

published 11 new combinations in *Pyramidanthe* when recognising 12 species in the combined genus. If they had selected *Mitrella* as the name for the combined genus only three new combinations would have been required. Additionally, *Mitrella*, as formerly recognised, has a much wider distribution from Thailand to Australia (Turner in Gard. Bull. Singapore 70: 409–744. 2018), with notable diversity in New Guinea (Diels in Bot. Jahrb. Syst. 49: 113–167. 1912, 52: 177–186. 1915; Turner, l.c.), whereas *Pyramidanthe* is restricted to the Malay Peninsula, Sumatra, and Borneo (Turner, l.c.). Therefore, the users of plant names in New Guinea and Australia may now need to employ an unfamiliar generic name, whereas the alternative choice would have meant only one name of long standing, *Pyramidanthe prismatica* (Hook. f. & Thomson) Merr. (in J. Straits Branch Roy. Asiat. Soc. Spec. No.: 262. 1921), would have changed. The only reason given by Bangkomnate & al. (l.c.) for selecting *Pyramidanthe* over *Mitrella* was the

potential for confusion associated with *Mitrella* and the similar generic names *Mitella* Tourn. ex L. (Sp. Pl.: 406. 1753) and *Mitreola* L. (Opera Var.: 214. 1758). *Mitrella* has been in use for more than 150 years, apparently without causing confusion with these other genera. The best known species of *Mitrella* is *M. kentii* (Blume) Miq. (l.c.: 39). “*Mitrella kentii*” used as a search term in Google Scholar (7 Feb 2022) produced 162 results, including many papers on phytochemistry and medical research. “*Pyramidanthe prismatica*” produced 24 results, mostly taxonomic and floristic studies. Clearly *Mitrella* is the more familiar of the two names across a wider geographic area and larger disciplinary range.

I propose that in the interests of nomenclatural stability *Mitrella* is conserved against *Pyramidanthe* and therefore *Mitrella* can be used as the name of the combined genus for those that wish to recognise it as such.

## (2884) Proposal to conserve the name *Bituminaria* (*Fabaceae*) with a conserved type

Emanuele Del Guacchio,<sup>1</sup> Gianmarco Tavilla,<sup>2</sup> Gianpietro Giusso del Galdo,<sup>2</sup> Salvatore Brullo<sup>2</sup> & Charles Stirton<sup>3</sup>

<sup>1</sup> Department of Biology, University of Naples “Federico II”, Botanic Garden, via Foria 223, Naples, 80139, Italy

<sup>2</sup> Department of Biological, Geological and Environmental Sciences, University of Catania, via A. Longo 19, Catania, Italy

<sup>3</sup> Department of Biological Sciences, University of Cape Town, South Africa

Address for correspondence: Emanuele Del Guacchio, emanuele.delguacchio@unina.it

DOI <https://doi.org/10.1002/tax.12703>

First published as part of this issue. See online for details.

(2884) *Bituminaria* Heist. ex Fabr., Enum.: 165. 1759, nom. cons. prop.  
 Typus: *B. bituminosa* (L.) C.H. Stirt. (*Psoralea bituminosa* L.), typ. cons. prop.

*Psoralea* L. (Sp. Pl.: 762. 1753) was proposed for conservation with *P. pinnata* as conserved type by Jarvis & al. (in Taxon 41: 568. 1992), in case the argument that the previous choice (*P. bituminosa*) was in serious conflict with the protologue was not accepted. However, as that choice was based on “a largely mechanical method” (see McNeill & al. in Taxon 36: 381. 1987), and since, after the St Louis Congress, it became clear that it was superseded by *P. pinnata* (J. McNeill, pers. comm.) (see also Art. 10.5–10.7 of the *Shenzhen Code*, Turland & al. in Regnum Veg. 159. 2018), the General Committee concluded that conservation of *Psoralea* with a conserved type was unnecessary, and the proposal was rejected with similar others (see Barrie in Taxon 55: 796. 2006).

