



**Repertorium
Plantarum
Succulentarum
XLI (1990)**

Repertorium Plantarum Succulentarum XLI (1990)

Index nominum novarum plantarum succulentarum anno MCMXC editorum nec non bibliographia taxonomica ab U. Eggli et N. P. Taylor compositus.

International Organization for Succulent Plant Study
Internationale Organisation für Sukkulantenforschung

July 1991

Conventions used in Repertorium Plantarum Succulentarum

- Repertorium Plantarum Succulentarum attempts to list, under separate headings, newly published names of succulent plants and relevant literature on the systematics of these plants, on an annual basis. New names noted after the issue for the relevant year has gone to press are included in later issues. Specialist periodical literature is scanned in full (as available at the libraries of K, Z, ZSS or received by the compilers). Also included is information supplied to the compilers direct. It is urgently requested that any reprints of papers not published in readily available botanical literature be sent to one of the compilers.
- Validly published names are given in **bold face** type, accompanied by an indication of the nomenclatural type (name or specimen dependent on rank), followed by the herbarium acronyms of the herbaria where the holotype and possible isotypes are said to be deposited (first acronym for holotype), according to Index Herbariorum, ed. 8 and supplements as published in Taxon. Invalid, illegitimate, or incorrect names are given in *italic* type face. In either case a full bibliographic reference is given. For new combinations, the basionym is also listed. For invalid, illegitimate or incorrect names, the articles of the ICBN which have been contravened are indicated in brackets.
- The compilers would like to point out that they do not accept any names that might be inadvertently validated in this volume of RPS.
- Bibliographic details of papers dealing only with the description of one or two new taxa are given in the nomenclatural section and not repeated in the bibliographic section.
- Abbreviations for periodicals are those suggested in 'A Bibliography of Succulent Plant Periodicals' (U. Eggl in Bradleya 3: 103-119, 1985, and supplements in l.c. 5: 101-104, 1987) for specialized periodicals, or those of Bibliographia Periodicorum Huntianum for other periodicals.

Konventionen im Zusammenhang mit dem Repertorium Plantarum Succulentarum

- Das Repertorium Plantarum Succulentarum ist eine jährlich herausgegebene Zusammenstellung neuer Namen für sukkulente Pflanzen und der relevanten systematischen Literatur. Neue Namen, die nach der Drucklegung der Ausgabe des betreffenden Jahres bekannt werden, erscheinen in der nächsten erreichbaren Ausgabe. Spezialisierte Zeitschriften werden umfassend durchgesehen, soweit sie in den Bibliotheken von K, Z und ZSS vorhanden sind oder den Herausgebern privat vorliegen. Die Herausgeber bitten alle Autoren dringend, Separata relevanter Publikationen zur Verfügung zu stellen, vor allem wenn es sich um Beiträge in schwer zugänglichen Serien handelt.
- Gültig veröffentlichte Namen werden in **Fettschrift** wiedergegeben unter Angabe des nomenklatorischen Typs (Name oder Belegexemplar je nach Rangstufe; gefolgt von den Herbarabkürzungen [entsprechend Index Herbariorum, ed. 7, und in Taxon publizierten Supplementen] der publizierten Hintelegungsorte für Holotyp [1. Abkürzung] und Isotypen). Ungültige oder illegitime Namen erscheinen in *Kursivschrift* unter Angabe (in Klammer) derjenigen Artikel des ICBN, die verletzt worden sind. In allen Fällen folgen die kompletten bibliographischen Angaben. Für Umkombinationen wird auch das Basionym angegeben.
- Die Herausgeber weisen mit aller Deutlichkeit darauf hin, dass sie keinen Namen anerkennen, der zufälligerweise in dieser Ausgabe des RPS validiert worden sein könnte.
- Beiträge, welche nur Beschreibungen eines oder zweier Taxa enthalten, werden in der bibliographischen Liste nicht separat aufgeführt.
- Die Abkürzungen für spezialisierte Sukkulente-Zeitschriften richten sich nach 'A Bibliography of Succulent Plant Periodicals' (U. Eggl in Bradleya 3: 103-119, 1985, sowie Supplementen in l.c. 5: 101-104, 1987), für allgemeine botanische Zeitschriften nach Bibliographia Periodicorum Huntianum.

