosas Thyraiss, 1889, *Błocki B. s.n.* (LW[LW060245]). — Probabin k. Horodenki, *s.d.*, *Błocki B. s.n.* (LW[LW060241]). — Żezawa [Zeleniy Hai village] pr. Zaleszczyki in rupibus calcareis ad Tyraiss, IX.1887, *Błocki B. s.n.* (LW). — In circulo Kolomeensi prope Czernelica in rupibus gypsosis ad ripai Tyra abruptai Clarissim, Dr Hölzl detaect., *s.d.*, *Herbich F. s.n.* (LW). — Village Prylypche, quarry, 09.IX.2011, *Chorney I.I. s.n.* (CHER).

RESULTS AND DISCUSSION

ACONITUM PSEUDANTHORA

According to the IPNI Life Sciences Identifier (<https://www.ipni.org/n/60448181-2>), the first who used the epithet “*pseudanthora*” for the genus *Aconitum* was Wenderoth (1832). In fact, the protologue of mentioned publication lacks an authorship for this name. Wenderoth is cited because he is the author of another novelty (i.e. *Hypericum androsaemoides* Wender.) in this publication and used the same kind of annotation as in the first case (i.e. for *A. pseudanthora*). At the same time, the locality “Utranque ex alpihus Helvetiae” (Both from the Swiss Alps) provided in this publication refers to *A. anthora* (Novikoff & Mitka 2011). As a result of application of the epithet *pseudanthora* in the Wenderoth’s *Index seminum* (1832) it appeared unavailable at the species rank under *Aconitum*, and therefore later homonym *A. pseudanthora* published by Błocki (1895) is illegitimate (*nom. illeg.*).

ACONITUM EULOPHUM

Another name, *Aconitum eulophum* Rchb. (Reichenbach 1819: 15) is based on the iconography provided by Matthioli (1560: 540) with a protologue: “Hab. In Gallia Cisalpina vel Liguria (Matthioli) in Helvetiae monte Cenisio Seringe! In monte Belgenberg, Basileae Groh!” (Growth In Gallia Cisalpina or Liguria (Matthioli) in the Swiss mountain of Cenisio Seringe! On Mount Belgenberg, Basel Groh!). *Aconitum eulophum* is a synonym of *A. anthora* (<https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:707338-1>).



FIG. 1. — Voucher of *Aconitum* var. *flore coeruleo* [sic] collected by Blocki in 1888, deposited in WU. Scale bar: 2 cm.



FIG. 2. — Neotype of *Aconitum anthora* subsp. *coeruleum* (Blocki) Novikov & Mitka, stat. nov. Herbich (LW).