Meanwhile, Stirton (in Bothalia 13: 318. 1981) had segregated *Psoralea bituminosa* and *P. acaulis* into a separate genus, exhuming the name *Bituminaria* Heist. ex Fabr. (Enum.: 165. 1759) for them. He conceived *Bituminaria* as constituting two monotypic subgenera: *B.* subg. *Bituminaria*, automatically typified by *B. bituminosa* (which is obviously the type of *Bituminaria* itself) and *B.* subg. *Christevenia*

Barneby ex C.H. Stirt., including *B. acaulis*. More recently, *B.* subg. *Christevenia* has been raised to generic rank as *Kartalinea* Brullo & al. (in Ann. Missouri Bot. Gard. 103: 618. 2018). The genus *Bituminaria* currently includes 10 Mediterranean species (POWO, <http://www.plantsoftheworldonline.org/>, accessed 19 Nov 2021) and is morphologically well distinguished from the allied genera of the tribe *Psoraleae* in having significant diagnostic features, some of which are autoapomorphic, such as leaves with 3 entire leaflets, inflorescence capitate and determinate, calyx gibbose covered by white and black hairs, standard auriculate, pod exserted from the calyx, with a long flat and rigid beak, its corpus covered by long rigid hairs above intermingled with rigid and solid prickles, and seed adherent to the pericarp.

Unfortunately, the name *Bituminaria* is superfluous and illegitimate (cf. IPNI, <https://www.ipni.org/>, accessed 19 Nov 2021), since Fabricius (l.c. 1759) cited “*Psoralea* Linn.” as a synonym (Art. 52) and, in consequence, is automatically typified under Art. 7.5 by the type of *Psoralea*, i.e., *P. pinnata*.

It should be noted that, without any doubt, Fabricius intended to include in *Bituminaria* only *Psoralea bituminosa*, as can be deduced from the description in the protologue and by the later editions of the *Enumeratio* (e.g., Fabricius, Enum., ed. 2: 307. 1763), in which the phrase-name of *Psoralea bituminosa* L. is explicitly cited.

Fabricius (l.c. 1759) also cited in synonymy the polynomial “*Trifolium asphaltites* f. *bituminosum*”, attributing it to Ruppium (cf. Fl. Jen., ed. 2: 207. 1726) and Dodoens (Dodonaeus). The Ruppium polynomial is not reported by Linnaeus (l.c.), who, however, cited “*Trifolium bituminosum*” by Dodonaeus (Stirp. Hist. Pempt., ed. 2: 566. 1616) under *P. bituminosa* (Linnaeus, l.c.: 763).

We might infer that *Bituminaria* was segregated by Fabricius as a monotypic genus from the Linnaean *Psoralea*, and that by citing “*Psoralea* Linn.”, he was meaning Linnaeus’s use of the epithet ‘*bituminosa*’ and, therefore, it would not be really illegitimate. However, Art. 52.2 establishes that citing an available name results in superfluity unless the type was excluded explicitly or at least by implication.

The earliest legitimate and available name for Fabricius’s concept of *Bituminaria* is *Aspalthium* Medik. (in Vorles. Churpfälz. Phys.-Ökon. Ges. 2: 380–381, 432. 1787). Medikus (l.c. 1787) consistently used the spelling *Aspalthium* for the generic name and those of the five species listed and also in further consideration of the genus (l.c. 1787: 432, 487). However, in *Index Kewensis* (Jackson, Index Kew. 1: 215. 1893) it was claimed that in the 1787 publication the spelling had been “*Asphaltium*”, attributing “*Asphaltium*” (Jackson, l.c.: 212) only to Medikus’s later (Philos. Bot.: 211. 1789) consistent use of that spelling. Kuntze (in Post & Kuntze, Lex. Gen. Phan.: 48. 1903), considering that the correct name was “the most ancient [...] adopted or given by Linnaeus” (Art. 15 of Candolle’s Lois), adopted “*Asphaltium*”, ascribing it to Ludwig (Defin. Pl.: 101. 1737), who in turn had accepted “*Asphaltion* Diosc.” published by Knaut (Meth. Pl.: 182. 1716) (though, logically, Kuntze should have adopted the Greek ending “*Asphaltion*”). *Aspalthium* and its variants have been used as a segregate generic name to accommodate *Psoralea bituminosa* whenever it was thought to be distinct from *Psoralea*. However, this has happened rarely, adopting the species name *A. bituminosum* (L.) Fourr. (in Ann. Soc. Linn. Lyon, ser. 2, 16: 365. 1868; ‘*Asphaltium*’) (e.g., Kuntze, l.c., ‘*Asphaltium*’; Meikle, Fl. Cyprus 1: 489. 1977, ‘*Aspalthium*’).

