

NOMENCLATURE COMMUNICATIONS

(3084–3085) Proposals to conserve the name *Aloe mitriformis* with a conserved type and the name *A. microstigma* against *A. perfoliata* (*Asphodelaceae: Alooideae*)Ronell R. Klopper,^{1,2}  Gideon F. Smith³  & Abraham E. van Wyk^{1,2} ¹ Foundational Research & Services Directorate, Foundational Biodiversity Sciences Division, South African National Biodiversity Institute, Private Bag X101, Pretoria, 0001 South Africa² H.G.W.J. Schweickerdt Herbarium, Department of Plant and Soil Sciences, University of Pretoria, Private Bag X20, Hatfield, 0028 South Africa³ Ria Olivier Herbarium, Department of Botany, P.O. Box 77000, Nelson Mandela University, Gqeberha, 6031 South AfricaAddress for correspondence: Ronell R. Klopper; r.klopper@sanbi.org.zaDOI <https://doi.org/10.1002/tax.13362>

The name *Aloe perfoliata* L. (Sp. Pl.: 319. 1753), the type of which is the type of the genus name *Aloe* L. (l.c.), has been variously applied to, amongst others, two southern African—predominantly South African—aloe species that have been known consistently as either *A. mitriformis* Mill. (Gard. Dict., ed. 8: *Aloe* No. 1. 1768) [a species with creeping stems, capitate inflorescences, and long pedicels] or *A. microstigma* Salm-Dyck (Aloes Mesembr. 6: §[Sec.] 26, t. 4. 1854) [a species with erect stems, paniculate inflorescences, and short pedicels]. Furthermore, authors hold varied views on the typification of the name *A. perfoliata* (Smith & al. in Phytotaxa 700: 225, 228. 2025)

The first effective lectotypification of the name *Aloe perfoliata* was when Reynolds (Aloes S. Africa: 89, fig. 69. 1950) unambiguously referred to the specimen LINN No. 442.1 as “type material”. This typification was subsequently followed by authors such as Wijnands (Bot. Commelins: 125. 1983) and Jarvis (Order out of Chaos: 279. 2007). Proponents of this typification, including ourselves, view *A. perfoliata* as an insufficiently known taxon, arguing that the name cannot be reliably applied to any known aloe.

Mottram (in Cactician 1: 11. 2013) challenges the typification by Reynolds (l.c. 1950) of the name *Aloe perfoliata* that was supported by Wijnands (l.c.) and Jarvis (l.c.), suggesting instead that Scopoli’s earlier citation (Fund. Bot.: 127–128. 1783) of Plate 15 from Dillenius (Hort. Eltham.: 18, t. XV, fig. 16. 1732) constitutes the earliest type designation for the name. As a consequence, Mottram (l.c.) considers the designation of Plate 17 (Dillenius, l.c.: 21, t. XVII, fig. 19) by Glen & Hardy (in Germishuizen, Fl. S. Africa 5(1.1.1): 100. 2000) as the “iconotype” of the name *A. perfoliata* as superfluous, which was indeed the case because Reynolds (l.c. 1950) had already effectively typified the name 50 years earlier. Notably, Dillenius (l.c.: t. 17) aligns with the description and widely applied concept of *A. mitriformis*, which is in agreement with the view followed by Glen & Hardy (l.c.) for *A. perfoliata*, but their interpretation diverges from the perspective of Mottram (l.c.). Scopoli (l.c.), however, provided no indication that the marginal references to illustrations in his publication were intended as “types”. These references are merely intended as suitable illustrations for identifying the medicinal plants that he enumerated. As such, citation of Plate 15 (Dillenius, l.c.) by Scopoli (l.c.) does not qualify as an effective

lectotypification under Art. 7.11 of the ICN (Turland & al. in Regnum Veg. 159. 2018).

A proposal to reject the name *Aloe perfoliata* (Klopper & al. in Taxon 65: 1173–1175. 2016) was not recommended, mainly because the type of this name is also the type of the genus name *Aloe* and because it has been regarded, albeit erroneously, as the correct name for the species until recently consistently known as *A. mitriformis* (Applequist in Taxon 66: 500–513. 2017).

Therefore, to maintain the current usage of the names *Aloe mitriformis* and *A. microstigma*, and to avoid further nomenclatural confusion, these two names are here, sequentially below, proposed for conservation.