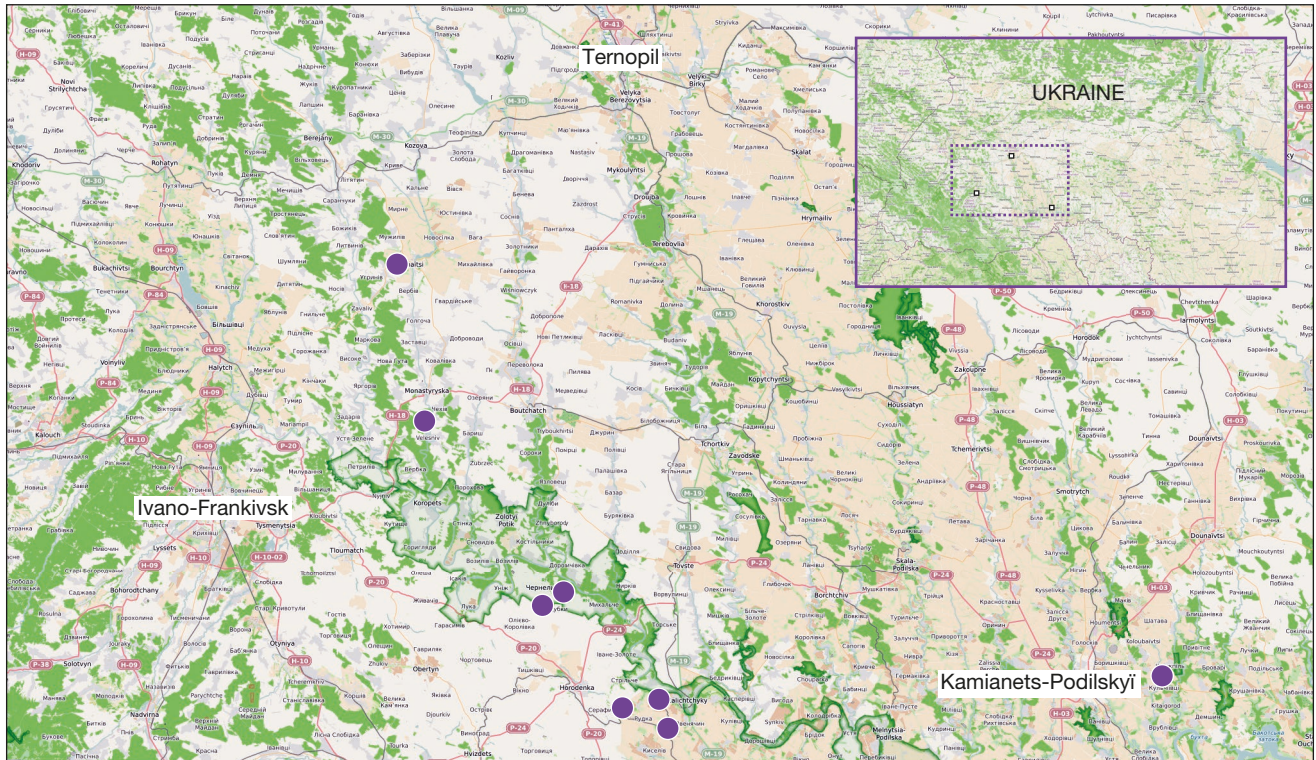


Fig. 3. — Distribution map of *Aconitum* subsp. *coeruleum* (Blocki) Novikov et Mitka, stat. nov. Map data © OpenStreetMap contributors under ODbL.

ACONITUM [FLORE] *COERULEO*, *A. COERULEUM*
 Błocki (1880: 488) reported *A. anthora* L. var. *fl.[ore] coeruleo* (in the library of the Institute of Botany in Krakow there is a copy of this article with altered pagination, and the protologue of the taxon is located on page 53). Błocki states in the protologue: “Na wertepie gyps. pieczarowym w Bilczu rzadko, tudzież na ścianie krzakami zarosłej między Bilczem a Manasterkiem, dość obficie. W ostatniej miejscowości występują wszelkie możliwe przechody od żółtego aż do ciemno-fioletowego koloru kwiatów” (Rarely in the gypsum wilderness in Bilcze, or on the wall with overgrown bushes between Bilcze and Manasterek, quite abundantly. In the latter village, flowers present all possible transitions from yellow to dark purple). Later, Błocki published botanical notes and cited the taxon under the following names: *A. anthora* var. *florecoer.[uleo]* (Błocki 1884: 51) and *A. anthora* var. *coeruleum* (Błocki 1884: 120). In Błocki (1884: 51) the name “*florecoeruleo*” is mentioned with the description of a locality of *Thalictrum foetidum*: “In Felsenspalten am linken steilen Uferabhänge des Seretflusses in Monasterek – nur an einer Stelle – neben *Aconitum Anthora* var. *florecoer.*” (in rock crevices on the steep left bank of the Seret (= Dnister) river in Monasterek (= Monastyrська) – only in one place – beside to *Aconitum Anthora* var. *florecoer.*). In the next part of the botanical note, Błocki (1884: 120) provided an extended version of the protologue: “Var. *coeruleum*. Auf Kalk- oder Gyps-felsen auf buschigen Uferabhängigen des Seretflusses in Czortków (*Busch.*), Olexińce und zwischen Bilcze und Monasterek – die beiden letztgenannten Standorte von sehr geringem Umfange. – In

