

ON THE NOMENCLATURAL TYPE OF THE LINNAEAN NAME *CENTAUREA ASPERA* (ASTERACEAE): A REVIEW

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ABSTRACT: The typification of *Centaurea aspera* L. is re-evaluated, and the appropriateness of the lectotype designated in 2014 based on material from the Burser Herbarium is critically discussed. Although this specimen has been questioned due to its apparent association with *Centaurea muricata*, it is here interpreted as belonging to *C. aspera*. The controversy stems from differing historical interpretations of Bauhin's polyonym by Linnaeus and Burser, rather than from any taxonomic inconsistency in the specimen itself. Historical evidence, including the illustration by L'Obel cited in connection with *C. muricata*, supports the existence of divergent applications of the same pre-Linnaean name. The Burser sheets are regarded as original material and therefore eligible for lectotypification under the International Code of Nomenclature. Accordingly, the neotypification proposed in 2016 is considered unnecessary should this status be accepted. Under the current Code, lectotypification based on Burser's material remains the most appropriate nomenclatural solution. **Keywords:** *Compositae*; nomenclature; neotype; lectotype; original material; Joachim Burser Herbarium; International Code of Nomenclature; *Volutaria muricata*.

RESUMEN: Revisión sobre el tipo nomenclatural del nombre linneano *Centaurea aspera* (Asteraceae). Se revisa la tipificación de *Centaurea aspera* L. y se discute la pertinencia del lectotipo designado en 2014 a partir de material del Herbario de Burser. Aunque dicho espécimen ha sido cuestionado por su aparente asociación con *Centaurea muricata*, se interpreta que corresponde a *C. aspera*. La controversia deriva de una interpretación divergente del polinomio de Bauhin por Linneo y Burser, más que de una discrepancia taxonómica del material. La evidencia histórica, incluida la ilustración de L'Obel citada en el contexto de *C. muricata*, respalda la existencia de interpretaciones paralelas del mismo nombre prelinneano. Se considera que los pliegos de Burser constituyen material original susceptible de lectotipificación. En consecuencia, la neotipificación propuesta en 2016 se considera innecesaria si se acepta dicho estatus. Conforme al Código de Nomenclatura vigente, la lectotipificación basada en el material de Burser se mantiene como la opción nomenclatural más adecuada. **Palabras clave:** *Compositae*; nomenclatura; neotipo; lectotipo; material original; herbario de Joachim Burser; Código Internacional de Botánica; *Volutaria muricata*.

INTRODUCTION AND DISCUSSION

LINNAEUS's protologue (1753: 916) of *Centaurea aspera* consists of a diagnosis or *nomen specificum legitimum* "Centaurea calycibus squamis palmato-quinquespinosis, foliis lanceolatis dentatis", with a citation from an earlier work by SAUVAGES (1751: 289). This is followed by three synonyms cited from van ROYEN (1740: 142) "Centaurea calycibus spinosis, foliis lanceolatis dentatis", BAUHIN (1623: 273) and RAY (1693: 319) "Stoebe squamis asperis", and BAUHIN & CHERLER (1651: 33) "*Jacea, cum spinosis capitulis, purpurea tenuifolia*". The protologue also gives the distribution as "*Habitat Monspelii, inque Hetruria, Lusitania*". None of these synonyms are accompanied by illustrations.

Van Royen's phrase name "Centaurea calycibus spinosis, foliis lanceolatis dentatis" is not connected to a specimen in the van Royen herbarium in Leiden (L), but three specimens in volumen XV(2) of Joachim Burser's herbarium in Upsala were identified as *C. aspera* by Linnaeus (SAVAGE, 1937: 50) (figs. 1 and 2), making them potential original material.

A figure published by BAUHIN & CHERLER (1651: 33) was erroneously cited by JARVIS (2007: 399) as origi-

nal material for this name. The figure on page 33 appears to be associated with the name "*Jacea latifolia spinosis capitulis pulchris flore purpureo*", not with the polynomial that Linnaeus cites in the synonymy of *C. aspera* "*Jacea, cum spinosis capitulis, purpurea tenuifolia*". So the figure is not original material for *C. aspera*. The polynomial "*Jacea latifolia spinosis capitulis pulchris flore purpureo*" was cited in the synonymy of *C. seridis* L. (see LINNAEUS, 1753: 915–916), and it corresponds to this species.

