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## Typification and taxonomic status of six taxa of *Gagea* Salisb. (Liliaceae) described from Sicily and conserved at Palermo (PAL)

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### ABSTRACT

PERUZZI, L. & J.-M. TISON (2005). Typification and taxonomic status of six taxa of *Gagea* Salisb. (Liliaceae) described from Sicily and conserved at Palermo (PAL). *Candollea* 60: 503-512. In English. English and French abstracts.

*Gagea longifolia* Lojac., *G. minaae* Lojac., *G. pratensis* var. *sicula* Parl., *G. sicula* Lojac., *Ornithogalum busambarensense* Tineo and *O. nebrodense* Tod. are lectotypified. Each type is illustrated and discussed. Comments on the taxonomic value of these taxa are given.

### RÉSUMÉ

PERUZZI, L. & J.-M. TISON (2005). Typification et statut taxonomique de six taxons du genre *Gagea* Salisb. (Liliaceae) décrits de Sicile et conservés à Palermo (PAL). *Candollea* 60: 503-512. En anglais, résumés anglais et français.

*Gagea longifolia* Lojac., *G. minaae* Lojac., *G. pratensis* var. *sicula* Parl., *G. sicula* Lojac., *Ornithogalum busambarensense* Tineo and *O. nebrodense* Tod. sont lectotypifiés. Chaque type est illustré et discuté. Des commentaires sur la valeur taxonomique de ces taxons sont fournis.

**KEY-WORDS:** LILIACEAE – *Gagea* – Typification

***Gagea longifolia*** Lojac., Fl. Sicula 3: 133. 1908.

**Lectotypus (here designated): ITALY, Sicily:** Ficuzza nella via che da Godrano conduce al Gurgo Lungo – vicino a *Quercus fontanesii* negli aperti sopra la strada, 22.III.1829, Tineo (PAL!), plant on the left.

*Specimen visum alterum.* – **ITALY, Sicily:** in nemoribus Pizzuta, IV.1889, Lojacono (NAP!).

The descriptor quotes for this species only his own iconography (LOJACONO, 1908: tab. VIII) and two herbarium specimens:

1. A collection which was provisionally identified by Tineo as “*G. arvensis* v. *gracilis*” and subsequently by Lojacono himself as “*G. amblyopetala*”;
2. his own collection (Piana Greci, pascui della Pizzuta, lato nordico, IV).

We traced in PAL only the first herbarium sheet, while in Herb. Terracciano at NAP (in nemoribus Pizzuta, IV.1889, *Lojacono*) is conserved another sheet, which probably can be considered as the second syntype. Because of its clear link with the protologue, we designate here Tineo's herbarium sheet (Fig. 1) as lectotypical collection, and the most complete individual on the left of the sheet as lectotype.

*Nomenclatural discussion.* - Though its protologue cites "*G. heldreichii* Terr." as synonym, *G. longifolia* is a legitimate name. This mention does not refer to the protologue of *G. heldreichii* (A. Terracc.) Stroh, which probably was unknown to Lojacono; "*G. heldreichii* Terr. A. in Herb. Pan." is a wrong designation of the Pizzuta specimen (LOJACONO, 1908: 133-134), which actually was neither annotated "*G. heldreichii*" by Terracciano, nor returned at PAL. Terracciano himself mentioned only a resemblance between the Greek taxon *G. heldreichii* and the Sicilian plant (TERRACCIANO, 1906: 120).

*Taxonomic discussion.* - This taxon belongs to the informal group of *G. chrysantha* Schult. & Schult. f.: absence of suprabasal bulblets during the whole ontogeny; slender habitus; narrow basal leaves; nodding buds; small to medium flowers; glabrous or subglabrous pedicels. It is characterized inside the complex by: a big, rounded basal bulblet; subtrigon subfistulose basal leaves with 3 V-arranged vascular bundles; alternate, usually remote cauline leaves; a potentially many-flowered inflorescence (up to 10-15 flowers) at adult stage; broadly obovate obtuse tepals.

The *chrysantha*-group is complex and needs further study; it includes at least 3 taxa on the Italian territory. *G. longifolia* has been until now confused with *G. chrysantha* (PERUZZI, 2003) or *G. amblyopetala* Boiss. & Heldr. (PERUZZI & TISON, 2004). However, it is well-circumscribed and almost invariable in Italy, including Sardegna (leg. J.-M. Tison, 2000) and Sicily, subject to confirmation on Greek and Turkish material. It probably deserves a specific rank.