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Preface

The present issue of RPS begins a new set of ten volumes and a new decade also. Looking back at the past 40 volumes, it is astonishing to see how many name changes have been reported for each year.

Editorial policy (if such exists for a compilation like RPS) has not changed much during its period of publication. Bibliographical data additional to that supplied as the references to new names was included for the first time in vol. 21 (1970), and constituted a major step forward in providing an information service on developments in the world of succulent plant systematics. Another, more minor change from vol. 33 onwards was the addition of data on typification (including the acronym(s) of the herbarium where type material was said to be located). Finally, the present compilers decided to include provisionally published names from vol. 36 onwards. This decision has recently been questioned by a reviewer (W. Spanowsky, *Kakt. / Sukk.* 24(3/4): 117, 1989 [publ. 1990]) who would prefer the omission of such names in future issues. The compilers of RPS would like to make it clear that the inclusion of provisional names should under no circumstances be seen as an 'upgrading' or acceptance of them. Irrespective of their invalid status, they will be taken up in amateur specialist literature, and it was therefore felt useful to report their existence and place of publication. Certainly, the compilers wish to state that the publication and continued use of such names is to be strongly discouraged.

With the completion of 41 volumes of RPS, the compilers are pleased to announce that all the nomenclatural data reported in RPS since vol. 1 in 1950 has been edited and transferred to a computerized database, maintained at the Municipal Succulent Collection Zürich, ZSS. It has now become possible to arrange a combined name list embracing the whole period between 1950 and 1990, and the first such list to be published in book form is that for *Cactaceae* names. Details on the availability of this list are to be found on the back cover of this issue. Similar checklists for other families of succulent plants are planned for publication in the near future.

Vorwort

Das vorliegende RPS-Heft beginnt eine neue Serie von 10 Nummern, ebenso wie eine neue Dekade. Ein Rückblick auf die vergangenen 40 Bände zeigt, wie überraschend viele neue Namen jedes Jahr nachgewiesen wurden.

Die Redaktionspolitik (sofern so etwas für eine Zusammenstellung wie das RPS überhaupt existiert) hat sich während seiner Publikationsperiode nicht stark verändert. Bibliographische Angaben, die über die Angaben zu einzelnen Namen hinausgehen, wurden erstmals in Band 21 (1970) aufgenommen; dies war ein wichtiger Schritt in Richtung auf eine umfassende Information über die Entwicklungen in der Systematik der Sukkulentenwelt. Eine weitere kleine Änderung wurde ab Band 33 eingeführt mit der Aufnahme von Typifizierungsdaten (inkl. der Abkürzungen derjenigen Herbarien, wo gemäss Publikation Typusmaterial hinterlegt wurde). Schliesslich haben die heutigen Redaktoren sich ab Band 36 entschlossen, auch provisorisch publizierte Namen in das RPS aufzunehmen. Dieser Entscheid wurde kürzlich in einer Besprechung kritisiert (W. Spanowsky, *Kakt. / Sukk.* 23(3/4): 117, 1989 [publ. 1990]) und es wird vorgeschlagen, ihn rückgängig zu machen. Die RPS-Redaktoren möchten hier mit aller Deutlichkeit klarstellen, dass die Aufnahme von provisorischen Namen keinerlei 'Aufwertung' darstellen kann, von einer Annahme überhaupt zu schweigen. Da diese Namen trotz ihres ungültigen Status' in Liebhaberpublikationen erscheinen werden, scheint es vorteilhaft zu sein, deren Existenz und die zugehörigen Publikationsdaten nachzuweisen. Es versteht sich von selbst, dass die RPS-Redaktoren die Publikation und fortgesetzte Verwendung derartiger provisorischer Namen nicht gutheissen können.

