

THE DOUBLE CONFUSION OF SCABIOSA PAPPOSA L.

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The story of *Pterocephalus papposus* (L.) Coult. (*Scabiosa papposa* L.) is a sad one of successive misidentifications. Three annual species of *Pterocephalus* are involved and, in order to make the full dossier intelligible, their botanical relationships must first be clarified. This in its turn requires the use of names, and the bare conclusions to which this study leads must therefore be given in anticipation. They are:—

(1) that *Pterocephalus papposus* (L.) Coult. is the same as *P. plumosus* (L.) Coult. and is the earlier name, but that it should now be abandoned as *nomen confusum*.

(2) that the plant of the eastern Mediterranean often known as *P. papposus* or *P. involucratus* Spreng. is to be called *P. brevis* Coult.

(3) that the plant of the Iberian Peninsula once known as *P. papposus* is to be called *P. diandrus* (Lag.) Lag.

Botanically *P. diandrus* is very easily separated from *P. plumosus* and *P. brevis* by reason of the remarkable elaboration of one of the teeth of the involucl into a long flattened curved arista. Another feature is the reduced number of stamens. Often there are only two, as the specific name suggests, but three occur quite commonly. The other two species are much more alike superficially, but there are well-marked structural differences in the involucl, so that determinations need never be in doubt. The three species may be distinguished as follows:—

Fruiting involucl with a single long flattened curved arista arising from the margin and a short collar arising just inside the margin and projecting beyond it; calyx setae united into a distinct cup at the base

P. diandrus

Fruiting involucl without arista; calyx setae free almost to the base:

Fruiting involucl with a narrow membranous corona and (internally) with a collar surrounding the neck of the ovary *P. brevis*

Fruiting involucl only toothed at the margin, without any corona; internal collar lacking *P. plumosus*

Pterocephalus diandrus (Lag.) Lag., Gen. et Sp. Nov. 9 (1816); Pau in Mem. Mus. Ci. Nat. Barcelona, ser. Bot. i, 47–48 (1922).

Syn.: *Scabiosa diandra* Lag. in Varied de Ciencias, iv, 39 (1805).

Pterocephalus papposus (L.) Coult. var. *diandrus* (Lag.) DC., Prodr. iv, 652 (1830).

“*Scabiosa papposa* L.” sec. L., Syst. Nat. ed. 12, 112 (1767)—non L., Sp. Pl. i, 101 (1753).

“*Pterocephalus papposus*” auctt.; Coult., Mem. Dipsac. 33 (1823); DC., Prodr. iv, 652 (1830); Willkomm & Lange, Prodr. Fl. Hisp. ii, 16 (1870); Coutinho, Fl. Port. ed. 2, 703 (1939)—non *Scabiosa papposa* L.

Distribution: Spain and Portugal.

Pterocephalus plumosus (L.) Coult., Mem. Dipsac. 31 (1823); DC., Prodr. iv, 652 (1830); Boiss., Fl. Or. iii, 147 (1875); Post, Fl. Syr. Pal. Sin. i, 618 (1932); K. H. Rechinger, Fl. Aegaea, 592 (1943).

Syn.: *Scabiosa cretica*, *capitula pappos mentiente*, Tournef., Cor. 34 (1703); Boerhaave, Lugdb. i, 130 (1720).

Scabiosa corollis quinquefidis, caule herbaceo, calycibus foliis florem superantibus, Royen, Fl. Leyd. Prodr. 189 (1740).

Scabiosa papposa L., Sp. Pl. i, 101 (1753)—nec L., Syst. Nat. ed. 12, 112 (1767)—*nomen confusum rejiciendum*.

Knautia plumosa L., Mantissa altera, 197 (1771).

Scabiosa plumosa (L.) Sibth. & Sm., Fl. Graec. Prodr. i, 84 (1806) et Fl. Graec. ii, 11, t. 111 (1813).

Pterocephalus papposus (L.) Coult. Mem. Dips. 33 (1823), quoad syn. *S. papposa* L. tantum—*nomen confusum rejiciendum*.

Coulterella Van Tieghem in Ann. Sci. Nat. Ser. 9, x, 157 (1909)—*nomen genericum tantum*.

Distribution: Crete, Greece, Turkey, Crimea, Caucasus, Transcaspia, Syria, Lebanon, Palestine.

Pterocephalus brevis Coult., Mem. Dipsac. 32 (1823); DC., Prodr. iv, 652 (1830).

Syn.: *Scabiosa involucrata* Sibth. & Sm., Fl. Graec. Prodr. 84 (1806), et Fl. Graeca, ii, 11, t. 112 (1813)—*nomen illegitimum*.

Pterocephalus involucratus Spreng., Syst. Veg. i, 384 (1825)*; Boiss., Fl. Or. iii, 148 (1875); Post, Fl. Pal. Syr. Sinai (ed. Dinsmore), i, 619 (1932).

