



Effective typification of *Ophrys apifera* (Orchidaceae; Orchidoideae)

P. PABLO FERRER-GALLEGO^{1,2}

¹*Servicio de Vida Silvestre y Red Natura 2000, Centro para la Investigación y Experimentación Forestal (CIEF), Generalitat Valenciana, Avda. Comarques del País Valencià 114, 46930 Quart de Poblet, Valencia, Spain*

²*flora.cief@gva.es; <https://orcid.org/0000-0001-7595-9302>*

Abstract

Ophrys apifera Hudson was previously considered to have been lectotypified by Künkele and Baumann in 1998 with an illustration published by Matthias Lobel in 1581. However, Hudson did not include any references to Lobel in the protologue. Therefore, the typification by Künkele and Baumann is here briefly discussed and superseded because is being contrary to Art. 9.3 of the *International code of nomenclature for algae, fungi, and plants* (Shenzhen Code). The name is lectotypified here with an illustration published by Bauhin and Cherler in 1651. Unfortunately, this illustration does not show several diagnostic characters to distinguish *O. apifera* from other related species. Therefore, for a precise circumscription of the name, an epitype is proposed of a complete specimen preserved at K.

Key words: Epitype, lectotype, nomenclature, typification, *Ophrys*, William Hudson.

Introduction

Ophrys Linnaeus (1753: 945) (Orchidaceae) comprises approximately 215 putative species and is one of the most complex genera of the Mediterranean flora (Keller & Schlechter 1928, Baumann & Künkele 1986, Baumann *et al.* 1989, Devillers & Devillers-Terschuren 1994, Delforge 2006, Devey *et al.* 2008).

Ophrys apifera Hudson (1762: 340), *O. sect. Apiferae* Quentin (1993: 15), is the most widespread *Ophrys* species in Europe and also occurs in some adjacent countries (Iran, Irak, Libya, Morocco, Tunisia, Turkey; Keller & Soó 1930–1940, Quentin 1995, Soó 1980, Delforge 2006).

The traditional concept and current use of the name *O. apifera* has been applied to a species with a trilobed labellum convexly globular with a yellow apical appendage, dark or reddish brown marked with a narrow horseshoe-shaped speculum surrounded by a yellow or yellowish white border with two yellowish spots or streaks below. Its sepals are ovate to linear ovate, pink marked with green veins, and its small petals are triangular or oblong and green or pink (Curtis 1777, Camus *et al.* 1908, Camus & Camus 1921–1929, Soó 1980, Aldasoro & Sáez 2005, Delforge 2006). This species is normally self-pollinating (Darwin 1877, Dieuzeide 1921, Schremmer 1959, Kullenberg 1961, Claessens & Keynen 2002), and a number of variants have been recorded and formally named (Scrugli & Grasso 1987, Pérez Chiscano *et al.* 1990, Lang 1991, Romolini 1998, Baum *et al.* 2002, Galán Cela & Gamarra 2003, Delforge 2006, Lewis & Kreutz 2012, Addam *et al.* 2015).

Künkele & Baumann (1998: 419) mentioned: “Lectotypus (hoc loco selectus): Lobel, Pl. icon.: 179, fig. 2. 1581. Abbildung des Holzschnitts bei Künkele u. Lorenz 1990: 664–665. Abbildung der Vorzeichnung bei Künkele u. Lorenz 1990: 660–661, fig. 5. Herkunft: vermutlich Belgien. Die originalen Belegpflanzen von Hudson fielen einem Brand zum Opfer (Stafleu u. Cowan 2, 2: 354. 1979). Sämtliche Abbildungen, die in dem Protolog von Hudson (Fl. angl. ed. 1: 340. 1762) zitiert werden, lassen sich auf den Lectotypus zurückführen. Dieser wurde in den britischen Werken ca. 120 Jahre lang wiedergegeben (Gerard u. Johnon, Herb.: 212, fig. 3. 1633; J. Hill, Brit. Herb.: tab. 68, fig. 14. 1756).” [Lectotype (hoc loco selectus): Lobel, Pl. Icon.: 179, fig. 2. 1581. Illustration of the woodcut in Künkele and Lorenz 1990: 664–665. Illustration of the preliminary drawing in Künkele and Lorenz 1990: 660–661, fig. 5. Origin probably Belgium. The original specimen plants from Hudson fell victim to a fire (Stafleu & Cowan 2, 2: 354. 1979). All illustrations cited in Hudson’s protologue (Fl. Angl. ed. 1: 340. 1762) can be traced back to the lectotype. This was reproduced in British publications for about 120 years (Gerard & Johnon, Herb.: 212, fig. 3. 1633; J. Hill, Brit. Herb.: tab. 68, fig. 14. 1756)].

