

The typification of the Linnaean name *Papaver medium* (Papaveraceae) published in *Flora Anglica*

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Abstract: The typification of the Linnaean name *Papaver medium* is discussed. A Morison's illustration is designated as the lectotype, lacking specimen of original material. The identity of the type is widely discussed reaching to the conclusion that *P. medium* is a synonym of *P. dubium* subsp. *dubium*.

Keywords: Linnaean name; lectotypification; nomenclature; *Papaver dubium*.

Introduction

Papaver L. (Papaveroideae Eaton, Papaveraceae Juss.) is a genus traditionally comprising approximately 80 annual, biennial, and perennial herbs, distributed in central and south-western Asia, central and southern Europe, and northern Africa (Kadereit, 1988; Carolan *et al.*, 2006). The taxonomy of the genus is still debated. According to Carolan *et al.* (2006), *Papaver* would be monophyletic only if *Roemeria* Medik. is included in it. In fact, this latter genus forms a small group of taxa included in *Papaver* sect. *Argemonidium* Spach in the molecular analyses by Carolan *et al.* (2006) (see also Almousavi *et al.*, 2018). POWO (2022a) reported *Roemeria* as heterotypic synonym of *Papaver*, whereas most authors after Carolan *et al.* (2006) considered *Roemeria* as a separate genus (see for example Taia, 2009; Takhtajan, 2012; Karatashyan, 2013; Tavakkoli *et al.*, 2014; APGIV, 2016; Pezzetta, 2021; Banfi *et al.*, 2022). Recently, the new genus *Oreomecon* Banfi, Bartolucci, J.-M.Tison & Galasso was published by Banfi *et al.* (2022) to accommodate the European and Mediterranean members of *Papaver* sect. *Meconella* Spach following the phylogenetic results of Carolan *et al.* (2006).

Linnaeus published ten names in *Papaver*, all correctly typified, excepting for *P. medium* L. which is discussed in the present paper as part of the ongoing studies of some members belonging to the genus *Papaver* and the nomenclature of Linnaean names (see for example Del Guacchio & Iamónico, 2015; Iamónico, 2013, 2014, 2016, 2020; Iamónico & Peruzzi, 2012, 2014; Iamónico & Jarvis, 2012).

Material and methods

This research is based on the analysis of relevant literature (i.e. protologue of the name investigated and pre-Linnaean works therein cited, and primary Floras in which the studied names are listed) and examination of specimens preserved at the herbaria **LINN** and **MW** (acronyms follow Thiers, 2022 [continuous

update]). The articles cited throughout the text follow the *Shenzen Code* (Turland *et al.*, 2018).

Typification

Papaver medium was validly published by Linnaeus (1754: 17) in his edition of *Flora Anglica*, where the name is validated by a mere reference to the species numbered "309-5" as reported in the third edition of Ray's *Synopsis Methodica Stirpium Britannicarum* (1724: 309 as "Papaver laciniato folio, capitulo longiore glabro"). In fact, according to the Art. 7.8 of ICN (Ex. 10) "A name of a new taxon validly published solely by reference to a previously and effectively published description or diagnosis ... is to be typified by an element selected from the entire context of the validating description or diagnosis, unless the validating author has definitely designated a different type ...". Therefore, the typification of the name *Papaver medium* must be undertaken from the context of Ray's publication, not to the collection of Linnaeus.

Ray (1724: 309) reported as synonyms of his Papaver no. 5 a citation from Morison (1680: 279 "Argemone capitulo longiore glabro, nobis") who provided an illustration (S. 3, T. 14, f. 11) which can be considered for the lectotypification of the Linnaean name *Papaver medium* (see Ex. 10 of the Art. 7.8 of ICN). Furthermore, Ray (1724: 309) stated "This [species] was sent me by Mr. Dent out of *Cambridgeshire* [a County of Eastern England]. Found also by Mr. Dale at *Bocking* [a city included in the County Essex, eastern England)". To note that previously Ray (1686: 856) also reported "*Argemone capitulo longiore glabro* ... in agro Cantabrigensi observavit & ad nos jeus capitula transmisit *D. Pet. Dent* ... & nuper etiam in vicina nostra invenit & ad nos attulit *D. Sam. Dale* ...". Peter Dent was an apothecary of Cambridge and friend of J. Ray, contributing to exploration of Cambridgeshire territory (Whittet & Newbold, 1977: 202).