***Gagea minaae*** Lojac., Fl. Sicula 3: 134. 1908.

**Lectotypus (here designated): ITALY, Sicily:** Madonie, s. d., *Minà* (PAL!), the most complete plant up on the right, with the bulb, two basal leaves (one of them broken close to the base) and a single-flowered inflorescence (Isotypus in NAP!)

*Specimen visum alterum.* - **ITALY, Sicily:** Pizzo delle Case, s. d., *Minà* (PAL!)

LOJACONO (1908) quotes for this species an iconography ("*tab. 28 fig. 1*") of a still unpublished manuscript of Minà, and the specimens collected by Minà in Madonie (especially on the Pizzo delle Case). We traced two specimens collected by Minà in PAL. Unfortunately, the specimen mostly linked with the protologue (Pizzo delle Case, s. d., *Minà*) was very badly conserved: it nowadays shows only bulbs and some fragment of leaves. Therefore, we are forced to select a collection (Fig. 2) with a less precise label ("Madonie"). However, the plants of this collection are included in Minà's material used by Lojacono for his description. Moreover, they agree well with the protologue and with the original iconography of Minà (presently conserved at the Museo Naturalistico "F. Minà Palumbo" – Castelbuono, province of Palermo). For these reasons, it is possible to consider this collection as lectotypical. Its best-conserved specimen is chosen as lectotype. Isolectotypes are conserved in Herb. Terracciano at NAP.

*Taxonomic discussion.* - According to our previous argumentation (PERUZZI & TISON, 2004), which is still valid, we admit this taxon as fully synonymic with *G. bohémica* (Zauschn.) Schult. & Schult. f.

*Gagea pratensis* var. *sicula* Parl., Fl. Ital. 2: 422. 1857.

**Lectotypus (here designated): ITALY, Sicily:** Boschi di Cannata, V/1850, *Todaro* (PAL!), sub *G. stenopetala*), plant up on the right (Isotypus in FI!).

PARLATORE (1857) quotes for this variety a single gathering collected in Boschi di Cannata by Todaro. We traced this herbarium sheet in PAL and selected the best developed specimen (Fig. 4) as lectotype. An isolectotype is conserved at FI.

*Taxonomic discussion.* - The argumentation already exposed under *G. pratensis* subsp. *gussonei* A. Terracc. and *G. stenopetala* var. *pollinensis* N. Terracc. (PERUZZI & TISON, 2004) applies to *G. pratensis* var. *sicula*; the type material of the latter gives no suitable argument for a taxonomic separation from *G. pratensis* (Pers.) Dumort. *Gagea pratensis* was not seen in Sicily since the end of the XIXth century, but probably is still present in the north-eastern part of the island.

*Gagea sicula* Lojac., Fl. Sicula 3: 134. 1908.

= *Gagea amblyopetala* var. *calabra* N. Terracc. in Atti R. Acc. Sci. Fis. Mat. 8(9) Ser. 2: 7. 1896.

**Lectotypus (here designated): ITALY, Sicily:** Ficuzza, 2/IV/1886, *Reina* (PAL), plant up on the right.

LOJACONO (1908) quotes for this taxon a single collection ("*Ficuzza, Apr. 2, 1886, Reina in Hern. Pan!*"). We traced this herbarium sheet in PAL (Fig. 5) and selected a well-developed specimen as the lectotype.

*Taxonomic discussion.* - *Gagea sicula* has been recently found again on its type locality: the top of M.te Cucco, which is the highest part of the large woody hills known as "Bosco della Ficuzza". This population, and another morphologically similar one gathered in the Iblei mountains, have been studied in cultivation.