Gleichzeitig mit dem Abschluss der ersten 41 Bände des Repertoriums kann hier angekündigt werden, dass sämtliche nomenklatorischen Einträge, die im Repertorium seit Band 1 im Jahre

1950 erschienen sind, kürzlich in eine Computer-gestützte Datenbank übertragen worden sind. Diese Datenbank wird an der Städtischen Sukkulenten-Sammlung in Zürich (ZSS) unterhalten. Dank dieser Datenbank ist es jetzt möglich, eine kombinierte, die Jahre 1950 bis 1990 umfassende Liste von Sukkulenen-Namen zu produzieren, und die erste derartige Liste soll noch dieses Jahr für die *Cactaceae* publiziert werden. Nähere Angaben über die Erhältlichkeit dieser Liste finden sich auf dem hinteren Umschlag dieses Bandes. Ähnliche Checklisten sollen in naher Zukunft auch für die übrigen Familien sukkulenter Pflanzen publiziert werden.

Corrections to previous volumes

- Len Newton has pointed out that the correct spelling of the name for the segregate family including *Aloe*, etc., is *Aloaceae* and not *Aloeaceae* as used so far. We are grateful for this correction.
- The name *Arrojadoa rhodantha* var. *canudosensis*, recorded in RPS 39: 5-6, is incorrect; in fact P. Braun has published the combination *A. rhodantha* ssp. *canudosensis*.

Korrekturen zu früheren Bänden

- Len Newton hat darauf aufmerksam gemacht, dass die richtige Schreibweise der für die Gattung *Aloe* und Verwandte vor einiger Zeit akzeptierten Familie *Aloaceae* ist und nicht *Aloeaceae* wie bisher verwendet. Wir sind dankbar für diesen Hinweis.
- Der in RPS 39: 5-6 nachgewiesene Name *Arrojadoa rhodantha* var. *canudosensis* ist falsch; richtig ist, dass P. Braun die Kombination *A. rhodantha* ssp. *canudosensis* publiziert hat.

NOMINA NOVA

AGAVACEAE

- Agave gentryi** Ullrich, *Succulenta* 69(10): 210-214, ills. 1990. Typus: *Gentry* 20159 (DES).
Agave grijalvensis Ullrich, *Kakt. and. Sukk.* 41(6): 102-108, ills., map. 1990. Typus: *Gentry* 12204 (DES, US).
Agave horrida ssp. **perotensis** Ullrich, *Cact. Suc. Mex.* 35(4): 80, ill. (p. 96). 1990. Typus: *Gentry, Barclay et Arguelles* 20417 (US, DES, MEXU).
Agave striata ssp. **stricta** (Salm-Dyck) Ullrich, *Kakt. and. Sukk.* 41(5): center page pullout 14. 1990. Basionym: *Agave stricta*.

AIZOACEAE

- Conicosia** subgen. **Herrea** (Schwantes) Ihlenfeldt & Gerbaulet, *Bot. Jahrb. Syst.* 111(4): 482. 1990. Basionym: *Herrea*.
Conicosia pugioniformis ssp. **alborosea** (L. Bolus) Ihlenfeldt & Gerbaulet, *Bot. Jahrb. Syst.* 111(4): 484-485. 1990. Basionym: *Conicosia alborosea*.
Conicosia pugioniformis ssp. **muirii** (N. E. Brown) Ihlenfeldt & Gerbaulet, *Bot. Jahrb. Syst.* 111(4): 485. 1990. Basionym: *Conicosia muirii*.
Conophytum rugosum ssp. **sanguineum** S. Hammer, *Cact. Succ. J. (US)* 62(1): 25-27, ills. 1990. Typus: *Mitchell* 502 (NBG). [The species name is incorrectly attributed to Mitchell & S. Hammer.]
Erepsia sect. **Crassifoliae** Liede, *Beitr. Biol. Pfl.* 64(3): 466-467. 1990. *Nom. inval.* (Art. 37.1).
Erepsia sect. **Intectatae** Liede, *Beitr. Biol. Pfl.* 64(3): 448. 1990. *Nom. inval.* (Art. 37.1).
Erepsia sect. **Tectatae** Liede, *Beitr. Biol. Pfl.* 64(3): 452-453. 1990. *Nom. inval.* (Art. 37.1).
Erepsia babiloniae Liede, *Beitr. Biol. Pfl.* 64(3): 467. 1990. Typus: *Esterhuysen* 32319a (BOL).
Erepsia dubia Liede, *Beitr. Biol. Pfl.* 64(3): 449-450. 1990. Typus: *Liede* 16984 (HBG).
Erepsia lacera (Haworth) Liede, *Beitr. Biol. Pfl.* 64(3): 470. 1990. Basionym: *Mesembryanthemum lacerum*.
Erepsia pillansii (Kensit) Liede, *Beitr. Biol. Pfl.* 64(3): 471. 1990. Basionym: *Mesembryanthemum pillansii*.
Galenia glandulifera Bittrich, *Bothalia* 20(2): 217-219. 1990. Typus: *Gerbaulet et Struck* 24236 (HBG, PRE).
Trianthes kimberleyi Bittrich & Jensen in Bittrich, *Nuytsia* 7(2): 118-120, ill. 1990. Typus: *Bittrich et Jensen* 18618 (HBG, CANB, K, PERTH).