Hudson did not cite Lobel in the protologue, so the Lobel's drawing is not part of the Hudson's original material (see Art. 9.4 of the *International code of nomenclature for algae, fungi, and plants* (Shenzhen Code, Turland *et al.* 2018). Therefore, the typification of Künkele & Baumann (1998: 419) is ineffective according to Art. 9.3 of the *Code* because the lectotype must be selected from elements of the original material available to Hudson before *Flora Anglica* was published in 1762.

The purpose of this paper is to contribute to nomenclatural stability by lectotypifying the name *Ophrys apifera*. This nomenclatural act is important because this name includes many accepted synonyms and intraspecific taxa and is the hybrid parent of a large number of nothotaxa (IPNI 2021, POWO 2021, *World flora online*, 2021). Designation of the type is based on consultation of Hudson's original elements and the literature cited in the protologue. Acronyms of the herbaria consulted according to Thiers (2021).

Typification of the name *Ophrys apifera*

Hudson's protologue (1762: 340) for *Ophrys apifera* consists of the *nomen specificum legitimum*. "OPHRYS bulbis subrotundis, scapo folio, nectarii labio quinquelobo, lobis subtus inflexis" followed by five synonyms: 1) "*Orchis fuciflora galea et alis purpurascens*" of Bauhin & Cherler (1651: 766) and Ray (1724: 379), 2) "*Orchis s. Testiculus vespinus*, 2. *Sphegodes*" of Gerarde (1636: 212), 3) "*Orchis sucum referens major, foliolis superioribus [superioribus] candidis et purpurascens*" of Bauhin (1623: 83), 4) "*Orchis sphegodes seu sucum referens*" of Parkinson (1640: 1350), and 5) "*Orchis sive Testiculus sphegodes hirsuto flore*" of Bauhin & Cherler (1651: 767) and Ray (1724: 380) as a variety with the symbol "β". The common name and the ecology of this plant were cited as: "*Anglis, Bee Orchis*" and "*Habitat in pratis et pascuis siccioribus*".

The references to Gerarde (1636: 212), Parkinson (1640: 1350) and Bauhin & Cherler (1651: 766, 767) provided illustrations are original material used by Hudson to describe *O. apifera*. However, although the Lobel's illustration (1581a: 179) "*Testiculus vulpinus secundus, Sphegodes. T. 217.*" (image available at http://www.plantgenera.org/illustration.php?id_illustration=376704&SID=g1rr151fvstsqhs2182318gpt5&mobile=0&size=0&uhd=0) (see also Lobel 1581b: 217, Lobel 1591: 179) cited by Künkele & Baumann (1998: 419) as "lectotype" was the original drawing that was later used by these authors (i.e., Gerarde 1636, Parkinson 1640, Bauhin & Cherler 1651), no concrete reference to Lobel (1581a "Pl. icon.: 179, fig. 2. 1581") was included in the protologue by Hudson (1762: 340), and therefore Lobel's drawings cannot be treated as original material.

The reference in the protologue to Gerarde, as "Ger. Em." refers to the third edition of Gerard's *Herball* (1636) (the first edition in 1597) and the second edition edited by Thomas Johnson, a reprint of his 1633 edition, often referred to as "Gerard emaculatus" (<https://archive.org/details/mobot31753000817756/page/211/mode/2up>). Gerarde's drawing "*Testiculus Vulpinus 2 sphegodes. Humble-bee Orchis*" is a complete plant, with tubers, leaves and flowers (Fig. 1). The Parkinson's drawing "*Orchis Sphegodes sive sucum referens. The greater Drone Bee flower*" (1640: 1350) and the Bauhin & Cherler's drawing "*Orchis sive Testiculus sphegodes hirsuto flore*" (1651: 767) is the same illustration published by Gerarde (1636). Bauhin & Cherler's drawing "*Orchis fuciflora galea et alis purpurascens*" (1651: 766) also included a complete plant, with tubers, leaves and flowers.