Taxonomically, *Aloe microstigma* contains infraspecific taxa (Klopper & al. in Phytotaxa 628: 1–64. 2023) and *A. mitriformis* (Zonneveld in Bradleya 20: 10. 2002) potentially contains infraspecific taxa. Therefore, if *A. perfoliata* is to replace either of these two species names, multiple new combinations will have to be made at infraspecific ranks.

(3084) *Aloe mitriformis* Mill., Gard. Dict., ed. 8: *Aloe* No. 1. 16 Apr 1768 [Angiosp.: *Lil. / Asphodel.*], nom. cons. prop.

Typus: [icon in] Dillenius, Hort. Eltham.: t. XVII, fig. 19. 1732, typ. cons. prop.

Aloe mitriformis (the mitre aloe) is widespread in the western parts of the Western Cape and southwestern parts of the Northern Cape, South Africa, with *A. distans* Haw. (Syn. Pl. Succ.: 78. 1812), *A. arenicola* Reynolds (in J. S. African Bot. 4: 21. 1938), and *A. comptonii* Reynolds (l.c. 1950: 382) being close relatives. When Miller (l.c.) published the name *A. mitriformis*, he cited “*Aloe Africana mitriformis spinosa*”, likely intending to publish a name at the rank of species for what was treated as “*Aloe perfoliata* var. v” by Linnaeus (l.c.: 320). However, Miller (l.c.) also cited Linnaeus’s (l.c.: 319) exact diagnostic phrase name (nomen specificum legitimum) for *A. perfoliata*, namely “*Aloe (Mitriformis) floribus pedunculatis cernuis* [in error spelled “cernuis” by Linnaeus] corymbosis sub-cylindricis. Lin. Sp. Plant. 319”, thus inadvertently rendering *A. mitriformis* an illegitimate superfluous name for *A. perfoliata*.

The superfluous status of the name *A. mitrififormis* was missed by all subsequent authors before this was highlighted by Applequist (l.c.) in 2017 and subsequently clarified by new Art. 52.3 of the Shenzhen Code (Turland & al., l.c.). Webb (in Tutin & al., Fl. Europaea 5: 20. 1980) included *A. mitrififormis* in the synonymy of *A. perfoliata*, but did not provide any explanation in this regard.

The nomenclature of Webb (l.c.) for the mitre aloe was followed by Glen & Hardy (l.c.), who cited the type of the name *Aloe mitrififormis*, as “Iconotype: *Aloe africana mitraeformis spinosa* Dillenius, Hortus elthamensis 21, t. 17, fig. 19 (1732).” However, since *A. mitrififormis* is a superfluous name for *A. perfoliata*, it is automatically typified by the type of that name (Art. 7.5), i.e., LINN No. 442.1. Glen & Hardy’s (l.c.) attempt to designate a lectotype for *A. mitrififormis* using Dillenius (l.c.: t. XVII, fig. 19) was not effective. Therefore, this type is here proposed for conservation.

The interpretation of Webb (l.c.) and Glen & Hardy (l.c.), i.e., including *Aloe mitrififormis* in the synonymy of *A. perfoliata*, has not been widely taken up in the aloe fraternity (Carter & al., Aloe: 601–602. 2011; Van Wyk & Smith, Guide Aloes S. Africa: 122, 134–135. 2014), the South African National Plant Checklist (also see the SANBI Biodiversity Advisor), or the World Flora Online Plant List (all 3 websites accessed 25 Feb 2025). Glen & Hardy (l.c.) further included *A. distans* and *A. comptonii* in the synonymy of *A. perfoliata*, without explanation. This broad concept of the species has also not been widely accepted (Smith & Van Wyk, Aloes S. Africa: 65. 2008; Van Wyk & Smith, l.c.: 126–127, 130–131; South African National Plant Checklist, l.c.; WFO Plant List, l.c.). Some websites use the name *A. perfoliata* for the mitre aloe (*A. mitrififormis*), but recent literature has retained the use of *A. mitrififormis*, with *A. distans* and *A. comptonii* treated as separate taxa, either at the rank of species (e.g., Klopper & Smith in Strelitzia 29: 66. 2012) or as subspecies of *A. mitrififormis* (e.g., Carter & al., l.c.) as was suggested by Zonneveld (l.c.). While some websites mention “*A. perfoliata* var. *distans*” and “*A. perfoliata* var. *comptonii*”, these combinations were never validly published and only contribute to nomenclatural confusion; therefore, they should not be used. Most recent literature and databases treat *A. perfoliata* as an insufficiently known taxon (SANBI Biodiversity Advisor; The WFO Plant List; it is not treated as an accepted species in Carter & al., l.c. or Van Wyk & Smith, l.c.).

