

Typification of three names in the genus *Knautia* (Caprifoliaceae; Dipsacoideae)

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Received: 10 September 2021 / Accepted: 14 April 2022 / Published online: 27 June 2022

Abstract. The typification of the names *Trichera subscaposa* var. *rupicola*, *T. subscaposa* var. *macrotrycha*, and *Knautia subscaposa* var. *subintegerrima* is discussed. The names are lectotyped using specimens preserved in the Willkomm Herbarium at COI, Carlos Pau Herbarium at MA, and Rouy Herbarium at LY, respectively.

Keywords: lectotype, nomenclature, Rouy, Spain, taxonomy, *Trichera*, Willkomm, Carlos Pau.

How to cite: Ferrer Gallego, P.P. & Fabado, J. 2022. Typification of three names in the genus *Knautia* (Caprifoliaceae; Dipsacoideae). *Mediterr. Bot.* 43, e77869. <https://doi.org/10.5209/mbot.77869>

Introduction

Dipsacoideae Eaton is a subfamily of Caprifoliaceae s.l. (APG IV, 2016; Wang *et al.*, 2021; Stevens, 2022). This subfamily includes about 300–325 species in 14 genera that are distributed in Europe, Africa and Asia (Moore, 1976; Devesa, 1984a,b; 1986; Velarque, 1985a,b; Greuter & Burdet, 1986; López González, 1987; Burt, 1999; Mayer & Ehrendorfer, 1999, 2000; Caputo & Cozzolino, 2004; Carlson *et al.*, 2009). Taxonomic treatments of Dipsacoideae differed widely, particularly with regard to the circumscription of tribes and genera (van Tieghem, 1909; Ehrendorfer, 1964a,b; Verlaque, 1977a,b, 1984a,b, 1985a,b, 1986a,b; Devesa, 1984a,b; Greuter & Burdet, 1985; López González, 1987; Caputo & Cozzolino, 1994).

Due to the prevalence of reticulate evolution spanning three ploidy levels, *Knautia* L. is considered one of the taxonomically most intricate genus in the European flora (Ehrendorfer, 1962a,b). Depending on the different taxonomic treatment, it may include about 50–55 species that are distributed in western Eurasia and northwestern Africa. All the species within this genus show a lipid-rich elaiosome at the basis of the fruits (Carlson *et al.*, 2009). The traditional division into three sections (sect. *Knautia*, sect. *Tricheroides* DC., sect. *Trichera* (Schrad. ex Roem. & Schult.) DC.) was recently supported by molecular phylogeny (Rešetnik *et al.*, 2014; Frajman *et al.*, 2015, 2016).

As a further contribution in our nomenclatural studies on Dipsacoideae (see e.g., Ferrer-Gallego, 2014), we typify here three names: *Trichera subscaposa* var. *rupicola* Willk. (currently accepted at species rank as *Knautia rupicola* (Willk.) Font Quer), *T. subscaposa* var. *macrotrycha* Pau ex Font Quer (currently accepted

under *K. rupicola* var. *macrotrycha* (Pau ex Font Quer Devesa) and the currently accepted *K. subscaposa* var. *subintegerrima* Rouy.

Materials and Methods

This work is based on the analysis of the respective protologues, the examination of relevant literature and on the study of the specimens conserved in the herbaria BC, COI, LY, and MA (acronyms are according to Thiers, 2022). The typification strictly follows the International Code of Nomenclature for algae, fungi, and plants (Turland *et al.*, 2018). The names are arranged in alphabetic order, followed by homotypic synonyms (indicated with the symbol \equiv) and the heterotypic synonyms (with the symbol $=$).

Results and Discussion

Knautia rupicola (Willk.) Font Quer

The protologue of *Trichera subscaposa* var. $[\gamma]$ *rupicola* includes a description in Latin, followed by the provenance and a concrete gathering “In Aragon. australi (in rupium fissuris int. Peñarroya et Fredes atque inde a Fredes versus monaster. Benifasár, Losc.!)” (Willkomm, 1893: 72).

Previously, Loscos & Pardo (1867: 189) mentioned this taxon as “961 K. [*Knautia*] *subscaposa* Boiss. Reut. [...] var.? *rupicola* Wk. However, this name was published without a description or diagnosis nor by a reference to a previously and effective published description or diagnosis, and therefore it is not validly published (ICN Art. 38.1; see Turland *et al.*, 2018).