Nordostpodolien wächst diese Varietät nicht. Zwischen der gewöhnlichen gelbblühenden Form und deren Varietät mit tiefblauen Blüten finden sich an den obgenannten Staudorten sehr deutliche Uebergangsformen bezüglich der Blütenfarbe. Auch in der Grösse der Blüthe, sowie in der Breite der Blatzipfel weist diese Varietät beträchtliche Schwankungen auf.” [Var. *coeruleum*. On limestone or gypsum rocks on bushy banks of the Seret (= Dnister) River in Czortków (= Chortkiv), Olexińce (= Oleksynca) and between Bilcze (= Bil’che) and Manasterek (= Monastyrsk) – the latter two locations of very small extent. – This variety does not grow in NE Podolia. Between the usual yellow-flowering form and its variety with deep blue flowers, there are very clear transitional forms in terms of flower color at the above-mentioned perennial sites. This variety also shows considerable fluctuations in the size of the flower and in the width of the leaf tips.”]. As we can see, the author interchangeably used the epithets “*florecoeruleo*” and “*coeruleo*”. The specimens collected and identified by Błocki as *A. anthora* var. *florecoeruleo* are deposited at LW (LW060241!), W (W196120134!, W199404527!), WU (un-numbered voucher!), and PR (two vouchers!). Since Błocki’s description did not include the Hölzl herbarium material used by Rehmman (see below) and knowing that the material collected by Buschak is missing (personal communication), selecting a neotype is necessary (see Figs 2; 5).

The label of the herbarium voucher deposited at WU Błocki incorrectly indicates that the author of the epithet “*[flore] coeruleo*” was Knapp (Fig. 1). In fact, Knapp (1872: 293) notes that the author of the variety *A. anthora* var. *coeruleum*



FIG. 4. — Neotype of *Aconitum tenuisectum* Schur (LW060243).



FIG. 5. — Isoneotype of *Aconitum anthora* L. subsp. *coeruleum* (Blocki) Novikov & Mitka, stat. nov. (LW060241).

is Hölzl, referenced previously in the paper by Rehmann (1868). There, Rehmann (1868: 499) introduced the name *A. anthora* var. *coeruleum* (nom. nud.) and provided a typus: “Auf trockenen Wiesen bei Czernelica (Exsicc. Hölzl)” (on dry meadows near Czernelica [Exsicc. Hölzl]). Finally, *Aconitum anthora* var. *coeruleum* was formally described by Błocki (1884: 120). We decided to give a subspecies rank for the taxon. It has a well-defined area of occurrence and habitat (gypsum outcrops) and thus meets important criteria of the infraspecific variation (Starmühler & Mitka 2001).

Gáyer (1909: 127) referenced to Hölzl in Knapp (1872) and reported this taxon in rank of forma (i.e., *A. anthora* f. *coeruleum*) and indicates *A. anthora* var. *coeruleum* Błocki Oe. B. Z. XXXIV, 1884: 120 as a synonym. Also, Gáyer designates a typus (Galicia: Probabin, leg. Błocki, in the Baenitz’s herbarium) for *A. anthora* f. *coeruleum*. We can also find the same location (Probabin) with Błocki referenced as a collector, in the *Baenitz’s Herbarium Europaeum* in Ascherson & Graebner (1929: 803, 804). We found a specimen from the “Probabin” locality, collected by B. Błocki (Fig. 5). The collector’s name (Błocki) indicates that the specimen could belong to the lost *Herbarium Europaeum* distributed by Baenitz, and mentioned in Gáyer (1909).

ACONITUM TENUISECTUM

Aconitum tenuisectum Schur (1876: 65) is the third name applied to plants from the ‘*pseudanthora*’ group. In particular, Schur wrote: “Dem Habitus nach könnte man diese Form für ein ‘*A. Anthora*’ mit blauen Blumen nehmen. – In Galizien (Buschak) 1873. – Nach einem trockenen Exemplare bestimmt!” (According to the habitus we could use this form for an “*A. Anthora*” with blue flowers. – In Galicia (Buschak) 1873. – Determined from a dry specimen!). The name described by Schur was later synonymized by Gáyer (1909) with *A. anthora* f. *coeruleum*.