There is little information about the collectors quoted by Hudson and the materials he consulted (see Fabado & Ferrer-Gallego 2021). Hudson's original herbarium was destroyed by fire at his house in Panton Street (London) in 1783, caused "by the villany of a confidential servant" (Dixon 1959). Hudson retired to Jermyn Street (London), near Panton Street. Consequently, there are only scattered specimens in existence, mainly those he had given away to other botanists. The LINN herbarium has the relevant collection because Hudson sometimes gave specimens of his new species to Linnaeus. Also, the BM herbarium contains relevant material because the collections of Sir Hans Sloane were consulted by Hudson in preparing his *Flora Anglica*, at least while he was assistant librarian at the British Museum (Anonymous 1805), as Hudson himself indicated in the introduction of his work, mentioning the herbarium of Buddle, Petiver and Plukenet, which are in the Sloane Herbarium (Dandy 1958).

Unfortunately, we have been unable to locate any original specimens in any herbaria that contain Hudson's material (e.g., BM, CGE, K, OXF, UPS [Thunberg herbarium]) (see Stafleu & Cowan 1979, Jarvis 2007). On the other hand, there is a letter sent by Hudson to Linnaeus in 1760 (available at the Linnean Society of London, at <http://linnean-online.org/777771652/>), which lists a total of 76 herbarium sheets, with the names of the plants and a bibliographical reference to Ray (1724). Through this information, we have been able to correlate several herbarium sheets with the names that Hudson published in his *Flora Anglica*. However, in Hudson's letter we have found nothing about *O. apifera*.

In conclusion, among the original elements of *O. apifera*, Gerarde's (1636: 212), Parkinson's (1640: 1350) and

Bauhin & Cherler's (1651: 766, 767) illustrations, I designate as the lectotype of *Ophrys apifera* the Bauhin & Cherler's illustration "*Orchis sive Testiculus sphegodes hirsuto flore*" (1651: 767).

However, unfortunately the lectotype does not show the most relevant diagnostic characters (e.g., labellum trilobed, speculum with a whitish or yellowish margin, lateral lobes of labellum with basal protuberances, long drawn-out, sigmoid curved column apex) to distinguish *O. apifera* from other related species, e.g., *O. cretica* (Vierhapper year: page) Nelson (1962: 146), *O. fuciflora* (Schmidt year page) Moench (1802: 311), *O. holosericea* (Burmeister year: page) Greuter (in Greuter & Rechinger 1967: 185), *O. oestrifera* Marschall von Bieberstein (1808: 369), *O. scolopax* Cavanilles 1793: 46, *O. sphegodes* Miller (1768: without page [no. 8]), among others) and its hybrids (e.g., Willis 1980, Aldasoro & Sáez 2005, Benito Ayuso 2017).

Consequently, for a precise circumscription of this name, an epitype has been selected according to Art. 9.9 of the Shenzhen Code (Turland *et al.* 2018). The epitype selected is a complete specimen collected in Kent (England) and preserved at K (K001418397; Fig. 2). This specimen is a glabrous, erect, green herb forming a rosette with globular tubers and four basal leaves that are oval-oblong or oblong-lanceolate, pointed or apiculate, a laxly few-flowered inflorescence with suberect bracts that are distinctly green, lanceolate and apiculate. Its flowers are large and spreading with rose or pink ovate-oblong sepals, triangular, obtuse, uni-nerved green petals that are cordate-hastate basally, a convex, suborbicular or obovate-quadrangle yellow labellum that is longer than the sepals with an unfolded margin, basally bigibbous, apically truncate at apex with an upcurved appendix and without obscure spots and lines with yellow borders basally and a recurved, trilobulate midlobe. This specimen clearly represents the traditional concept of this species (Hudson 1762, Camus *et al.* 1908, Camus & Camus 1921–1929) and reflects current application of the name *Ophrys apifera* (e.g., Soó 1980, Aldasoro & Sáez 2005, Delforge 2006, Tison *et al.* 2014).

Ophrys apifera Hudson (1762: 340)

Type (**lectotype**, designated here):—[illustration] "*Orchis sive Testiculus sphegodes hirsuto flore*" in Bauhin & Cherler (1651: 767) Fig. 1; **epitype** (designated here):—[ENGLAND], Salt Box, Kent, 10 July 1900, *Lowne 1459* (K, barcode K001418397). Fig. 2.