Neither the type of the name *Aloe perfoliata* nor the description in its protologue align with the inflorescence morphology of the mitre aloe or its related species, all of which feature dense, capitate inflorescences with the buds and open flowers on long pedicels. In contrast, the type specimen of the name *A. perfoliata* has a cylindrical, lax, few-flowered raceme with short pedicels. Wijnands (l.c.: 124) also shared this view, noting that the name *A. perfoliata* could still be “available to replace another well-known name of long standing in *Aloe*. Some restraints among authors treating the taxonomy of the species of *Aloe* would avoid confusion.”

Given the distinct morphological differences between the types of the names *Aloe perfoliata* and *A. mitrififormis*, there is no need to conserve the name *A. mitrififormis* against the name *A. perfoliata*. As argued above, the names apply to two very different taxa. However, to allow continued use of the superfluous, illegitimate name *A. mitrififormis* for the mitre aloe, conservation with a conserved type is necessary. Without conservation, later synonyms such as *A. albispina* Haw. (in Trans. Linn. Soc. London 7: 22. 1804) and *A. flavispina* Haw. (l.c.) could be applied to what is now widely known as *A. mitrififormis*, although hitherto none of these names has appeared in key aloe literature. Historically, all synonymous names potentially available have been treated

as varieties or as synonyms of *A. mitrififormis* since Baker (in J. Linn. Soc., Bot. 18: 171. 1880) and Berger (in Engler, Pflanzenr. IV. 38. III. II (Heft 33): 278. 1908). Replacing the name of the well-known and widely cultivated mitre aloe with an unknown name, following the confusion already caused by the wrong application of the name *A. perfoliata* to this aloe, would undermine nomenclatural stability. Therefore, conservation of the name *A. mitrififormis* with a conserved type is proposed in accordance with Art. 14.

(3085) *Aloe microstigma* Salm-Dyck, Aloes Mesembr. 6: §[Sec.] 26, fig. 4. 1–14 Jun 1854 [Angiosp.: *Lil.* / *Asphodel.*], nom. cons. prop.

Typus: [icon in] Salm-Dyck, Aloes Mesembr. 6: § 26, fig. 4. 1–14 Jun 1854. Epitypus (vide Klopper & al. in Phytotaxa 628: 48. 2023): South Africa, Western Cape, “2 miles [~3.2 km] north of Worcester”, 12 Jul 1949, Reynolds 5429 (PRE barcode PRE0090543).

(=) *Aloe perfoliata* L., Sp. Pl.: 319. 1 Mai 1753, nom. rej. prop. Lectotypus (vide Reynolds, Aloes S. Africa: 89, fig. 69. 1950): Herb. Linnaeus No. 442.1 (LINN).

Mottram (l.c.) examined the early nomenclatural history of the name *Aloe perfoliata* and concluded in his privately published journal, *The Cactician*, that it is the earliest available name for the species now known as *A. microstigma*, commonly referred to as the “Worcester aloe”. However, *The Cactician* is published online only and not widely distributed or well-known globally, particularly in South and southern Africa where these aloes occur. We find the arguments presented by Mottram (l.c.) in support of the proposed conspecificity of *A. perfoliata* and *A. microstigma* to be unconvincing.

Mottram (l.c.) mistakenly identified Plate 15 of Dillenius (l.c.) as the type of the name *Aloe perfoliata* and used the description that accompanied this plate to support his view that *A. perfoliata* is conspecific with *A. microstigma*. As discussed above, citation by Scopoli (l.c.) of Plate 15 by Dillenius (l.c.) for *A. perfoliata* is not an effective typification, yet Mottram (l.c.) incorrectly treated it as such. Mottram (l.c.) noted some similarities between the illustration (Dillenius, l.c.: t. XV, fig. 16) and the translated description of “*Aloe africana maculata spinosa minor*” of Dillenius (l.c.), which he linked to the modern concept of *A. microstigma*. However, the description of “*Aloe africana maculata spinosa minor*” by Dillenius (l.c.) can more easily be applied to a range of other spotted- and maculate-leaved aloes (Van Wyk & Smith, l.c.: 194, 208). Notably, Linnaeus (l.c.: 320) cited the polynomial and illustration (albeit incorrectly as t. 14) for the variety *A. perfoliata* μ L., which Wijnands (l.c.) interpreted as *A. maculata* All. (Auct. Syn. Meth. Stirp. Hort. Regii Taur.: 13. 1773).

