

New combinations and a complete list of *Asparagus* species in southern Africa (Asparagaceae)

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ABSTRACT

With only flower sexuality differing, *Protasparagus* can not be separated from *Asparagus*, neither at generic nor at subgeneric level. No significant differences in the degree to which filaments were connivent were observed between species placed under *Myrsiphyllum* and those under *Protasparagus/Asparagus*. All southern African species of Asparagaceae are therefore reinstated under *Asparagus* and listed here without recognition of subgenera. Several new combinations are made.

UITTREKSEL

Met slegs die geslagtelikheid van die blomme wat verskil, kan *Protasparagus* nie van *Asparagus* geskei word nie, nóg op genus- nóg op subgenusvlak. Geen noemenswaardige verskille in die mate waartoe helmdrade saamneigend is, is waargeneem tussen spesies wat onder *Myrsiphyllum* geplaas is en dié onder *Protasparagus/Asparagus* nie. Alle Suider-Afrikaanse spesies van Asparagaceae word dus heringestel onder *Asparagus* en hier gelys sonder erkenning van subgenusse. Verskeie nuwe kombinasies word gemaak.

The family name Asparagaceae was proposed by Jussieu (1789), soon after the genus *Asparagus* was named by Linnaeus (1753). The debate on the division of the genus into separate genera or subgenera, was started by Willdenow (1808) with his description of the genus *Myrsiphyllum*, which was countered by Roemer & Schultes's (1829) treatment of *Asparagus* as a single genus. Kunth (1850) then not only subdivided the genus, but transferred it back to the Liliaceae. Baker (1875) continued the trend and it remained the standard treatment till Huber (1969) and Dahlgren & Clifford (1982) once again advanced the concept of separate genera and the family name, Asparagaceae.

Obermeyer (1983, 1984) adopted Kunth's (1850) division of *Asparagus s.l.* into three separate genera: *Myrsiphyllum* Willd., *Asparagus* L. with unisexual flowers and *Asparagopsis* Kunth for the bisexual southern African species, in preference to Baker's (1875) single genus with three subgenera, *Euasparagus* Baker (= *Asparagus*), *Asparagopsis* (Kunth) Baker and *Myrsiphyllum* (Willd.) Baker. As *Asparagopsis* had been used by Montagne (1840) for a genus of the Rhodophycaceae and was therefore an illegitimate homonym in Kunth's application, *Protasparagus* Oberm. (1983) was published. This stance was also taken in the treatment of the family for the *Flora of southern Africa* by Obermeyer & Immelman (1992).

Malcomber & Sebsebe (1993) came to the conclusion that, with only flower sexuality differing, *Protasparagus* and *Asparagus* could not be separated at generic level nor

even kept as separate subgenera, but rather, on the basis of the shared character of free filaments, *Protasparagus* and *Asparagus* belonged together in the subgenus *Asparagus*. Neither could *Myrsiphyllum* be a distinct genus on the strength of connivent filaments versus free ones in the rest of the Asparagaceae. This character was, however, sufficient to distinguish the taxon as a subgenus. They therefore proposed that *Asparagus* be the only genus in the Asparagaceae, with subgenera *Myrsiphyllum* and *Asparagus*, the latter including the species previously placed in *Protasparagus*.

We accept the treatment by Malcomber & Sebsebe (1993) with reservation. The absence of *A. juniperoides* Engl. and *A. multituberosus* R.A. Dyer from the list of species investigated by these authors, prompted further investigation. As the close relatives of these two species are in the subgenus with connivent filaments, it could be expected to find the same condition here. However, it could not be demonstrated that filaments were markedly connivent, and no significant differences were observed in the degree to which filaments were connivent in the two subgenera. Therefore, we prefer to refrain from dividing the southern African species of the genus into subgenera.

In addition to the new combination made by Malcomber & Sebsebe (1993), more new combinations as well as reinstatements are necessary for the southern African species of the genus *Asparagus*. The numbers next to the species names listed alphabetically below (comb. nov. numbers indented), are the species numbers allocated by Obermeyer & Immelman (1992); those in *Myrsiphyllum* being affixed with an 'M'.

53. *Asparagus acocksii* Jessop in *Bothalia* 9: 74 (1966).

Protasparagus acocksii (Jessop) Oberm.: 243 (1983); Oberm. & Immelman: 57 (1992).