Samuel Dale's collection still survives at the herbarium **BM** (see Iamónico 2020, 2021, and also HUH Index of botanists, 2013a). However, no Dale specimen was traced at **BM** neither in his own collection nor in the Adam Bubble's collection where some exsiccata are attributed to S. Dale (J. Hunnux and M. Carine, pers. comm.). Concerning Peter Dent's collection, no information is reported neither in *Taxonomic Literature* (Stafleu & Cowan, 1976) nor in *Harvard University Herbaria & Libraries* website (HUH Index of botanists, 2013b) and I was not able to trace any Dent's collection.

All things considered, Morison's illustration cited by Ray (1724: 309) appears to be the only extant original material for the Linnaean name *Papaver medium* and it is here designated as the lectotype.

Concerning the identity of *Papaver medium*, Morison's *Argemone capitulo longiore glabro* is identifiable as *P. dubium* L. according to the current concept (see e.g., Kadereit, 1993; Díaz González, 1986; Pignatti, 2017) by displaying the following morphological characters: annual plant, leaves pinnatifid, the upper cauline sessile (not amplexicaul); ratio length/width of the petal about 1; capsule glabrous, obovoid-cylindrical (more than twice as long wide) with 10-ribbed and disc with 6 rays. The identification at infraspecific rank is more difficult.

Papaver dubium is a species highly variable from the morphological point of view and several infraspecific taxa were described in the past (see e.g., POWO, 2022b). The recognition of these taxa is currently debated. For example (Table 1), POWO (2022b) accepted two subspecies, i.e. subsp. *dubium* and subsp. *stevenianum* (Mikheev) Kubaát & Ípoová, whereas other authors (e.g. Kadereit, 1993; Pignatti, 2017; Info Flora, 2022) accepted the subsp. *lecoquii* (Lamotte) Syme or *P. lecoquii* Lamotte (this taxon is not reported in POWO, 2022b). Díaz González (1986), in the treatment of *Papaver* for *Flora Iberica*, highlighted the phenotypic variability of *P. dubium* listing three varieties, i.e. var. *lecoquii* (Lamotte) Fedde, var. *minus* Lange, and var. *collinum* (Bogenh. ex Bisch.) Ducommun. Kadereit (1993: 299) recognized three subspecies, i.e. subsp. *dubium*, subsp. *lecoquii*, and subsp. *laevigatum* (M.Bieb.) Kadereit. Finally, Aghababian (2011), in the *Euro+Med PlantBase*, recognized the subsp. *confine* (Jord.) Hörandl, treated the taxa *laevigatum*, *lecoquii*, *minus*, and *stevenianum* as separate species, and synonymized *P. collinum* Bogenh. ex Bisch. with *P. dubium*. Note that POWO (2022b) accepted *P. confine* Jord., *P. minus*, and *P. laevigatum* M.Bieb. as separate species, whereas *P. collinum* was synonymized with *P. dubium*.

Table 1. Use of the names related to *Papaver dubium* in some important works; *Flora Iberica* (Díaz González, 1986), *Flora Europaea 2nd ed.* (Kadereit, 1993), *Euro+Med PlantBase* (Aghababian, 2011), *Flora d'Italia 2nd ed.* (Pignatti, 2017), online *Switzerland Flora* (Info Flora, 2022), and *Plant of the world online* (POWO, 2022b).