ALOEACEAE

- Aloe** subsect. **Bowiea** (Haworth) G. F. Smith, *South Afr. J. Bot.* 56(3): 306. 1990. Basionym: *Bowiea*. [Sphalm. 'Bowieae'. Lectotype: *Aloe bowieae*.]
Aloe subsect. **Graminialoe** (Reynolds) G. F. Smith, *South Afr. J. Bot.* 56(3): 306. 1990. Basionym: *Aloe* sect. *Graminialoe*.
Aloe alfredii Rauh, *Cact. Succ. J. (US)* 62(5): 232-233, ills. 1990. Typus: *Rauh* 68690 (HEID).
Aloe ciliaris var. **redacta** S. Carter, *Kew Bull.* 45(4): 643. 1990. Typus: *Wisura* 2640 (K).
Aloe delphinensis Rauh, *Cact. Succ. J. (US)* 62(5): 230-232, ills. 1990. Typus: *Rauh* 68629a (HEID).
Aloe kulalensis Newton & Beentje, *Cact. Succ. J. (US)* 62(5): 251-252, ills. 1990. Typus: *Newton* 3219 (K, EA).
Aloe powysorum Newton & Beentje, *Cact. Succ. J. (US)* 62(5): 252-255, ills. 1990. Typus: *Beentje, Newton et Powys* 4124 (EA, K, MO).
Aloe scabrifolia Newton & Lavranos, *Cact. Succ. J. (US)* 62(5): 219-221, ills. 1990. Typus: *Newton* 3476 (K, EA, MO).
Aloe tugenensis Newton & Lavranos, *Cact. Succ. J. (US)* 62(5): 215-217, ills. 1990. Typus: *Newton* 3514 (K, EA, MO).
Haworthia cv. **Kewensis** Kimmach & Trager, *Cact. Succ. J. (US)* 62(2): 79. 1990. [= *Haworthia kewensis*, a plant of unknown hybrid origin.]

APOCYNACEAE

- Adenium** × **arizona** Kimmach & Trager, *Cact. Succ. J. (US)* 62(2): 75. 1990. [= *Adenium obesum* 'Red Everbloomer' × *A. swazicum* 'Boyce Thompson', created by M. Dimmitt.]
Adenium × **arizona** cv. **Crimson Star** Kimmach & Trager, *Cact. Succ. J. (US)* 62(2): 75. 1990. [A selection of the grex.]
Adenium × **arizona** cv. **Volcanic Sunset** Kimmach & Trager, *Cact. Succ. J. (US)* 62(2): 75. 1990. [A selection of the grex.]