This taxon undoubtedly belongs to the *chrysantha*-group. It is characterized inside the group by its flattened, not-fistulose basal leaves with 3(-5) plan-arranged vascular bundles; this structure is intermediate between those of the Italian *G. longifolia* and the Aegaeon *G. amblyopetala*. It differs from the two latter species in having a somewhat elongated-pyriform basal bulblet, a more slender habitus, an few-flowered inflorescence (seldom up to 7 flowers) at adult stage, narrower and sub-cute tepals, and in being more strictly bound to natural or semi-natural biotopes. All these original features remind *G. soleirolii* F. W. Schultz (PERUZZI & TISON, 2004), but the possible link with the latter remains unknown. Plants agreeing with *G. sicula* have been found side by side with *G. longifolia* in Calabria (Montalto Uffugo, PERUZZI, 2003, sub "*G. foliosa*" and "*G. chrysantha*" respectively), in Sicily (Iblei, PERUZZI & TISON, 2004) and with *G. amblyopetala* in Greece (Phocide, Mts Vardousia and Timfristos, leg. J.-M. Tison 1999). No ambiguous specimen was seen in such mixed populations, and karyological differences with *G. longifolia* have been proved in Calabria (PERUZZI, 2003). So, *G. sicula* appears probably specifically distinct from *G. longifolia* and *G. amblyopetala*.

On the other hand, *G. sicula* is very close to the typical *G. chrysantha*, cultivated by us from its sole certain locality (Ficuzza). The two taxa show a single discriminant feature: the position of the two inferior cauline leaves, always opposite (even in old plants) at *G. chrysantha*, sometimes alternate at *G. sicula*. Constant opposite cauline leaves appear unusual in the section *Didymobulbos* (K. Koch) Boiss. In the old plants belonging to this section, the first cauline leaf moves towards the basis of the peduncle, giving an impression of alternate leaves even in species having sub-opposite ones (i.e. *G. granatellii* (Parl.) Parl., *G. villosa* (M. Bieb.) Sweet). Such a feature appears in *G. sicula* populations from M.te Cucco and Iblei, which, depending on the year, bear opposite or alternate leaves (as well as *G. algeriensis* Chabert from the Oujda region, Morocco); the typical *G. chrysantha* (Ficuzza) always bears opposite ones, and the similar Greek plants always alternate ones. Since all these populations do not have further visible differences, we can hardly regard this feature as taxonomically significant.

In the light of these remarks, our initial hypothesis, considering *G. chrysantha* as a possible hybrid (“*G. amblyopetala*” (*G. longifolia*) x *G. sicula*, cfr. PERUZZI & TISON, 2004) has to be reconsidered: *G. chrysantha* sensu stricto and *G. sicula*, as well as the Phocide populations, may represent the variability of a single species (n. leg. *G. chrysantha*).

***Ornithogalum busambarense*** Tineo in Guss., Fl. Sicul. Syn. 2: 813. 1844-1845.

- ≡ *Gagea busambarenensis* (Tineo) Parl., Fl. Palerm. 1: 279. 1845.
- ≡ *Gagea bohémica* var. *busambarenensis* (Tineo) Fiori, Nuova Fl. Italia 1: 254. 1923.
- ≡ *Gagea bohémica* subsp. *busambarenensis* (Tineo) Zangh., Fl. Ital. 1: 847. 1976 [comb. Inval.].

**Lectotypus (here designated): ITALY, Sicily:** Busambra, s. d., Tineo (PAL!).

The collection cited above is the only one bearing the autograph diagnosis of *O. busambarense*. The sheet includes a single plant, which is chosen as lectotype. A picture of the type material was already published by MARCENO & COLOMBO (1979: 4), which informally treated it as the “holotypus”.

*Taxonomic discussion.* - As already quoted in a previous paper (PERUZZI & TISON, 2004), *G. busambarenensis* represents only a growth stage of *G. bohémica*, which can sporadically be observed in the field. Such a phenotype can be interpreted as immature, i.e. appearing between the juvenile vegetative stage and the adult flowering stage, on 3-5 years old plants. The cultivation of every stock of *G. bohémica* in uniform conditions allows to see more or less regularly, usually on 5-30% of the immature plants, “busambarenensis-like” morphologies. The population growing at the top of the Rocca Busambra has usually a typical morphology of small-flowered *G. bohémica*.

***Ornithogalum nebrodense*** Tod. in Guss., Fl. Sicul. Syn. 2: 812. 1844-1845.

- ≡ *Gagea nebrodensis* (Tod.) Nyman, Syll. Fl. Eur.: 372. 1855.
- ≡ *Gagea bohémica* subsp. *nebrodensis* (Tod.) I. Richardson in Bot. J. Linn. Soc. 76: 356. 1978.