P. Coulteri Boiss., Diagn. Ser. 1, x, 77 (1849)—*nomen illegitimum*.

"*P. papposa* (L.) Coult." sec. Holmboe, Stud. Veg. Cypr. 175 (1914); Lindberg, Iter Cyprium, 33 (1946); K. H. Rechinger, Fl. Aegaea, 592 (1943)—non *Scabiosa papposa* L.

Distribution: Karpathos, Cyprus, Syria, Palestine.

We are now in a position to reconstruct the history of these plants. In view of the frequent changes in generic name it will be as well to emphasise that they are all currently placed in the genus *Pterocephalus*, as shown above. A comment on this practice concludes the paper.

The entry in Linnaeus, Species Plantarum (i, 101: 1753) is as follows:—

18. SCABIOSA corollulis quinquefidis caule herbaceo, *papposa*
calycibus foliosis florem superantibus calyce
plumoso. Roy. lugdb. 189. Scabiosa cretica,
capitula pappos mentiente Tournef. inst. 34.
Boerh. lugdb. 1, p. 130. *Habitat in Creta*.

In Adrian van Royen, Florae leydenensis prodromus (1740) the entry is:—

12. SCABIOSA corollulis quinquefidis, caule herbaceo, calycibus
foliosis florem superantibus.
Scabiosa cretica, capitula pappos mentiente. Tourn. cor. 34.
Boerh. lugdb. 1, p. 130.

* Published as a new combination based on the illegitimate *Scabiosa involucrata* Sibth. & Sm., but cited here as a name proposed by Sprengel in accordance with Art. 81 of the International Code. It is a taxonomic, not a nomenclatural, synonym of *P. brevis*.

In Boerhaave, Index alter Plantarum quae in Horto Academico Lugduno-Batavo aluntur (1720) we simply find:—

33. Scabiosa; Cretica; capitulo pappos mentiente. T. Cor. 34a.
and in Tournefort's Corollarium (1703), which Linnaeus misquoted as the Institutiones,

Scabiosa Cretica, capitulo pappos mentiente.

These entries have been given in full because it is essential to make clear the basis of the species. It should be noted that Linnaeus took his definition almost verbatim from that of his friend van Royen, and that both van Royen and Boerhaave were dealing with a plant being grown in the botanic garden at Leiden. It is fairly clear that this plant was known or thought to have been introduced by Tournefort. Tournefort himself seems to have done no more than provide the phrase name quoted: there is no further description of the plant in his "Voyages au Levant." As there is no specimen dating from 1753 in the Linnaean herbarium it would seem natural to look to van Royen's herbarium for a specimen, for it is clear that his description must serve as the "lectotype" of the name. In response to a request Dr. H. J. Lam kindly had a search made in the van Royen herbarium for a specimen of this plant. Unfortunately none bearing the appropriate number could be found, but another specimen was there which had subsequently been labelled *S. papposa*. We cannot take this as the type of van Royen's description, but it is evidence that this particular scabious was known in herbaria at that time. It agrees well with van Royen's description and is *Pterocephalus plumosus* (L.) Coult.

Tournefort's own specimen I have not seen, but it appears to have been known to Sibthorp & Smith (Fl. Graec. Prodr. i, 84; 1806), for under *Scabiosa plumosa* (L.) Sibth. & Sm. they cite:—

Scabiosa cretica capitulo pappos mentiente. Tourn. Cor. 34.

Herb. Tourn.

Pterocephalus plumosus is well known as a Cretan plant, while neither of the other species which have been called *P. papposus* has been found there, nor is there anything to suggest that either of them were known to botanists in the first half of the 18th century. The evidence is therefore very strong that the original *Scabiosa papposa* L. is the same as *Pterocephalus plumosus* (L.) Coult.: there is no evidence whatsoever to point to any other species.

The confusion in Linnaeus's treatment of this species seems to have arisen in the following manner. Lacking an example of *Scabiosa papposa* in his own herbarium Linnaeus wrongly identified a specimen from Spain as belonging to that species, and in Systema Naturae (1767) he supplied a full description of the Spanish plant under the name *S. papposa*. This plant is *Pterocephalus diandrus* (Lag.) Lag. Subsequent to this misdetermination Linnaeus received a specimen of the true *S. papposa*: but now he had *P. diandrus* in his herbarium under that name. He was thus led to believe that the new specimen represented an undescribed species and, noting the resemblance of the capitula to those of *Knautia orientalis*, he described it as *Knautia plumosa* (Mant. Alt. 197: 1771).