A clear distinction between the illustration of Dillenius (l.c.: t. XV, fig. 16) and material of *Aloe microstigma* is that the flowers of *A. microstigma* are cylindrical, sometimes slightly swollen in the middle, but never constricted above the ovary as those illustrated in Plate 15 of Dillenius (l.c.). The plant illustrated in Plate 15 also lacks the many large, sterile peduncular bracts that are very characteristic of *A. microstigma*. Furthermore, there are noticeable colour differences between the four known copies of Plate 15 coloured by Dillenius himself and *A. microstigma*: the teeth on the leaf margins of *A. microstigma* are reddish brown (never white) and the inflorescence is typically bicoloured with reddish buds and yellow open flowers, unlike the red, monochromatic flowers depicted in Dillenius (l.c.). However, these colour discrepancies may well be a result of Dillenius relying on memory rather than observing the plant in flower.

Around 1695, Heinrich (Hendrik) Bernhard Oldenland cultivated several aloes in the Dutch East India Company's Garden in Cape Town (Karsten, *The old Company's Garden and its Superintendents*: 71–87. 1951). He sent seeds of these aloes to Commelin in the Netherlands, who subsequently grew and illustrated the plants (*Hort. Med. Amstelod.* 2: 5–30, fig. 3–15. 1701; *Praeludia Bot.*: 42–45, fig. 17–32. 1703). Commelin also incorporated the Latin diagnoses of Oldenland's *Kruidboek* (see Valentyn, *Beschryvinge van de Kaap der Goede Hoope*: 22–23. 1726) *verbatim* and in the same sequence. Later, Linnaeus (l.c.) relied on many of Commelin's illustrations when describing the various varieties of *Aloe perfoliata*, together with illustrations by Dillenius (l.c.).

From 4 January to 10 April 1698, Oldenland accompanied Ensign Isaq (Isaak) Schrijver on an expedition into what is now the Eastern Cape Province of South Africa (Gunn & Codd, *Bot. Expl. Southern Africa*: 265. 1981). This journey covered nearly the entire southern distribution range of *Aloe microstigma*, a prominent and abundant species that would not have been missed. Although not in flower at the time, Oldenland must have encountered the Worcester aloe on this trip, but no record of its observation appears in the expedition reports.

There is no direct evidence to confirm that *Aloe microstigma* was cultivated by the Commelins or in the Eltham garden by Dillenius in the early 1700s. Moreover, as discussed above, the corresponding plate cited by Mottram (l.c.) as being of *A. perfoliata* (= "*A. microstigma*") cannot be identified as the Worcester aloe. By 1816, more than 120 years after the Schrijver expedition, *A. microstigma* was being cultivated in the Schönbrunn Gardens, Vienna, Austria. Salm-Reifferscheid-Dyck reportedly observed the species there for the first time (Reynolds, l.c. 1950: 398) and subsequently figured it (Salm Reifferscheid-Dyck, l.c.).

To complement the illustration serving as the lectotype of the name *Aloe microstigma*, a specimen from the Worcester region in the Western Cape, South Africa (Reynolds 5429), housed at Herb.

PRE, was designated as an epitype (Klopper & al., l.c. 2023: 48). This species is abundant in the Worcester area, making it likely the first significant population of this species encountered by early explorers as they journeyed from the Cape into the interior.

Since Mottram (l.c.) considers *Aloe perfoliata* (that dates from 1753) to be conspecific with *A. microstigma* (that dates from 1854), the former would take priority over *A. microstigma* if Mottram's (l.c.) interpretation is accepted. However, even if Plate 15 of Dillenius (l.c.) is interpreted as representing *A. microstigma*—a claim we strongly dispute—it is not the type of the name *A. perfoliata*, which is LINN No. 442.1, of uncertain application, as explained above. Therefore, including *A. microstigma* in the synonymy of *A. perfoliata* based on the arguments of Mottram (l.c.) would be inaccurate.

Nevertheless, if the interpretation of Mottram (l.c.) were to be accepted and the name *Aloe microstigma* is not conserved, its correct name would become *A. perfoliata*—a name with historically and currently inconsistent and ambiguous applications. Before Mottram (l.c.) published his views this competing name had never been used for the species consistently known as *A. microstigma* for more than 170 years. To prevent the replacement of a well-established name by one with a confused and ambiguous history, we propose conserving the name *A. microstigma* against *A. perfoliata* in accordance with Art. 14. This conservation will ensure nomenclatural stability for a globally recognised and horticulturally significant group.

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