**Lectotypus (here designated): ITALY, Sicily:** Pizzo delle Case, in apricis elatioribus montosis, IV-V, *Todaro* (PAL!), plant at the centre [according to RIX & WOODS (1981), an isotypus is conserved at K].

The collection cited above (Fig. 3) is the only one bearing the autograph diagnosis of *Ornithogalum nebrodense*. STROH (1937) possibly already referred to this material as the “typus” of the species, but without specifying in what Herbarium the specimen was conserved. The best developed specimen is chosen as lectotype.

*Taxonomic discussion.* - As much as in the previous case, we confirm this unit as fully synonymic with *G. bohémica* (PERUZZI & TISON, 2004).

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Fig. 1. – Lectotypus of *Gagea longifolia* Lojac., conserved at PAL (individual on the left).

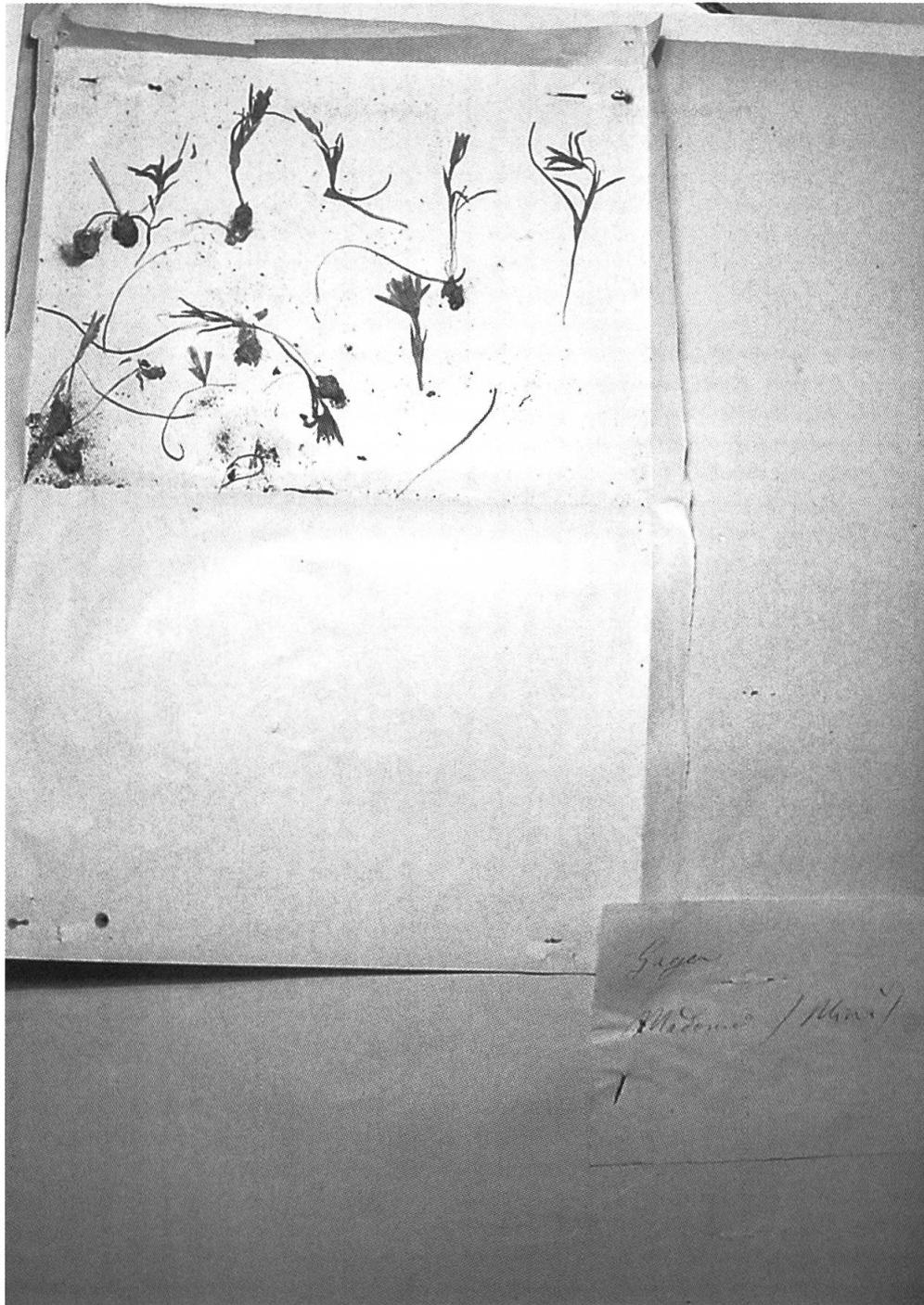


Fig. 2. – Lectotypus of *Gagea minaeae* Lojac., conserved at PAL.