FIGURE 1. Lectotype of *Ophrys apifera* Huds., illustration of Bauhin & Cherler (1651: 767) "*Orchis sive Testiculus sphegodes hirsuto flore*".

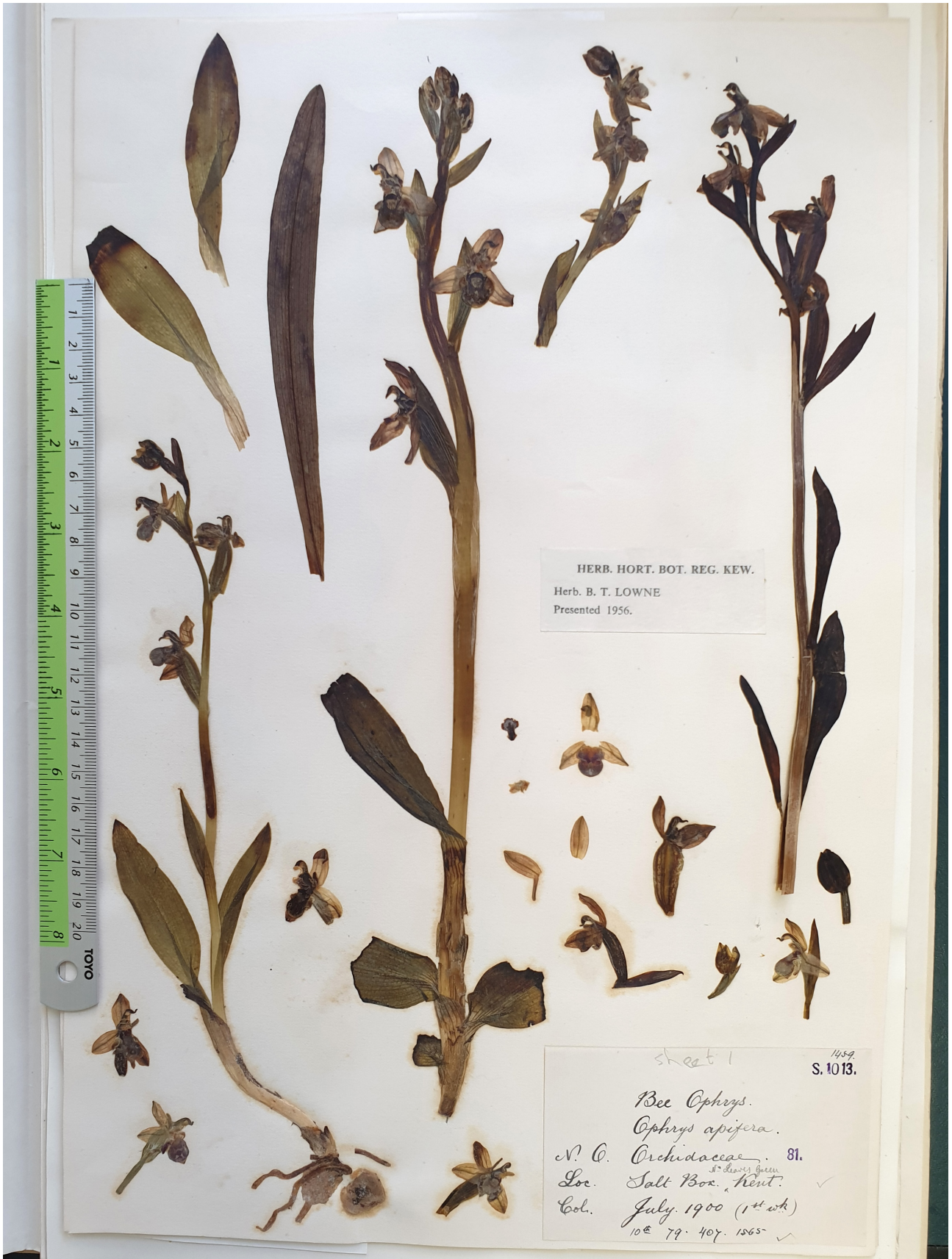


FIGURE 2. Epitype of *Ophrys apifera* Huds., K (K001418397). Image courtesy of the herbarium K, reproduced with permission.

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