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46. **Asparagus aethiopicus** L., Mantissa plantarum: 32 (1767).
Protasparagus aethiopicus (L.) Oberm.: 243 (1983); Oberm. & Immelman: 54 (1992).
19. **Asparagus africanus** Lam., Encyclopédie méthodique 1: 295 (1783).
Protasparagus africanus (Lam.) Oberm.: 243 (1983); Oberm. & Immelman: 35 (1992).
48. **Asparagus aggregatus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus aggregatus Oberm. in Oberm. & Immelman: 55 (1992).
- M8. **Asparagus alopecurus** (Oberm.) Malcomber & Sebsebe in Kew Bulletin 48: 73 (1993).
Myrsiphyllum alopecurum Oberm.: 85 (1984); Oberm.: 78 (1992).
50. **Asparagus angusticladius** (Jessop) Fellingham & N.L. Mey. comb. nov.
Asparagus aethiopicus L. var. *angusticladius* Jessop: 69 (1966). *Protasparagus angusticladius* (Jessop) Oberm.: 243 (1983); Oberm. & Immelman: 56 (1992).
- M2. **Asparagus asparagoides** (L.) W. Wight, Century Dictionary 2: 845 (1909).
Medeola asparagoides L.: 339 (1753). *Myrsiphyllum asparagoides* (L.) Willd.: 25 (1808); Oberm.: 78 (1984); Oberm.: 73 (1992).
51. **Asparagus aspergillus** Jessop in Bothalia 9: 71 (1966).
Protasparagus aspergillus (Jessop) Oberm.: 243 (1983); Oberm. & Immelman: 56 (1992).
2. **Asparagus bayeri** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus bayeri Oberm. in Oberm. & Immelman: 21 (1992).
17. **Asparagus bechuanicus** Baker in W.T. Thiselton-Dyer, Flora of tropical Africa 7: 429 (1898).
Protasparagus bechuanicus (Baker) Oberm. in Oberm. & Immelman: 33 (1992).
63. **Asparagus biflorus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus biflorus Oberm. in Oberm. & Immelman: 63 (1992).
34. **Asparagus buchananii** Baker in Kew Bulletin 1893: 211 (1893).
Protasparagus buchananii (Baker) Oberm.: 243 (1983); Oberm. & Immelman: 45 (1992).
8. **Asparagus burchellii** Baker in Journal of the Linnean Society of London, Botany 14: 618 (1875).
Protasparagus burchellii (Baker) Oberm. in Oberm. & Immelman: 27 (1992).
- 4a. **Asparagus capensis** L. var. *capensis*. Species plantarum, edn 1: 314 (1753).
Protasparagus capensis (L.) Oberm.: 243 (1983); Oberm. & Immelman: 23 (1992).
- 4b. **Asparagus capensis** L. var. *litoralis* Suess. & J. Karl in Mitteilungen der Botanischen Staatssammlung, München 1: 50 (1950); Jessop: 44 (1966).
Protasparagus capensis L. var. *litoralis* (Suess. & J. Karl) Oberm. comb. illeg. in Oberm. & Immelman: 24 (1992).
47. **Asparagus clareae** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus clareae Oberm. in Oberm. & Immelman: 54 (1992).
45. **Asparagus coddii** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus coddii Oberm. in Oberm. & Immelman: 53 (1992).
59. **Asparagus concinnus** (Baker) Kies in Bothalia 6: 178 (1951a).
Asparagus africanus Lam. var. *concinnus* Baker: 619 (1875). *Protasparagus concinnus* (Baker) Oberm. & Immelman: 61 (1992).
41. **Asparagus confertus** K. Krause in Botanische Jahrbücher 51: 449 (1914).
Protasparagus confertus (K. Krause) Oberm. in Oberm. & Immelman: 51 (1992).
18. **Asparagus cooperi** Baker in Gardeners' Chronicle 1: 818 (1874a).
Protasparagus cooperi (Baker) Oberm.: 243 (1983); Oberm. & Immelman: 33 (1992).
52. **Asparagus crassicladius** Jessop in Bothalia 9: 75 (1966).
Protasparagus crassicladius (Jessop) Oberm.: 243 (1983); Oberm. & Immelman: 57 (1992).
- M9. **Asparagus declinatus** L., Species plantarum, edn 1: 313 (1753).
Myrsiphyllum declinatum (L.) Oberm.: 86 (1984); Oberm.: 78 (1992).
39. **Asparagus densiflorus** (Kunth) Jessop in Bothalia 9: 65 (1966).
Asparagopsis densiflora Kunth: 96 (1850). *Protasparagus densiflorus* (Kunth) Oberm. in Oberm. & Immelman: 49 (1992).
21. **Asparagus denudatus** (Kunth) Baker in Journal of the Linnean Society of London, Botany 14: 606 (1875).
Asparagopsis denudatus Kunth: 82 (1850). *Protasparagus denudatus* (Kunth) Oberm.: 243 (1983); Oberm. & Immelman: 36 (1992).
30. **Asparagus devenishii** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus devenishii Oberm. in Oberm. & Immelman: 41 (1992).
69. **Asparagus divaricatus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus divaricatus Oberm. in Oberm. & Immelman: 67 (1992).
29. **Asparagus edulis** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus edulis Oberm. in Oberm. & Immelman: 41 (1992).
10. **Asparagus exsertus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus exsertus Oberm. in Oberm. & Immelman: 29 (1992).