Therefore, there is little or no continued use of *Aspalthium* or *Asphaltium*. There are only 35 post-Linnaean mentions of these names (in the sense of our interest) on Google Scholar ([https://scholar.google.com/scholar?hl=en&as\\_sdt=0%2C5&q=Asphaltium&btnG=](https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Asphaltium&btnG=)), but almost half of the linked works cite them only as synonyms of *Bituminaria*. On the other hand, a search on *Bituminaria* generated 2340 results, with the name employed in diverse fields: biochemistry, physiology, agriculture (germplasm, pasture and forage studies), mycorrhizal and rhizobial studies, virology, cryo-preservation, molecular genetics and evolution, soil science and salinity studies, biogeography,

and climate change (<https://scholar.google.com/scholar?oi=gsb95&q=bituminaria&lookup=0&hl=en>).

In fact, *Bituminaria* is nowadays universally used by botanists (e.g., Talavera in Castroviejo & al., Fl. Iber. 7: 354. 1999; Pignatti & al., Fl. Ital. 2: 496. 2017; Roskov & al., ILDIS World Database of Legumes, <https://ildis.org/LegumeWeb10.01.shtml>, accessed 20 Nov 2021; WCVP, <https://wcvp.science.kew.org/>, accessed 20 Nov 2021; The Euro+Med PlantBase, <http://ww2.bgbm.org/EuroPlusMed/>, accessed 20 Nov 2021; Conservatoire et Jardin botaniques de la Ville de Genève and South African National Biodiversity Institute, African Plant Database [v.3.4.0], <http://africanplantdatabase.ch>, accessed 20 Nov 2021; POWO, l.c.; Portal to the Flora of Italy, <http://dryades.units.it/floritaly>, accessed 20 Nov 2021; Hand & al., Flora of Cyprus, <https://flora-of-cyprus.eu/>, accessed 20 Nov 2021; etc.), and other scholars (e.g., Tesauro & al. in Biochem. J., Molec. Aspects 425: 531–539. 2010; Pazos-Navarro & al. in B. M. C. Genet. 12: 104. 2011; Wright & al. in Pl. Dis. 96: 769. 2012; Nelson & al. in Plants (Switzerland) 9: 973. 2020).

*Bituminaria bituminosa*, known commercially as tедера, is increasingly being recognised as an important forage crop with great genetic diversity, suitable for adaptation to climate change, especially in regions with a Mediterranean-type climate (Real & al., Crop Pasture Sci. 65: 1114–1131. 2014). A change in tедера’s generic name would not fit well with its user community.

Therefore, the current proposal to conserve the name *Bituminaria* Heist. ex Fabr. with *B. bituminosa* as type is made with the aim of preserving nomenclatural stability (Art. 14.2).

Finally, it is to be noted that the lectotype of *Psoralea bituminosa*, i.e., Herb. Linnaeus No. 928.19 (LINN), designated by Jafri (in Jafri & El-Gadi, Fl. Libya 86: 39. 1980) would be the ultimate type of *Bituminaria* if the proposal is accepted. We confirm that the lectotype perfectly matches the protologue (Linnaeus, l.c.) and fully supports the current use of the name.

#### Author information

EDG, <https://orcid.org/0000-0001-9349-1328>

GT, <https://orcid.org/0000-0002-4634-6440>

GGG, <https://orcid.org/0000-0003-4719-3711>

SB, <https://orcid.org/0000-0003-2568-7278>

CS, <https://orcid.org/0000-0001-7207-2765>

#### Acknowledgments

We are indebted to J. McNeill (Edinburgh) and D. Iamónico (Rome) for their valuable suggestions.