FERRER & al. (2014: 117) designated the right-hand specimen on sheet Herb. Burser XV(2): 38 (UPS No. V-174712) as lectotype of *C. aspera* (fig. 2). A current examination of the specimen allows all the material on the sheet to be recognized as a single specimen; therefore, there is no reason not to consider the entire sheet as the lectotype, without the need to select only a part of it, as was done previously. This typification is grounded in Linnaeus's use of Bauhin's *Pinax* (1623), which directly connects to Burser's herbarium. Burser's specimens were organized according to *Pinax* and are explicitly mentioned in the introduction to *Species Plantarum* as a major source. This herbarium was in Upsala during Linnaeus's work, and a manuscript confirms that specimens on sheets XV(2): 38, 39, and 40 were deter-

mined by Linnaeus as *C. aspera* (SAVAGE, 1937: 50) (see fig. 1), thus qualifying them as original material eligible for lectotypification.

However, on the website of the Linnaean Plant Name Typification Project (see WAJEK, 2022), it is stated that the specimen Herb. Burser XV(2): 38 (UPS No. V-174712), although taxonomically matching *Centaurea aspera*, represents original material for *C. muricata* L., since both species share a Bauhin polynomial cited in *Species Plantarum* 2: 918. While Linnaeus initially linked sheets XV(2): 38, 39, and 40 to *C. aspera* in a c. 1748 annotated list “Burseri plantae” (a list of the plants in Burser’s herbarium at Upsala, with the Linnaean names and those of Caspar Bauhin’s “*Pinax*”; now at LINN Ref. No. LM/LP/BOT/1/7, digital copy available here: https://linnean.access.preservica.com/uncategorized/IO_ca1e78a0-4d11-4b2a-a83a-4db74cc51df0) (see also fig. 1), it is suggested that he might have changed his mind by 1753, assigning that polynomial, and by extension, the specimen, to *C. muricata*. As a result, the lectotype by FERRER-GALLEGO & al. (2014) was not accepted in “The Linnaean Plant Name Typification Project,” which instead adopted a “neotype” designated by IAMONICO & PERUZZI (2016: 163), based on a specimen at LINN (No. 1030.49) (image of the sheet available at: https://linnean.access.preservica.com/uncategorized/IO_b373b6d3-4c9b-49a5-9a80-09df748a35cf/).

Nevertheless, this interpretation requires closer examination. Undoubtedly, Linnaeus and Burser interpreted Bauhin’s polynomial differently: Linnaeus used it to define *C. muricata*, while Burser applied it to a specimen that actually corresponds to *C. aspera*, which was seen by Linnaeus himself and identified as belonging to his *C. aspera* (as noted in his manuscript, see below). This discrepancy suggests that there may have been either a misattribution of Bauhin’s polynomial by Burser to the Linnaean concept of *C. aspera*, or a misattribution by Linnaeus in assigning Bauhin’s polynomial as a synonym under his *C. muricata*. Clearly, this calls for an in-depth analysis of Bauhin’s work (see below).

On the other hand, the suggestion that Linnaeus changed his mind does not resolve the clear contradiction between the Burser specimen and Linnaeus’s published diagnosis of *Centaurea muricata*. Furthermore, the fact that he changed his mind about Bauhin’s polynomial does not necessarily mean that he also changed his mind about the identification of Burser’s material. These are undoubtedly two separate issues.

This situation leads us to the following question: if the Burser specimen is not original material for *C. aspera*, could it then be original material for *C. muricata*? The morphological characters of this specimen do not align with the diagnosis of *C. muricata*, but instead closely match that of *C. aspera*.