Following the protologue by Schur (1876), the species was described on the basis of the herbarium material collected by J. Buschak, also mentioned by Błocki (1886: 36): “Dem Herbar des Herrn J. Buschak entnehme ich folgende interessante Daten aus der Flora von Czortkow (Südostgalizien), nämlich: *Aconitum Anthora* forma *floribus coeruleis* [...]” (I take the following interesting data from the flora of Czortkow (South-east Galicia) from Mr. J. Buschak’s herbarium, viz: *Aconitum Anthora* forma *floribus coeruleis* [...]). Unfortunately, we were unable to locate the original material from *A. tenuisectum*.

TAXONOMIC TREATMENT

Aconitum anthora subsp. *coeruleum* (Błocki)
Novikov & Mitka, stat. nov.

Aconitum anthora L. var. *coeruleum* Błocki, *Österreichische Botanische Zeitschrift*, XXXIV: 120 (Błocki 1884). — Type citation: “Auf trockenen Wiesen bei Czernelica (Exsicc. Hölzl)”. — Neotype (**designated here**): *In circulo Kolomeensi prope Czernelica in rupibus gypsosis ad ripai Tyra abruptai Clarissim.* (LW; Fig. 2).

Aconitum euphorium non Rchb., *Uebersicht der Gattung Aconitum*: 15 (Reichenbach 1819).

Aconitum tenuisectum Schur, *Verhandlungen des naturforschenden Vereines in Brünn* 15: 65 (Schur 1876). — Type citation: “Dem Habitus nach könnte man diese Form für ein ‘*A. Anthora*’ mit blauen Blumen nehmen, in Galizien (Buschak 1873)”. — Neotype (**designated here**): Żeżawa pr. Zaleszczyki (Galiciae podolicae) in rup. calc. ad Tyrais. *Błocki B. s.n.*, IX.1887. (LW060243!; Fig. 4). — Isonotypes (**designated here**): Żeżawa pr. Zaleszczyki. *Błocki B. s.n.* 1887. (LW060244!); Żeżawa pr. Zaleszczyki in rupibus calcareis ad Tyrais. *Błocki B. s.n.* IX.1887 (two specimens without numbers deposited at LW!).

DIAGNOSTIC CHARACTERS. — Leaves with thin lanceolate sections as in *A. anthora* L. Perianth persistent, violet, dirty violet, or variegated (different combinations of violet with yellow). The upper sepal forms a hemispherical helmet, sometimes with a more or less developed bend over the rostrum, covered by curved trichomes. Carpels five, covered by protruding trichomes. Stamens glabrous. Pedicels, bracteoles, and inflorescence axes covered (sometimes sparsely) by curved trichomes.

DISTRIBUTION. — Endemic to Ukraine, Podillia region (Fig. 3).

Aconitum anthora L. var. *fl. coeruleo* [sic] Błocki

Kosmos V: 488 (Błocki 1880). — *Aconitum anthora* L. var. *florecoer.* [sic] Błocki, *Österreichische Botanische Zeitschrift* 34: 51 (Błocki 1884). — *Aconitum anthora* L. var. *flore coeruleo* [sic] Knapp ex Błocki (1888) (Fig. 1). — *Aconitum coeruleum* Błocki in Steinberg, *Flora of USSR*, VII: 191 (Steinberg 1937). — Neotype (**designated here**): Probabin k. Horodenki. *Błocki B. s.n.* (LW060241!; Fig. 5). — Isonotypes (**designated here**): Galizien, Probabin bei Horodenka. *Błocki B. s.n.*, 1887, (W1994-04527!); Galizien, Probabin bei Horodenka (S.O. Galizien). *Błocki B. s.n.*, 09.1887. (W1961-20134!).

CONCLUSIONS

Our investigations showed that Podillian plants from the *Aconitum anthora* group with a violet or variegated coloration of the calyx deserve the status of independent subspecies. At the same time, nomenclatural observations showed that the epithet “*coeruleum*” introduced by Błocki has priority for use. Therefore, here we propose a new combination *A. anthora* subsp. *coeruleum* (Błocki) Novikov & Mitka, stat. nov. that should be applied for mentioned plants.

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Author contributions

Both authors contributed equally to this research. Conceptualization, AN and JM; methodology, AN and JM; investigation, AN and JM; manuscript writing and proofreading, AN and JM; supervision, JM. All authors have read and agreed to the published version of the manuscript.

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Conflicts of interest

The authors declare no conflict of interest.

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