32. **Asparagus exuvialis** Burch., Travels in the interior of southern Africa I: 432 (1822).
Protasparagus exuvialis (Burch.) Oberm.: 244 (1983); Oberm. & Immelman: 42 (1992).
- 32a. **Asparagus exuvialis** Burch. forma **ecklonii** (Baker) Fellingham & N.L. Mey. comb. nov.
Asparagus ecklonii Baker: 615 (1875). *Protasparagus exuvialis* (Burch.) Oberm. forma *ecklonii* (Baker) Oberm. in Oberm. & Immelman: 43 (1992).
33. **Asparagus falcatus** L., Species plantarum, edn 1: 313 (1753).
Protasparagus falcatus (L.) Oberm.: 244 (1983); Oberm. & Immelman: 43 (1992).
- M12. **Asparagus fasciculatus** Thunb., Flora capensis, edn 2: 329 (1823).
Myrsiphyllum fasciculatum (Thunb.) Oberm.: 87 (1984); Oberm.: 80 (1992).
40. **Asparagus filicladus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus filicladus Oberm. in Oberm. & Immelman: 51 (1992).
- 11a. **Asparagus flavicaulis** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus flavicaulis Oberm. in Oberm. & Immelman: 29 (1992).
- 11b. **Asparagus flavicaulis** (Oberm.) Fellingham & N.L. Mey. subsp. **setulosus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus flavicaulis Oberm. subsp. *setulosus* Oberm. in Oberm. & Immelman: 30 (1992).
61. **Asparagus fouriei** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus fouriei Oberm. in Oberm. & Immelman: 62 (1992).
28. **Asparagus fractiflexus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus fractiflexus Oberm. in Oberm. & Immelman: 40 (1992).
3. **Asparagus glaucus** Kies in Bothalia 6: 229 (1951b).
Protasparagus glaucus (Kies) Oberm.: 224 (1983); Oberm. & Immelman: 23 (1992).
31. **Asparagus graniticus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus graniticus Oberm. in Oberm. & Immelman: 42 (1992).
68. **Asparagus intricatus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus intricatus Oberm. in Oberm. & Immelman: 65 (1992).
- M7. **Asparagus juniperoides** Engl. in Botanische Jahrbücher 10: 3 (1889).
Myrsiphyllum juniperoides (Engl.) Oberm.: 84 (1984); Oberm.: 78 (1992).
- M4. **Asparagus kraussianus** (Kunth) J.F. Macbr. in Contributions from the Gray Herbarium 56: 17 (1918).
Myrsiphyllum kraussianum Kunth: 107 (1850); Oberm.: 80 (1984); Oberm.: 76 (1992).
42. **Asparagus krebsianus** (Kunth) Jessop in Bothalia 9: 74 (1966).
Asparagopsis krebsiana Kunth: 93 (1850). *Protasparagus krebsianus* (Kunth) Oberm.: 244 (1983); Oberm. & Immelman: 51 (1992).
16. **Asparagus laricinus** Burch., Travels in the interior of southern Africa I: 537 (1822).
Protasparagus laricinus (Burch.) Oberm.: 244 (1983); Oberm. & Immelman: 33 (1992).
23. **Asparagus lignosus** Burm.f., Prodrum florum capensis: 10 (1768).
Protasparagus lignosus (Burm.f.) Oberm. in Oberm. & Immelman: 37 (1992).
20. **Asparagus longicladus** N.E. Br. in Kew Bulletin 1921: 298 (1921).
Protasparagus longicladus (N.E. Br.) B. Mathew: 181 (1989); Oberm. & Immelman: 36 (1992).
36. **Asparagus lynetteae** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus lynetteae Oberm. in Oberm. & Immelman: 47 (1992).
60. **Asparagus macowanii** Baker in Journal of the Linnean Society of London, Botany 14: 609 (1875).
Protasparagus macowanii (Baker) Oberm.: 244 (1983); Oberm. & Immelman: 62 (1992).
6. **Asparagus mariae** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus mariae Oberm. in Oberm. & Immelman: 24 (1992).
57. **Asparagus microraphis** (Kunth) Baker in Journal of the Linnean Society of London, Botany 14: 612 (1875).
Asparagopsis microraphis Kunth: 83 (1850). *Protasparagus microraphis* (Kunth) Oberm.: 244 (1983); Oberm. & Immelman: 59 (1992).
64. **Asparagus minutiflorus** (Kunth) Baker in Journal of the Linnean Society of London, Botany 14: 616 (1875).
Asparagopsis minutiflorus Kunth: 89 (1850). *Protasparagus minutiflorus* (Kunth) Oberm.: 244 (1983); Oberm. & Immelman: 64 (1992).
15. **Asparagus mollis** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus mollis Oberm. in Oberm. & Immelman: 32 (1992).
25. **Asparagus mucronatus** Jessop in Bothalia 9: 56 (1966).
Protasparagus mucronatus (Jessop) Oberm. in Oberm. & Immelman: 38 (1992).
27. **Asparagus multiflorus** Baker in Journal of the Linnean Society of London, Botany 14: 610 (1875).
Protasparagus multiflorus (Baker) Oberm.: 244 (1983); Oberm. & Immelman: 39 (1992).
- M1. **Asparagus multituberosus** R.A. Dyer in Bothalia 6: 442 (1954).
Myrsiphyllum multituberosum (R.A. Dyer) Oberm.: 77 (1984); Oberm.: 73 (1992).