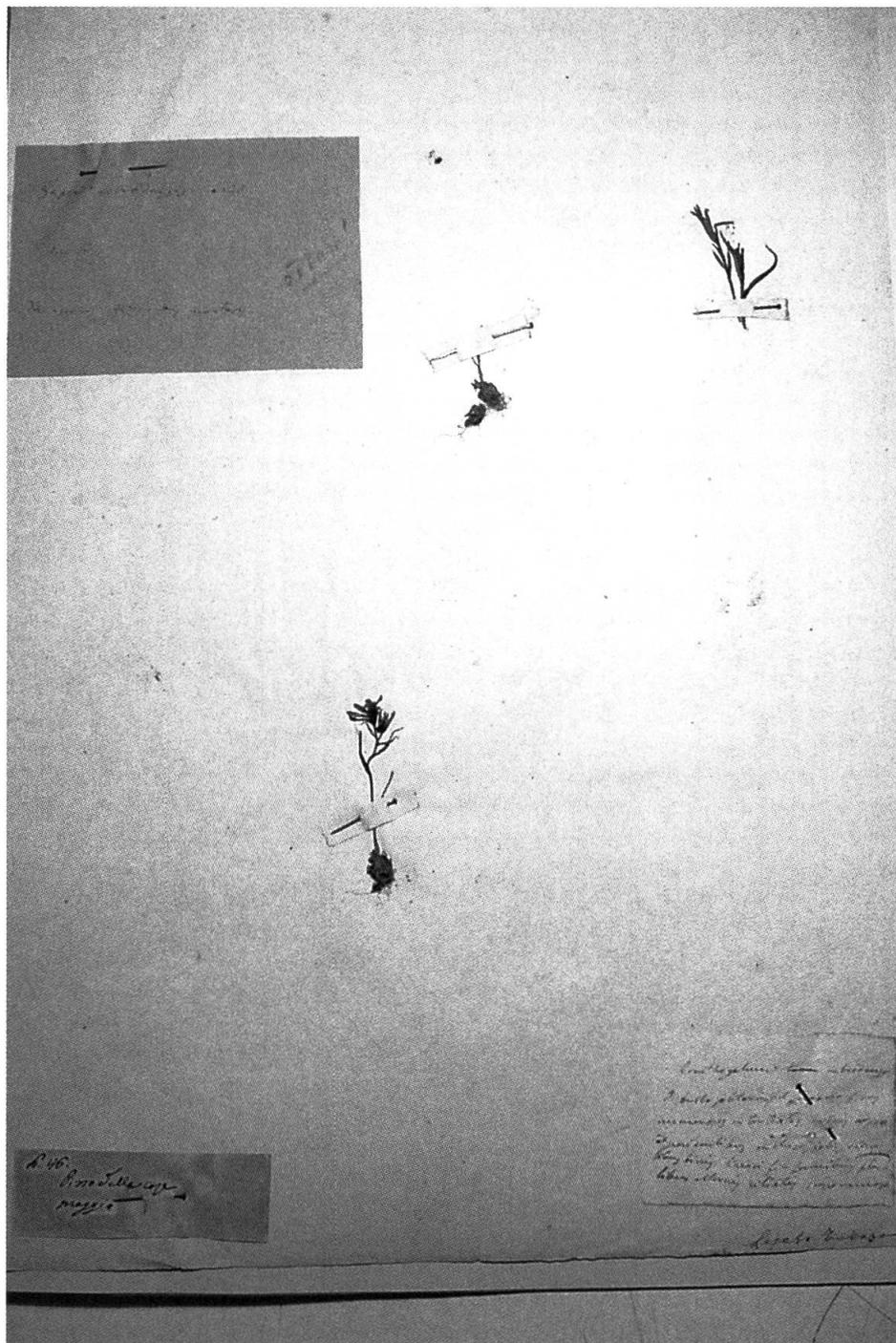


Fig. 3. – Lectotypus of *Ornithogalum nebrodense* Tod., conserved at PAL (individual on the centre).