BAUHIN & CHERLER (1651: 33) published the polynomial “*Jacea, cum spinosis capitulis, purpurea tenuifolia*” followed by this paragraph “*Caules* huic cubitales, striati, asperi: *folia* aspera, angusta, uncias duas longa, quaedam rariùs laciniata, aut cum quibusdam eminentiis: *capitula* parva, quae squamis constant flavescensibus glabris, nisi desinerent in tres spinulas: *Flosculi* purpurei” [Stems about a cubit long, striated and rough. Leaves rough, narrow, about two inches in length, some more rarely divided or bearing small teeth. Heads small, composed of yellowish, glabrous scales, mostly ending in three

small spines. Florets purple]. In this description, clearly is mentioned “scales, mostly ending in three small spines”, feature that is present in *C. aspera* but not in *C. muricata* (currently *Volutaria muricata* (L.) Maire). Therefore, I believe that Burser’s interpretation in attributing his herbarium material to Bauhin’s polynym is correct, but Linnaeus’s attribution of it as a synonym of *C. muricata* is not. This error may have been induced by the second name written on Burser’s specimen sheet, “*Jacea major* Lob.”, which can indeed be identified with the current concept of *V. muricata* (see below).

In addition, BAUHIN & CHERLER (1651: 33) mentioned for the name “*Jacea spinosa*” from Lobel. & Pen. Adv. p. 234 [i.e., Pena & L’Obel. 1571. *Stirpium adversaria nova*, page 234]: *Capitulis spinosis* *Jacea*: ad Cellam novam et vicinis vinetis Monspelii minor spontè visitur alia [*Jacea*] nigra, eadem proxima radice et effigie, duntaxat tristiori aspecto: *florem* purpureum, interdum album, in squamoso et spinulis horrido capitulo edit, *Calcitrapae* haud adsimili [near Cella Nova and the neighboring vineyards of Montpellier, another smaller black [*Jacea*] grows spontaneously, sharing the same root and general appearance, though with a somewhat gloomier aspect; it produces purple flowers, sometimes white, in scaly and spiny heads, not very similar to those of *Calcitrapa*] (see Pena & L’Obel, 1571 : 234].

Finally, under the name “An Aphyllantes 2. Dod.” from Dodoens, BAUHIN & CHERLER (1651: 33) mentioned “An Dodon. hist. lat. in fol. pag. 125. Aphyllantes altera similis primae (id est Stoebe Salmanticae primae Clusii) sed caule brevior, capitulis minoribus, & foliis nigrioribus, saturatiusque virentibus, squammulis capitulorum asperioribus & nonnihil spinosis: flore purpureo è staminulis consarcto” [In Dodoens’s Latin history in folio, page 125: The second Aphyllantes similar to the first (that is, Stoebe Salmantica of Clusius) but with a shorter stem, smaller flower heads, and darker, more intensely green leaves, with rougher and somewhat spiny scales on the flower heads; purple flowers densely packed with stamens].

DODOENS (1616: 125) publishes this: “*Prima*: caules a radice complures, eosque ramosos, virentes ac nonnihil angulosos promittit. *Folia*, et a radicibus et circa ramulos, oblonga, utroque margine profundis ac frequentibus incisuris divisa, virentia, levia ac nonnihil resplendentia. *Capitula* veluti *Jaceae nigrae*, e squammulis compacta, aliquantulum asperiora. *Flores* eleganter purpurei, ex multis staminibus, ut in *Jaceis*. *Semen* glaberrimum, superius ut in *Cyano* barbatulum, sed maius. *Radix* fibrosa est. / *Alter* huic similis, sed caules eius breviores, capitula minora, folia nigriora et saturatius virentia. *Squamulae* capitulorum asperiores et nonnihil spinosae. *Flos* purpureus, e staminibus consarctus” [The first: several stems arise from the root, branching, green, and somewhat angular. The leaves, both at the roots and around the small branches, are oblong, divided on both edges by deep and frequent notches, green, smooth, and somewhat shining. The flower heads are like those of *Jacea nigra*, compact from scales, somewhat rougher. The flowers are elegantly purple, made up of many stamens, as in *Jacea*. The seed is very smooth, above like the bearded *Cyano*, but larger. The root is fibrous. / The second is similar to the first, but its stems are shorter, the flower heads smaller, the leaves darker and more intensely green. The scales of the flower heads are rougher and somewhat spiny. The flower is purple, formed by stamens]. Perhaps closer to the concept of *C. muricata* in this case.