49. **Asparagus natalensis** (Baker) Fellingham & N.L. Mey. comb. nov.
Asparagus aethiopicus L. var. *natalensis* Baker: 272 (1896). *Protasparagus natalensis* (Baker) Oberm.: 244 (1983); Oberm. & Immelman: 56 (1992).
37. **Asparagus nelsii** Schinz in Bulletin de l'Herbier Boissier. Sér. 1,4, App. 3: 44 (1896).
Protasparagus nelsii (Schinz) Oberm.: 244 (1983); Oberm. & Immelman: 48 (1992).
56. **Asparagus nodulosus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus nodulosus Oberm. in Oberm. & Immelman: 59 (1992).
12. **Asparagus oliveri** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus oliveri Oberm. in Oberm. & Immelman: 30 (1992).
- M3. **Asparagus ovatus** T.M. Salter in Journal of South African Botany 6: 167 (1940).
Myrsiphyllum ovatum (T.M. Salter) Oberm.: 79 (1984); Oberm.: 75 (1992).
38. **Asparagus oxyacanthus** Baker in Journal of the Linnean Society of London, Botany 14: 625 (1875).
Protasparagus oxyacanthus (Baker) Oberm.: 244 (1983); Oberm. & Immelman: 48 (1992).
22. **Asparagus pearsonii** Kies in Bothalia 6: 179 (1951a).
Protasparagus pearsonii (Kies) Oberm.: 244 (1983); Oberm. & Immelman: 37 (1992).
14. **Asparagus pendulus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus pendulus Oberm. in Oberm. & Immelman: 32 (1992).
55. **Asparagus plumosus** Baker in Journal of the Linnean Society of London, Botany 14: 613 (1875).
Protasparagus plumosus (Baker) Oberm.: 244 (1983); Oberm. & Immelman: 59 (1992).
35. **Asparagus racemosus** Willd., Species plantarum edn 4,2: 152 (1799).
Protasparagus racemosus (Willd.) Oberm.: 244 (1983); Oberm. & Immelman: 45 (1992).
- M11. **Asparagus ramosissimus** Baker in Gardeners' Chronicle new series 2: 6 (1874b).
Myrsiphyllum ramosissimum (Baker) Oberm.: 87 (1984); Oberm.: 79 (1992).
1. **Asparagus recurvispinus** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus recurvispinus Oberm. in Oberm. & Immelman: 19 (1992).
26. **Asparagus retrofractus** L., Species plantarum, edn 1: 313 (1753).
Protasparagus retrofractus (L.) Oberm.: 244 (1983); Oberm. & Immelman: 39 (1992).
65. **Asparagus rigidus** Jessop in Bothalia 9: 64 (1966).
Protasparagus rigidus (Jessop) Oberm.: 244 (1983); Oberm. & Immelman: 64 (1992).
24. **Asparagus rubicundus** P.J. Bergius, Descriptiones plantarum ex Capite Bonae Spei: 88 (1767).
Protasparagus rubicundus (P.J. Bergius) Oberm.: 244 (1983); Oberm. & Immelman: 38 (1992).