ASCLEPIADACEAE

- Angolluma** Munster, *Cact. Succ. J. New South Wales* 17(4): 63-64. 1990. Typus: *Caralluma decaisneana*. [See M. G. Gilbert in *Bradleya* 8: 20 (in adnot.), 1990, for a discussion on the validity and typification of this genus.]
Angolluma decaisneana (Lemaire) Munster, *Cact. Succ. J. New South Wales* 17(4): 64. 1990. *Nom. inval.* (Art. 33.2), based on *Boucerosia decaisneana*.
Brachystelma kituloensis Goyder, *Kew Bull.* 45(4): 729. 1990. Typus: *Brummitt et*

- Goldblatt* 18092 (K, DSM, MO).
- Caralluma** subgen. **Boucerosia** (Wight & Arnott) M. G. Gilbert, *Bradleya* 8: 15. 1990. Basionym: *Boucerosia*.
- Caralluma** subgen. **Desmidorchis** (Ehrenberg) M. G. Gilbert, *Bradleya* 8: 19. 1990. Basionym: *Desmidorchis*.
- Caralluma** subgen. **Urmalcala** M. G. Gilbert, *Bradleya* 8: 15. 1990. Typus: *Caralluma tuberculata* N. E. Brown.
- Caralluma edwardsiae** (M. G. Gilbert) M. G. Gilbert, *Bradleya* 8: 13. 1990. Basionym: *Caralluma gracilipes* ssp. *edwardsiae*.
- Caralluma forskaolii** (Decaisne) Plowes, *Asklepios* No. 50: 16. 1990. Basionym: *Desmidorchis forskaolii*.
- Caralluma longiflora** M. G. Gilbert, *Bradleya* 8: 12-14, ills. 1990. Typus: *Thulin et Warfa* 4604 (K).
- Ceropegia barbiger** Bruyns, *Kew Bull.* 44: 721-723. 1989. Typus: *Lavranos et Gilbert* 9241 (K).
- Ceropegia poluniana** Bruyns, *Kew Bull.* 44: 723-726. 1989. Typus: *Bruyns* 2497 (K).
- Desmidorchis** subgen. **Aperanthes** Munster, *Cact. Succ. J. New South Wales* 17: 65. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Probably an orthographic error for 'Apteranthes'.]
- Desmidorchis** subgen. **Teberocousia** Munster, *Cact. Succ. J. New South Wales* 17: 65. 1990. *Nom. inval.* (Art. 36.1, 37.1).
- Dischidia torricellensis** (Schlechter) P. I. Forster, *Austrobaileya* 3(2): 288. 1990. Basionym: *Spathidolepis torricellensis*.
- Duvalia** sect. **Arabica** Meve & Albers, *Mitt. Inst. Allg. Bot. Hamburg* 23b: 597. 1990. Typus: *Duvalia sulcata* N. E. Brown.
- Hoya alagensis** Schlechter *ex* Kloppenburg, *Fraterna* 1990(3rd Quarter): Suppl.: I [2 pp.], ills. 1990. Typus: *Merrill* 5542 (B). [Based on an unpublished name by R. Schlechter.]
- Hoya burtoniae** Kloppenburg, *Hoyan* 12(1: part 2): i-iii, ills. 1990. Typus: *Loher* 1 (UC).
- Hoya cembra** Kloppenburg, *Fraterna* 1990(3rd Quarter): Suppl.: II [2 pp.], ills. 1990. Typus: *Merrill* 5650 (B).
- Hoya compacta** C. M. Burton, *Hoyan* 12(2: Part 2): ii-iii, ills. 1990. Typus: *Burton* 101 (US) [Ex cult.]. [= *Hoya carnosa* 'Compacta' hort.]
- Hoya edanoi** C. M. Burton, *Hoyan* 12(2: Part 2): i, ills. 1990. *Nom. inval.* (Art. 37.1). [Based on two syntypes.]
- Hoya halconensis** Schlechter *ex* Kloppenburg, *Fraterna* 1990(3rd Quarter): Suppl.: III [2 pp.], ills. 1990. Typus: *Merrill* 5674 (B). [Based on an unpublished name by R. Schlechter.]