Fig. 4. – Lectotypus of *Gagea pratensis* var. *sicula* Parl., conserved at PAL.

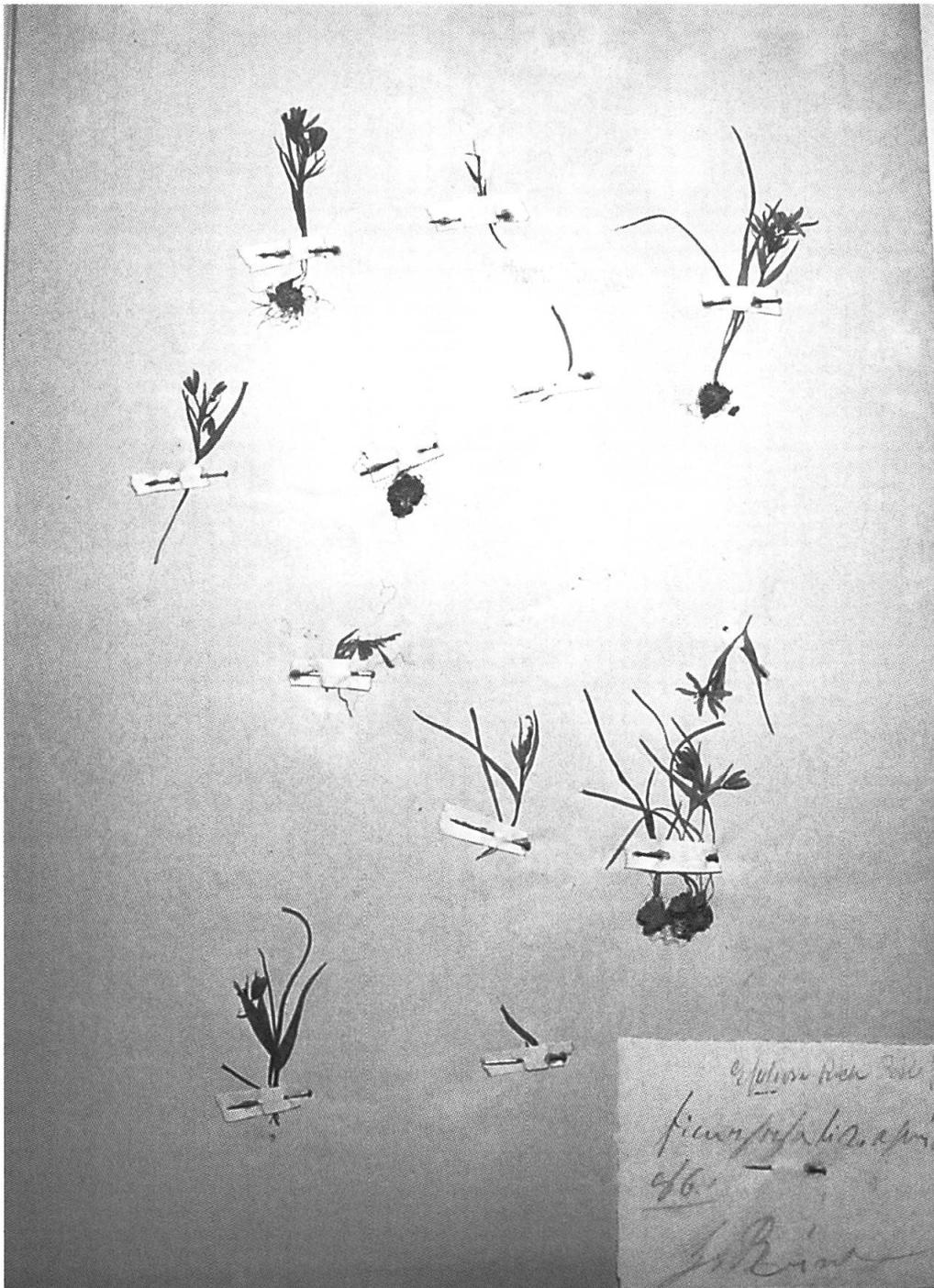


Fig. 5. – Lectotypus of *Gagea sicula* Lojac., conserved at PAL (individual up on the right).