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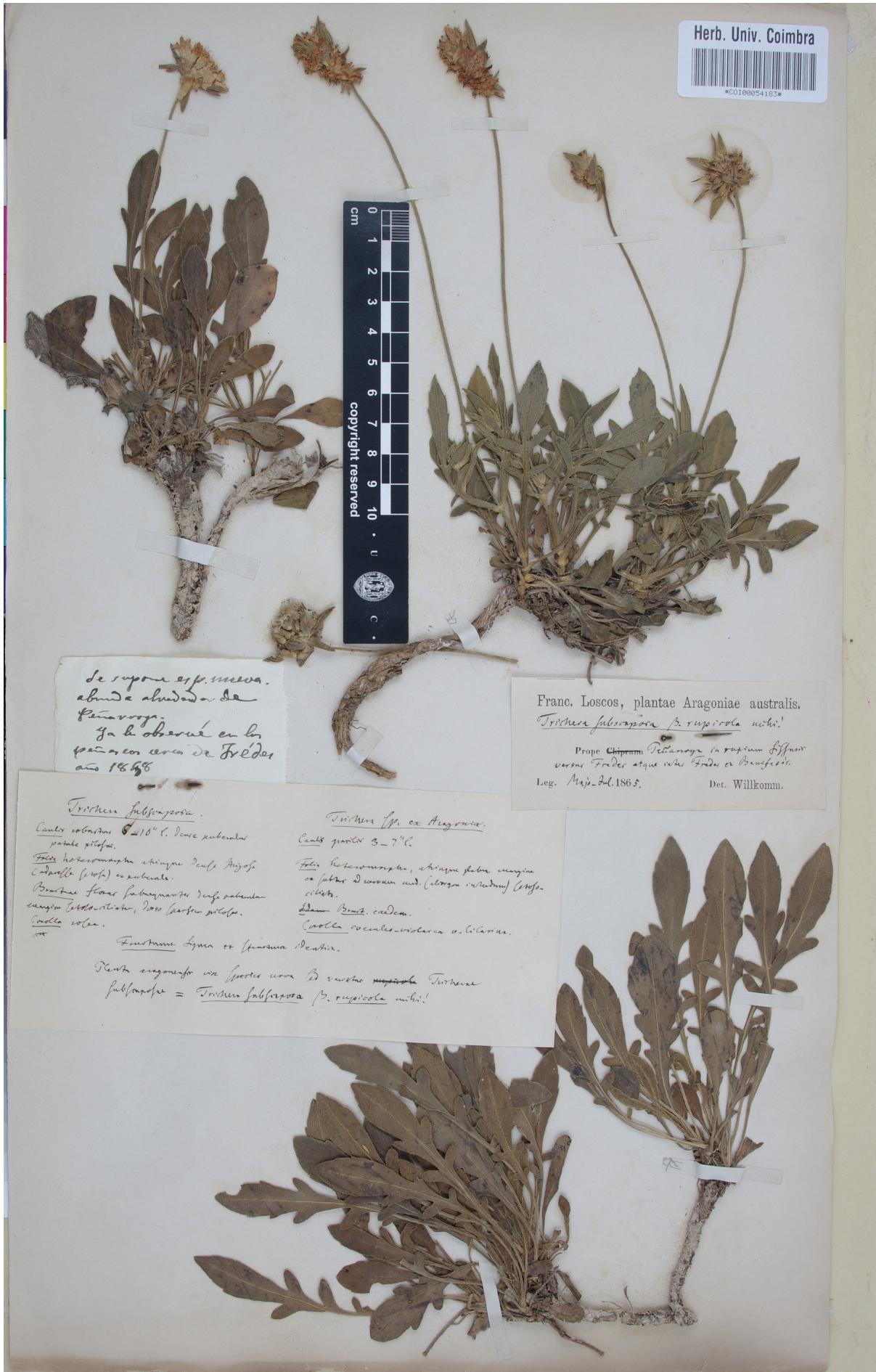


Figure 1. Lectotype of *Knautia rupicola* (Willk.) Font Quer; COI 00054183 (Image courtesy of the herbarium COI, reproduced with permission).

Some years after, Willkomm (1889: 91) provisionally published this name at species rank as “*Trichera rupicola*”. In this work, Willkomm mentioned the same gathering that was included in the protologue: “planta hallada por el Sr. Loscos en las fronteras de Aragón y Valencia (entre Peñarroya y Fredes y desde Fredes hacia el monasterio de Benifasár)” [plant found by Mr. Loscos on the borders of Aragon and Valencia (between Peñarroya and Fredes and from Fredes to the monastery of Benifasár)]. However, the name “*Trichera rupicola*” was published just as provisional name in anticipation of the future acceptance of the taxon. Indeed, the author reported: “Propongo para esta planta en el caso que fuese nueva, el nombre *Trichera rupicola*” [I propose for this plant, in case it is new, the name *Trichera rupicola*]. Therefore, “*Trichera rupicola*” is not a validly published name (ICN Art. 36.1; see Turland *et al.*, 2018).