The entry of BAUHIN & CHERLER (1651: 33) concludes with: “*Jacea*, Stoebe, Aphyllantes. *Locus & Tempus*”: “*C. Bauh.*, Phyt. *Jacea* 20, sive *Jacea* Stoebe dicta, squamis asperis. Aphyllantes 2. Dodon. / *Jacea* nomine passim provenientem Monspelii observavimus florentem vere, aestate et autumn.

Gener Cherlerus attulit ex Gallia Narbonensi.” [“Jacea, Stoebe, Aphyllantes. Location and season”: “C. Bauhin, *Phyt. Jacea* 20, also called Jacea Stoebe, with rough scales. Second *Aphyllantes* according to Dodonaeus. / We observed, under the name Jacea, a plant growing in various places around Montpellier, flowering in spring, summer, and autumn. My son-in-law Cherlerus brought it from Narbonese Gaul.”].

The protologues of *Centaurea aspera* and *C. muricata* do not cite Burser’s herbarium, but rather Bauhin’s work. Whether the Burser material is original for *C. aspera* does not depend on the fact that the sheet in Burser’s herbarium containing *C. aspera* bears an identification with a Bauhin polynomial that Linnaeus later included under another name, but rather on the actual identity of the specimen on that sheet. Burser’s sheets do not contain revisions or manuscripts by Linnaeus himself. The Bauhin polynomial was cited by Linnaeus in the protologue of *C. muricata* based on Bauhin’s published work, not on the label of the Burser sheet containing *C. aspera*. The link between Linnaeus and Burser’s herbarium lies in the fact that it is known with certainty that Linnaeus used this herbarium before the publication of *Species Plantarum*. A manuscript “*Burseri Plantae*” (a list of the plants in Burser’s herbarium at Upsala, with the Linnaean names and those of Caspar Bauhin’s “*Pinax*”, together with notes on habitat, arranged as they occur in the extant 23 volumes. Available at at LINN, Ref. No. LM/LP/BOT/1/7, digital copy available here: https://linnean.access.preservica.com/uncategorized/IO_cal1e78a0-4d11-4b2a-a83a-4db74cc51df0) documents this meticulous study. In this manuscript, the identification of sheet XV (2): 38 as *C. aspera* is attributed to Linnaeus. On the other hand, Linnaeus did not rely on the polynomial appearing on the label of the Burser sheet to cite it in the protologue of *C. muricata*, but rather on Bauhin’s own work.

The sheet Herb. Burser XV(2): 38 contains two plant fragments. The right-hand specimen, which has capitula (flower heads), conforms well to Linnaeus’s diagnosis of *C. aspera* (“*calycibus squamis palmato-quinquespinosis, foliis lanceolatis dentatis*”), but not to that of *C. muricata*, which includes traits such as “*calycibus simplicissime spinosis, foliis inferioribus pinnatifidis, superioribus lanceolatis, pedunculis longissimis*” (LINNAEUS, 1753: 918). These features are not observed in the specimen. In fact, the lectotype of *C. muricata* was designated by ALTINORDU & FERRER (2017: 122) based on an illustration (“*Cyanoides flos*”) by Dodoens (in *Stirp. Hist. Pempt.*, ed. 2, 251. 1616), not on this specimen.