<i>Flora Iberica</i>	<i>Flora Europaea 2nd ed.</i>	<i>Euro+Med PlantBase</i>	<i>Flora d'Italia 2nd ed.</i>	<i>Switzerland Flora online</i>	<i>Plants of the world online</i>
<i>P. dubium</i>	<i>P. dubium</i> subsp. <i>dubium</i>	<i>P. dubium</i> subsp. <i>dubium</i>	<i>P. dubium</i>	-	<i>P. dubium</i> subsp. <i>dubium</i>
-	<i>P. dubium</i> subsp. <i>laevigatum</i>	<i>P. laevigatum</i>	-	-	<i>P. laevigatum</i>
<i>P. dubium</i> var. <i>collinum</i>	-	<i>Papaver dubium</i>	-	-	<i>P. dubium</i> subsp. <i>dubium</i>
-	-	<i>P. dubium</i> subsp. <i>confine</i>	-	-	<i>P. confine</i>
<i>P. dubium</i> var. <i>lecoquii</i>	<i>P. dubium</i> subsp. <i>lecoquii</i>	<i>P. lecoquii</i>	<i>P. lecoquii</i>	<i>P. dubium</i> subsp. <i>lecoquii</i>	-
<i>P. dubium</i> var. <i>minus</i>	-	<i>P. minus</i>	-	-	<i>P. minus</i>
-	-	<i>P. stevenianum</i>	-	-	<i>P. dubium</i> subsp. <i>stevenianum</i>

Because of the disagreement found in literature, I decided to consider all the above-mentioned taxa to try to identify Morison's illustration of *Argemone capitulo longiore glabro* (lectotype of the Linnaean *Papaver medium*):

- 1) *Papaver laevigatum*: this taxon includes "Plants with very sparse indumentum" according to Kadereit (1993: 299) whereas Morison's illustration shows the stem clearly pubescent (at least in the bottom half).
- 2) *Papaver minus*: Díaz González (1986: 411) distinguished this taxon by the leaves which are nearly entire. Leaves are pinnatifid in Morison's illustration.
- 3) *Papaver stevenianum* Mikheev: Mikheev (1993: 86–88), in the protologue, compared the new species with both *P. dubium* and *P. lecoquii* Lamotte, stating "Nostra species *P. dubio* ... et *P. lecoquio* affinis est, sed differt: ab illo latice flavo vel aurantiaco, antheris discum stigmaticum attingentibus, lobis disci in se tegentibus, seminibus cyaneis et fortasse characteribus aliis; ab hoc corolla phialiformi, petalis pallidioribus marginibus inter se tegentibus, antheris violaceis, seminibus majoribus cyaneis ..." (= Our species is related to *P. dubium* and to *P. lecoqui*, but differs from the first [*P. dubium*] for the yellow or orange latex, for the anthers that reach to stigmatic disc, for the lobes of disc that overlap each other, for the seeds bluish and maybe for further characters; from that [*P. lecoqui*] for the corolla saucer-like in shape, for the petals paler and that overlap each other, the anthers purplish, the seeds larger and bluish...). Unfortunately, since latex, seed, and anthers cannot be seen in Morison's illustration, most of the above mentioned characters cannot be verified. Only the shape of the corolla ("corolla phialiformi") and margin of the petals ("petalis ... marginibus inter se tegentibus") are visible in Morison's illustration. The term "phialiformi" used by Mikheev (1993) is not easy to interpret (it could be translated as "having a form like that of a saucer"), but fortunately the author provided a very good illustration (Fig. 1 in Mikheev, 1993) with two detailed views of one flower (frontal and lateral). On the basis of these corolla's views, flowers of Morison's *Argemone capitulo longiore glabro* is not phialiform but has a cross-like shape. Concerning the overlapping of the petals, they are not or slightly overlapped in Morison's illustration whereas in Mikheev's figure petals are clearly overlapped. Furthermore, on the basis of both Mikheev's figure, as well as personal observations on both specimens preserved at MW (see <https://plant.depo.msu.ru/module/itemsearchpublic>) collected in the Caucasus (which includes the *locus classicus*; see Mikheev, 1993: "Ciscaucasia, provincia Stavropoliensis, haud procul ab oppido Pjatigorsk ("Proval")" and pictures in Plantarium (2022) made in Caucasus, Crimea, and Ukraine, *P. stevenianum* displays a large triangular-ovate black spot or an oblong band from the base of the red petal. Morison's illustration (only two opened flowers occur) shows petals with a more or less blended grey and small basal spot.
- 4) *Papaver lecoquii*: according to Díaz González (1986: 411), Kadereit (1993: 299), and Pignatti (2017: 886), this taxon can be distinguished by its yellow latex (red when dry), whereas in *P. dubium* sensu stricto latex is white or cream (brown or black when dry). Unfortunately, this character cannot be verified by observing Morison's illustration. However, based on personal observations (but see also Pignatti, 2017: 886), *P. lecoquii* has leaves 2-pinnatifid, whereas in Morison's lectotype leaves are 1-pinnatisect;
- 5) *Papaver confine*: according to Kubát (1988), *Papaver confine* is a species similar to *P. dubium* and *P. lecoquii* from which differs by the capsule [(1.6–