In Willkomm’s personal herbarium, there is original material related to the gathering cited in the protologue. The syntype (barcode COI 00054183) bears three plants with leaves, flowers, and fruits, and the following three handwritten labels: 1) “Franc. Loscos, plantae Aragoniae australis. / *Trichera subscaposa* β. *rupicola* mihi! / Prope Chiprana Peñarroya in rupium fissuris / versus Fredes atque inter Fredes et Benifasár. / Leg. Majo-Jul. 1865 / Det. Willkomm.” (handwritten by Willkomm); 2) the second label is annotated with a complete and detailed description of this plant; 3) the third label is handwritten by Loscos “Se supone esp. nueva. / Abunda alrededor de / Peñarroya. / Ya la observé en los / peñascos cerca de Frédes / año 1858” [It may be a new species / It is abundant around / Peñarroya. / I have already observed it on the / crags near Frédes / year 1858] (https://coicatalogue.uc.pt/index.php?t=results_specimen&q=Trichera%20subscaposa&orderby=relevance&orderdirection=DESC&size=10&page=2) (Figure 1).

This specimen matches with the traditional concept and the current use of the name, showing some diagnostic features (e.g., stem up to 25 cm, slender, papillose; leaves finely papillose, sparsely ciliate below and on midrib, the lower oblong, the upper lyrate with 2–6 lateral lobes and an ovate terminal lobe; capitula 2–5 cm in diameter; calyx with 8-awned) (e.g., Willkomm, 1889; Ehrendorfer, 1976; Bolòs & Vigo, 1996; Devesa *et al.*, 2003; Devesa, 2007). Therefore, this specimen (COI 00054183) is designate as the lectotype of the name *Trichera subscaposa* var. [γ] *rupicola*.

Finally, there is a specimen of this taxon in Loscos herbarium at the Sociedad Económica Aragonesa de Amigos del País (Zaragoza, Spain). The specimen is numbered 1268 (see González Bueno & Muñoz Garmendia 2001: 203) and it may be duplicate of the specimen preserved at COI. We have not been able to locate any further original material in any consulted herbaria (e.g., MA, Loscos herbarium in the IES José Ibáñez Martín in Teruel, Spain).

Trichera subscaposa var. [γ] *rupicola* Willk., Suppl. Prodr. Fl. Hisp.: 72. 1893

≡ *Knautia rupicola* (Willk.) Font Quer, Treb. Mus. Ci. Nat. Barcelona 5: 228. 1920

“In Aragon, australi (in rupium fissuris int. Peñarroya et Fredes atque inde a Fredes versus monaster. Benifasár, Losc.!)”

Lectotype (designated here): [Spain, Castellón province]. “Prope Peñarroya in rupium fissuris versus Fredes atque inter Fredes et Benifasár, Majo-Jul. 1865”, *Francisco Loscos s.n.*, COI (barcode COI 00054183) (Figure 1). Probable isolectotype: Sociedad Económica Aragonesa de Amigos del País n° 1268.

- *Trichera rupicola* Willk., Ill. Fl. Hispan. 2: 91. 1889, nom. inval. [nom. prov.] (ICN Art. 36.1; see Turland *et al.*, 2018)

- *Knautia rupicola* (Willk.) Szabó in Bot. Közlem. 31: 124. 1934, comb. superfl.

Trichera subscaposa* var. *macrotrycha Pau ex Font Quer
The protologue of *Trichera subscaposa* var. *macrotrycha* includes the phrase “*Trichera subscaposa* (Boiss. Reut.) Willk., var. nov. *macrotrycha* Pau, in litt.” followed by a brief diagnosis in Catalan “Difereix del tipus segons Pau, pels pèls caulinars abundants i llargs” [It differs from the type according to Pau, by the abundant and long cauline hairs], and the comment “Nova per a Catalunya” [New for Catalunya].

We found two original specimens of this taxon preserved at BC and MA. The specimen at MA bears two complete and well-developed plants, and an original label annotated as: “N° 17 / Herbario de P. Font Quer / *Trichera subscaposa* (Boiss. Reut.) Willk.? / 15 Junio de 1915 / Habitación Puerto de Horta (Tarragona) / Estación Hermots, en zona montana. / Observaciones”. The sheet at BC bears a duplicate of the specimen at MA. This sheet, with code BC 28689 bears two complete and well-developed plants, and an original label, annotated as: “1915 – N° 17 / Herbarium Font Quer / *Knautia subscaposa* Boiss. Reut. / var. *macrotrycha* Pau / Hab. Ports d’Horta, Tarragona / Stat. Hermots, zona montana. / Legi, 15 Juny 1915”. We were not able to locate any further original material in the consulted herbaria.