Therefore, while the polynomial cited by Linnaeus in *C. muricata* corresponds to the Burser sheet, the physical material does not support that identification. Conversely, despite Bauhin’s synonym not being cited in *C. aspera*, the specimen fits Linnaeus’s description of *C. aspera* perfectly and might represent the only original material he had access to when describing the species. The same conclusion applies to sheets XV(2): 39 and 40 (see figs. 3 and 4). However, sheet XV(2): 39 (UPS No. V-174713) contains material that does not belong to *C. aspera*, but to another Asteraceae; the fragment on the left possibly belongs to a species of the genus *Crepis*, while the one on the right is more difficult to identify. This material, even if it had been identified by Linnaeus as *C. aspera*,

would have been highly disruptive in its selection as a lectotype, especially since it lacks flowers (Fig. 3). The sheet XV(2): 40 (UPS No. V-174714) belongs to a specimen of *C. aspera* with white flowers, as indicated in the annotation on the sheet and in Linnaeus’s manuscript “*Jacea cyanoides flori albo / Monspeli*” (fig. 4).

Finally, sheet XV(2): 38 (UPS No. V-174712) bears annotations: “*Jacea cyanoides echinato capite Bauh.*”, “*Jacea major Lob.*”, and “*Monspeli*”. These names were not included in Linnaeus’s synonymy of *C. aspera*. Bauhin’s name (see Bauhin 1623: 272) was cited instead under *C. muricata*, now known as *Volutaria muricata*, and *Jacea major* of Lobelius is associated with an illustration (L’OBEL, 1591: 541, L. 292. T. 741) that also aligns with *V. muricata* (fig. 5). However, the actual specimen on Burser’s sheet corresponds to *C. aspera*, as confirmed by Linnaeus (SAVAGE, 1937: 50) and as recorded in the LINN manuscript list.

Finally, if the hypothesis that the Burser specimens constitute original material of *C. aspera* is not accepted, the neotypification proposed by IAMONICO & PERUZZI (2016) would still be ineffective according to the current International Code of Nomenclature. In the absence of original material, the prior typification by FERRER & al. (2014) should be corrected to a neotype designation under Art. 9.10 (*Madrid Code*; see TURLAND & al., 2025). However, this correction is unnecessary if, as argued here, the Burser specimens are indeed original material, making the lectotype designation both legitimate and preferable.

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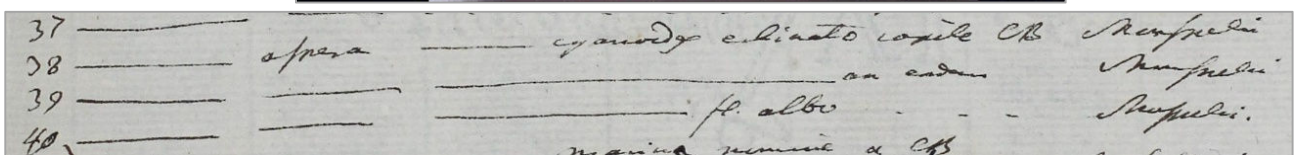
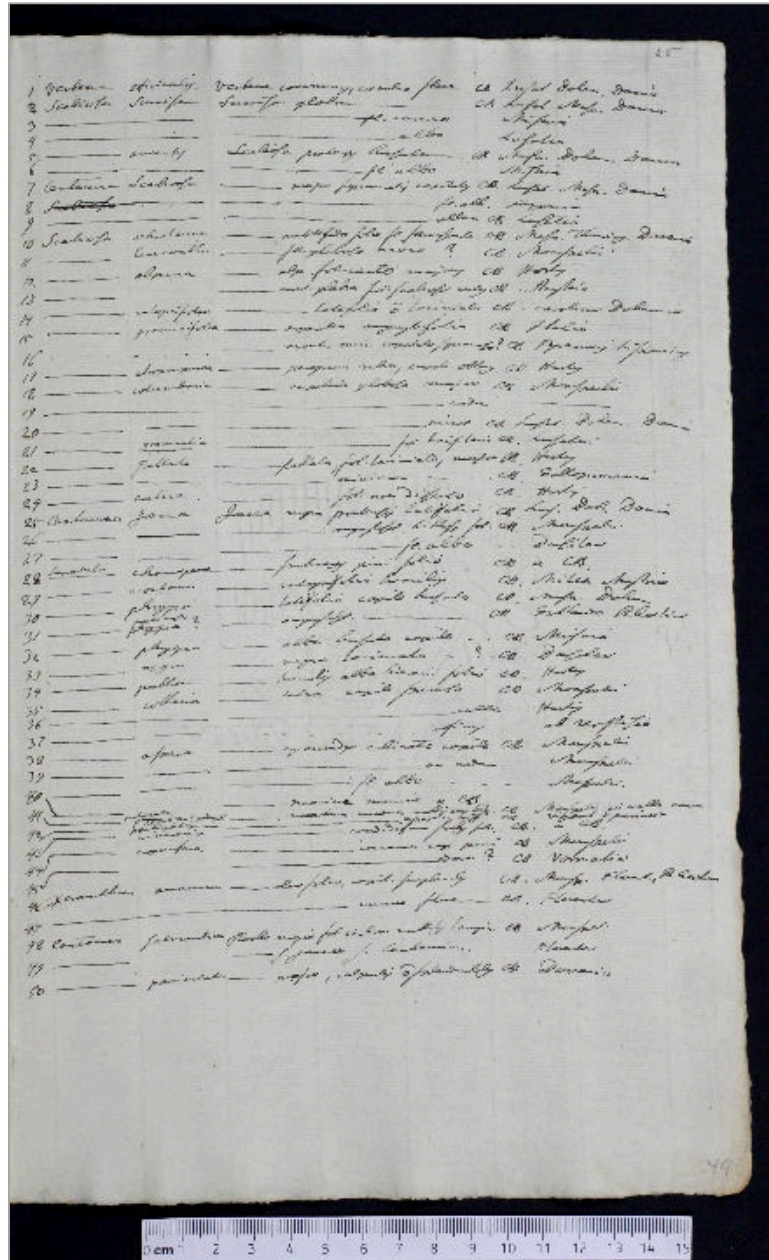