- M10. **Asparagus scandens** Thunb., Prodrum plantarum capensium 1: 66 (1794).
Myrsiphyllum scandens (Thunb.) Oberm.: 86 (1984); Oberm.: 79 (1992).
44. **Asparagus schroederi** Engl. in Botanische Jahrbücher 32: 97 (1903).
Protasparagus schroederi (Engl.) Oberm.: 244 (1983); Oberm. & Immelman: 53 (1992).
62. **Asparagus sekukuniensis** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus sekukuniensis Oberm. in Oberm. & Immelman: 63 (1992).
54. **Asparagus setaceus** (Kunth) Jessop in Bothalia 9: 51 (1966).
Asparagopsis setacea Kunth: 82 (1850). *Protasparagus setaceus* (Kunth) Oberm.: 244 (1983); Oberm. & Immelman: 58 (1992).
9. **Asparagus spinescens** Steud. ex Roem. & Schult., Systema vegetabilium 7,1: 334 (1829).
Protasparagus spinescens (Steud. ex Roem. & Schult.) Oberm. in Oberm. & Immelman: 27 (1992).
58. **Asparagus stellatus** Baker in Journal of the Linnean Society of London, Botany 14: 612 (1875).
Protasparagus stellatus (Baker) Oberm. in Oberm. & Immelman: 61 (1992).
5. **Asparagus stipulaceus** Lam., Encyclopédie méthodique 1: 297 (1783).
Protasparagus stipulaceus (Lam.) Oberm.: 244 (1983); Oberm. & Immelman: 24 (1992).
66. **Asparagus striatus** (L.f.) Thunb., Prodrum plantarum capensium 1: 65 (1794).
Dracaena striata L.f.: 204 (1781). *Protasparagus striatus* (L.f.) Oberm.: 244 (1983); Oberm. & Immelman: 64 (1992).
7. **Asparagus suaveolens** Burch., Travels in the interior of southern Africa 2: 226 (1824).
Protasparagus suaveolens (Burch.) Oberm.: 244 (1983); Oberm. & Immelman: 25 (1992).
67. **Asparagus subulatus** Thunb., Prodrum plantarum capensium 1: 66 (1794).
Protasparagus subulatus (Thunb.) Oberm.: 244 (1983); Oberm. & Immelman: 65 (1992).
43. **Asparagus transvaalensis** (Oberm.) Fellingham & N.L. Mey. comb. nov.
Protasparagus transvaalensis Oberm. in Oberm. & Immelman: 52 (1992).
- M6. **Asparagus undulatus** (L.f.) Thunb., Prodrum plantarum capensium 1: 66 (1794).
Dracaena undulata L.f.: 203 (1781). *Myrsiphyllum undulatum* (L.f.) Kunth: 109 (1850); Oberm.: 83 (1984); Oberm.: 77 (1992).

13. *Asparagus virgatus* Baker in *Refugium botanicum* 3: t. 214 (1870).

Protasparagus virgatus (Baker) Oberm. in Oberm. & Immelman: 31 (1992).

M5. *Asparagus volubilis* Thunb., *Prodromus plantarum capensium* 1: 66 (1794).

Myrsiphyllum volubile (Thunb.) Oberm.: 82 (1984); Oberm.: 76 (1992).

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