)2.0–2.3 times longer than wide *vs.* 2.4–3.3 times longer than wide in *P. dubium*] and latex (white *vs.* yellow in *P. lecoquii*). Concerning the ratio length/width of the fruit, Morison's illustration shows capsule about 2 times longer than wide. As regard *P. lecoquii*, the latex cannot be verified in Morison's illustration, but *P. lecoquii* has leaves 2-pinnatifid, whereas in Morison's lectotype leaves are 1-pinnatisect (see Pignatti, 2017: 886);

6) *Papaver collinum*: the protologue of this species (Borgenhard in Bischoff 1849: 4) reports the following diagnostic characters in comparison with *P. dubium*: "petala autem habet multo minora (ovario vix duplo longiora) miniata, stamina pauciora (circiter 15), stigmatis 5radiatis crenas sub anthesia margine incumbentes, nex disjunctas, et radios papillis longioribus vestitos" [= The petals are much smaller (slightly more than twice as long as the ovary) red coloured, with less stamens (approximately 15), sinus of the 5-lobed stigmatic disc incumbent on the margin, not separate and ray covered by longer papillae]. Eight years later Boreau (1857: 29) provided a more detailed description including the habit (erect, pubescent, and branched), shape of leaves (pinnatifid with oblong, dentate, and acute lobes) and petals (obovate), hairiness of sepals (pubescent) and fruit (glabrous), structure of the disc of the capsule (with 4–8 rays), and colour and surface of seeds (brown and finely reticulate). To note that Boreau (1857: 29) reported "*P.* [Papaver] *dubium*. L. sp. 726, *pro parte*", so highlighting the similarities with the Linnaean species. Fournier (1928: 26), by proposing *P. collinum* at subspecies rank of *P. dubium*, highlighted that Borgenhard's taxon differs from Linnaean's one by the colour of the latex (white), lobes of the stigmatic disc (which are longer than the width of the capsule), and stigmas (which are shorter than the stigmatic disc). More recently, Díaz González (1986: 411) distinguished this taxon by the hairs of peduncles which would be yellow to orange, whereas in *P. dubium* are usually white. Unfortunately, most of the characters above mentioned cannot be verified in Morison's illustration. However, on the basis of ratio petal/ovary length and ratio stigmatic disc length/capsule diameter, the lectotype of *P. medium* cannot be identified with the taxon *collinum* showing petals much longer than the ovary and stigmatic disc smaller than the width of the capsule.

All things considered, I here propose to synonymise the Linnaean names *Papaver medium* and *P. dubium*, the latter one having nomenclatural priority (date of publication 1754 *vs.* 1753) according to Art. 11.4 of ICN.

Papaver dubium L., Sp. Pl. 2: 1196. 1753 var. ***dubium***. – TYPE (lectotype designated by Jafri & Qaiser, 1974: 15) Herb. Linn. 669.7 (**LINN!**). — An image of the lectotype is available at <https://www.nhm.ac.uk/resources/research-curation/projects/clifford-herbarium/lqimages/BM000647540.JPG>

= *Papaver medium* L., Fl. Angl.: 14. 1754 – TYPE (lectotype designated here): Type: [Icon] *Argemone capitalo longiore glabro* in Morison (1680: 279, S. 3, T. 14, f. 11). — An image of the lectotype is available at https://bibdigital.rjb.csic.es/viewer/14341/?offset=#page=676&viewer=picture&o=bookmark&n=0&q=)).

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