Figure 1. Part of the “Burseri Plantae” list, a catalogue of the plants in Burser’s herbarium at Uppsala, including Linnaean names and those from Caspar Bauhin’s *Pinax*, along with habitat notes, arranged according to their order in the surviving 23 volumes. Entries 38, 39, and 40 are identified as *Centaurea aspera*. © Herbarium LINN, reproduced with permission.



Figure 2. Lectotype of *Centaurea aspera* L., Herb. Burser XV(2): 38 (UPS V-174712). This specimen was identified by Linnaeus as this species in the “*Burseri Plantae*” list (c. 1748).
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Figure 3. Herbarium sheet preserved at Herb. Burser XV(2): 39 (UPS V-174713), identified by Linnaeus as belonging to *Centaurea aspera* L. in the “*Burseri Plantae*” list (c. 1748).
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Figure 4. Herbarium sheet preserved at Herb. Burser XV(2): 40 (UPS V-174714), identified by Linnaeus as belonging to *Centaurea aspera* L. in the “*Burseri Plantae*” list (c. 1748).
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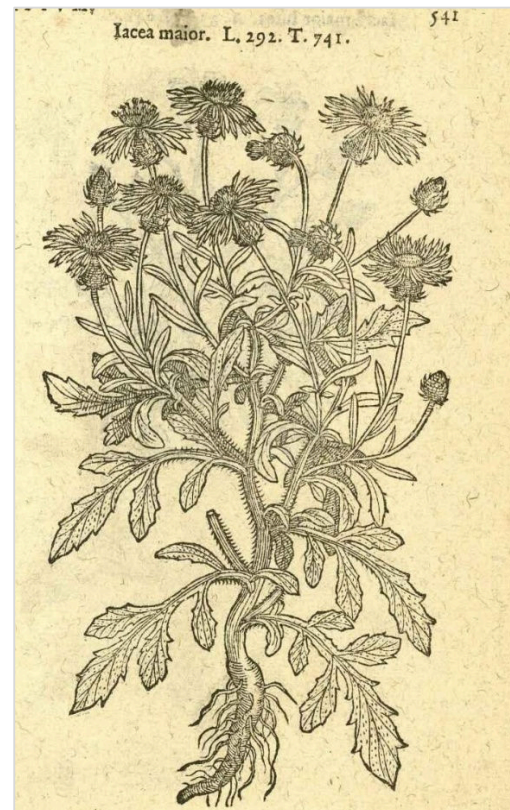
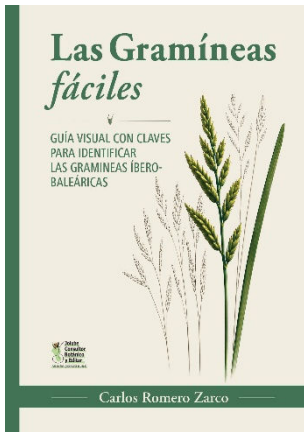