The taxonomist of today needs to remember that the immediate successors of Linnaeus did not base their understanding of his species just on the first edition of Species Plantarum. That work only acquired prime

authority with the formulation of the Rules of Nomenclature. It was quite natural, then, for Sibthorp & Smith* (Fl. Graec. Prodr. 84: 1806) to accept Linnaeus's 1767 definition of *Scabiosa papposa* as his final, and therefore authoritative, opinion.

Sibthorp & Smith fully realised that Linnaeus's use of *Scabiosa papposa* had changed; they half realised that the original *S. papposa* had been re-described by Linnaeus as *Knautia plumosa*, as is shown by their citation of Tournefort's specimen already quoted; but they did not appreciate that the latter covered the whole of *S. papposa*. They evidently thought that van Royen's plant was different from Tournefort's, for they renamed it *Scabiosa involucrata*, citing under that name

"*S. papposa* Sp. Pl. excl. Tourn. non Syst. Veg."

There is here implicit agreement with the view expressed above that van Royen's plant must be regarded as the typical element of *Scabiosa papposa*. According to our retroactive Code of Nomenclature Sibthorp & Smith should have used *S. papposa* instead of their new name *S. involucrata*, which is therefore illegitimate. In recent years this view has been widely adopted and the plant has in fact been known as *S. papposa*—without any one taking the precaution of checking identities.

It has already been shown that *S. papposa* is the same as *Knautia plumosa*. *Scabiosa involucrata*, however, is a quite different plant. It was described again in 1823 by Coulter as *Pterocephalus brevis* Coult. and this is the name that must now be adopted.

As for the name *Scabiosa papposa*, complete abandonment is the only solution. It has been in frequent and erroneous use for two quite distinct species: to adopt it now for a third one would be to court chaos. The lack of a true type specimen is merely an added reason for discarding this name. *Scabiosa papposa* L. is accordingly rejected here as a *nomen confusum*.

Pterocephalus brevis is an annual which not infrequently occurs in dwarf single-headed examples. Boissier took Coulter's epithet "*brevis*" to refer to this habit and regarded it as an abnormality. He thus felt justified in renaming the species *P. Coulteri*. The habit occurs too often to be regarded as abnormal, but in any case Boissier misunderstood the use of the epithet, which, from Coulter's description, clearly refers to the short corona of the involucre: a good specific character. In fact Coulter's type, of which a photograph was kindly supplied by Dr. Baehni, is not one of the dwarf forms.

Finally a few notes on the concept of the genus are needed. *Pterocephalus* was first used as a generic name by the pre-Linnaean French botanist Vaillant; Linnaeus included it in *Scabiosa*. With such names it often happens that they have been taken up again for genera by several independent post-Linnaean botanists, and not always in the same sense.†

* I follow custom in attributing the works and views to the joint authorship of Sibthorp & Smith, though it is probable that the taxonomic decisions were wholly Smith's.

† Another example which has caused trouble is the Umbelliferous genus *Siler*. Having been variously attributed to Crantz, Scopoli and Ludwig, it is now believed to have had its earliest post-Linnaean publication at the hands of Philip Miller. This earliest use was for *Laserpitium Siler* L. (= *Siler montanum* Crantz) and not for *Siler trilobum* (L.) Crantz, now to be called *Laser trilobum* (L.) Borkh.

Pterocephalus has been attributed to various authors, notably Lagasca, Coulter, Moench and Adanson. Although it seems likely that all of them would agree, in a general way, with the current use of *Pterocephalus*, nevertheless the type species of the genus varies according to the author. Adanson (Fam. Pl. ii, 152, 595: 1763) has the right of priority; he based the genus on *S. Pterocephala*, *S. ochroleuca* and *S. papposa* of Linnaeus. *S. ochroleuca* was clearly included in error, and *S. papposa* is the subject of all the confusion just described. Therefore one has no hesitation in accepting *Scabiosa Pterocephala* L.—a species actually known to Vaillant—as the lectotype of *Pterocephalus*; in that genus it becomes *P. perennis* Coult.

Van Tieghem, in an extensive paper dealing with the structure of the different genera of Dipsacaceae (Ann. Sci. Nat. Ser. 9, x, 148–200: 1909), took Lagasca as the author of *Pterocephalus* and accordingly regarded *P. diandrus* (which he called *P. papposus*) as typical of the genus. Van Tieghem adopted his customary very narrow generic concept and separated *P. plumosus* as a distinct genus *Coulterella*. However, he only seems to have examined these two species. What other new genera might have resulted had such species as *P. brevis* or *P. Hookeri* been available to him can only be surmised. The key to the three species given at the beginning of this paper brings out the fact that there are definite structural differences between their involucels, and there is no doubt that the range in the genus as a whole is still greater. Nevertheless this is not to say that *Pterocephalus* must be split up; there is ample justification for maintaining the current concept until a study of generic relationships throughout the family can be made.