These two specimens (MA 120098 and BC 28689) match with the traditional concept and with the current use of the name. Indeed, they show the typical morphological characters of this variety: setaceous and appressed hairs on the leaves, and abundant and long cauline hairs (see Font Quer, 1915; Bolòs & Vigo, 1979; Devesa *et al.*, 2003; Devesa, 2007). In conclusion, we designate the specimen at MA (barcode MA 120098) as the lectotype of the name *Trichera subscaposa* var. *macrotrycha*.

Trichera subscaposa var. *macrotrycha* Pau ex Font Quer in Treb. Inst. Catalana Hist. Nat. 1915: 32. 1915

≡ *Knautia rupicola* var. *macrotrycha* (Pau ex Font Quer) Devesa, Ortega-Olivencia & López in Acta Bot. Malac. 28: 211. 2003

“[Tarragona] Ports d’Horta, zona montana”

Lectotype (designated here): [Spain, Tarragona province]. “Ports d’Horta, Tarragona, zona montana”, 15 June 1915, *Font Quer 1915 – N° 17*, MA (barcode MA 120098) (Figure 2). Isolectotype: BC 28689

= *Knautia arvensis* subvar. *cardonica* O. Bolòs & Vigo in Collect. Bol. (Barcelona) 11(2): 54. 1979

“[Tarragona] Cardó, in rupibus calc., I. Portell de Xàquera, ad 900 m. alt., leg. P. Font i Quer, 28 jun. 1942”
Holotype: BC 92817



Figure 2. Lectotype of *Knautia rupicola* var. *macrotrycha* (Pau ex Font Quer) Devesa; MA 120098 (Image courtesy of the herbarium MA, reproduced with permission).



Figure 3. Lectotype of *Knautia subscaposa* var. *subintegerrima* Rouy; LY 0712855 (Image courtesy of the herbarium LY, reproduced with permission).

***Knautia subscaposa* var. *subintegerrima* Rouy**

Rouy (1882: 110) described *Knautia subscaposa* var. *subintegerrima* providing a brief diagnosis in French “Cette variété ne diffère du type que par sa taille encore moins élevée et ses feuilles entières, les deux caulinaires quelquefois un peu dentées à la base”, and the provenance “Hab. – Sierra Mariola: *Barranco del Campo*, avec le type”.

There is an original specimen at LY with barcode LY 0712855. The sheet bears four well developed and complete plants with leaves and flowers. On the sheet, two plants are identified as “a” and the other two as “b”. An original label, handwritten by Rouy, reports: “Plantes d’Espagne / Flore de la Province de ~~Valencia~~ “Alicante.” / *Trichera subscaposa* Boiss. et Reut! / (var. β *subintegerrima* – Rouy.) / Sierra Mariola, près Concentayna; / barranco de [illegible]; bords du sentia / 17 Juin 1880 / Legi G. Rouy.”. In addition, the sheet also contains a relevant revision label; “b: *Trichera subscaposa* Boissier / et Reuter var. *subintegerrima* / Rouy / TYPUS / D. Rivera / 28-9-1984” (Figure 3).

We were not able to locate any further original material in any consulted herbaria, and the specimen at LY is possibly the only one of the gathering mentioned by Rouy in the protologue. However, as we cannot exclude that there was more than one specimen of this taxon, I consider the specimen as the lectotype of the name *Knautia subscaposa* var. *subintegerrima*, admitting that the specimen might well be the holotype (see McNeill, 2014).

Fortunately, in the sheet LY0712855 there are two plants, mounted in the upper half of the sheet and identified with the letter ‘b’, that matches with the traditional concept and the current use of the name, showing some diagnostic features (e.g., entire leaves, some loosely toothed or pinnatifid, or with some marked lobes) (e.g., Willkomm & Lange, 1865; Willkomm, 1893; Bolòs & Vigo, 1996; Devesa, 2007). Therefore, these two plants are designated as the lectotype of the name.

Knautia subscaposa var. *subintegerrima* Rouy in Bull. Soc. Bot. France 29: 110. 1882

“Hab. - Sierra Mariola: *Barranco del Campo*, avec le type”

Lectotype (designated here): [Spain, Alicante province]. “Sierra Mariola, près Concentayna; barranco de [illegible]; bords du sentia, 17 Juin 1880, *G. Rouy s.n.*, LY (barcode LY 0712855 [two plants mounted in the upper half of the sheet, identified with the letter ‘b’] (Figure 3).

Acknowledgements

Thanks to all the curators of the consulted herbariums, and especially to Joaquim Santos (Herbarium COI), Leopoldo Medina and Eva García Ibáñez (Herbarium MA), Neus Ibáñez and Eduard Farras (Herbarium BC), and Melanie Thiebaut (Herbarium LY) for having provided images of the herbarium sheets.

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