Figure 5. Illustration published by L’Obel in 1591 (p. 541, L. 292, T. 741) under the name *Jacea maior*, and cited on the label of Burser’s specimen preserved in Herb. Burser XV(2): 38 (UPS V-174712). This illustration corresponds more closely to the current concept of *Volutaria muricata* than to that of *Centaurea aspera*.

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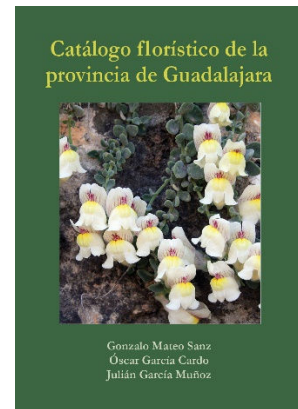
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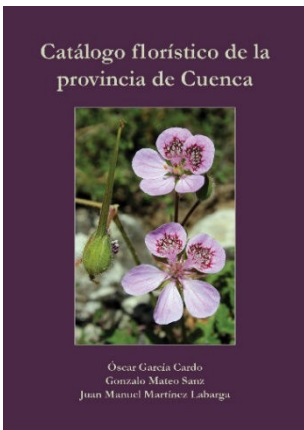
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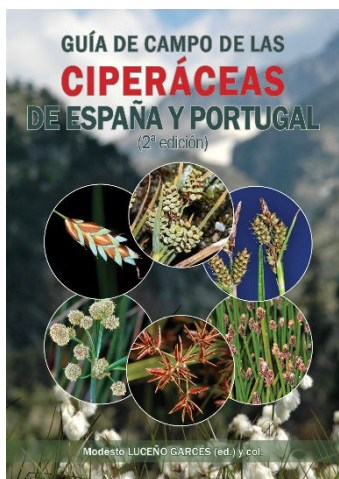
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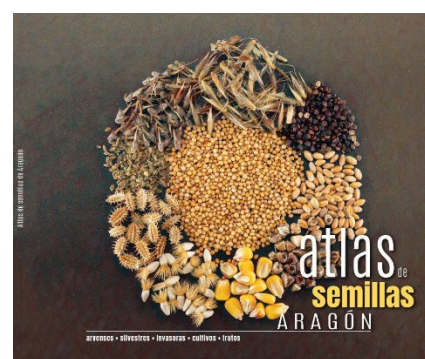
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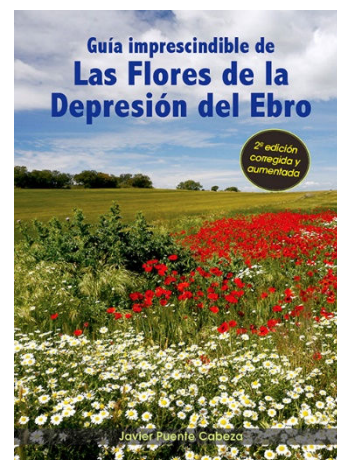
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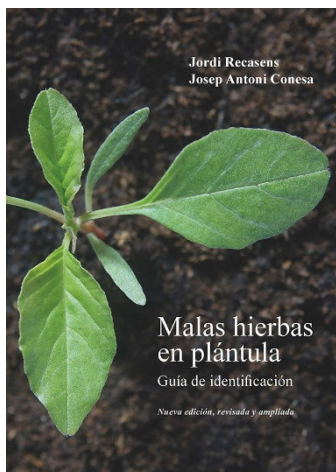
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