- Hoya madulidii** Kloppenburg, *Fraterna* 1990(3rd Quarter): Suppl.: IV [3 pp.], ills. 1990. Typus: *Bolster* 357 (B, UC).
- Hoya palawanica** Schlechter *ex* Kloppenburg, *Fraterna* 1990(3rd Quarter): Suppl.: V [2 pp.], ills. 1990. Typus: *Foxworthy* 834 (B). [Based on an unpublished name of R. Schlechter.]
- Hoya paziae** Kloppenburg, *Fraterna* 1990(3rd Quarter): Suppl.: VI [2 pp.], ills. 1990. Typus: *Merrill* 5618 (B).
- Pachycymbium abayense** (M. G. Gilbert) M. G. Gilbert, *Bradleya* 8: 23. 1990. Basionym: *Caralluma abayensis*.
- Pachycymbium araysianum** (Lavranos & Bilaidi) M. G. Gilbert, *Bradleya* 8: 23. 1990. Basionym: *Stultitia araysiana*.
- Pachycymbium baldratii** (White & Sloane) M. G. Gilbert, *Bradleya* 8: 24. 1990. Basionym: *Caralluma baldratii*.
- Pachycymbium baldratii** ssp. **subterraneum** (Bruce & Bally) M. G. Gilbert, *Bradleya* 8: 24. 1990. Basionym: *Caralluma subterranea*.
- Pachycymbium chrysostephanum** (Deflers) M. G. Gilbert, *Bradleya* 8: 24. 1990. Basionym: *Stapelia chrysostephana*.
- Pachycymbium circes** (M. G. Gilbert) M. G. Gilbert, *Bradleya* 8: 22. 1990. Basionym: *Caralluma circes*.
- Pachycymbium commutatum** (A. Berger) M. G. Gilbert, *Bradleya* 8: 23. 1990. Basionym: *Caralluma commutata*.
- Pachycymbium decaisneanum** (Lemaire) M. G. Gilbert, *Bradleya* 8: 22. 1990. Basionym: *Boucerosia decaisneana*.
- Pachycymbium defersianum** (Lavranos) M. G. Gilbert, *Bradleya* 8: 22. 1990. Basionym: *Caralluma defersiana*.
- Pachycymbium denboefii** (Lavranos) M. G. Gilbert, *Bradleya* 8: 22. 1990. Basionym: *Caralluma denboefii*.
- Pachycymbium distinctum** (E. A. Bruce) M. G. Gilbert, *Bradleya* 8: 22. 1990. Basionym: *Caralluma distincta*.
- Pachycymbium dummeri** (N. E. Brown) M. G. Gilbert, *Bradleya* 8: 22. 1990. Basionym: *Stapelia dummeri*.
- Pachycymbium eremastrum** (O. Schwartz) M. G. Gilbert, *Bradleya* 8: 24. 1990. Basionym: *Caralluma eremastrum*.
- Pachycymbium gemugofanum** (M. G. Gilbert) M. G. Gilbert, *Bradleya* 8: 23. 1990. Basionym: *Caralluma gemugofana*.
- Pachycymbium huernioides** (Bally) M. G. Gilbert, *Bradleya* 8: 22. 1990. Basionym: *Caralluma huernioides*.
- Pachycymbium kochii** (Lavranos) M. G. Gilbert, *Bradleya* 8: 21-22. 1990. Basionym: *Caralluma kochii*.
- Pachycymbium laikipiense** M. G. Gilbert, *Bradleya* 8: 24-25, ills. 1990. Typus: *Bally* 12376 (K) [Ex cult. G. Classen.].
- Pachycymbium laticoronum** (M. G. Gilbert) M. G. Gilbert, *Bradleya* 8: 23. 1990. Basionym: *Caralluma sprengeri* ssp. *laticorona*.
- Pachycymbium lugardii** (N. E. Brown) M. G. Gilbert, *Bradleya* 8: 28. 1990. Basionym: *Caralluma lugardii*.
- Pachycymbium luntii** (N. E. Brown) M. G. Gilbert, *Bradleya* 8: 24. 1990. Basionym: *Caralluma luntii*.
- Pachycymbium meintjesianum** (Lavranos) M. G. Gilbert, *Bradleya* 8: 24. 1990. Basionym: *Caralluma meintjesiana*.
- Pachycymbium miscellum** (N. E. Brown) M. G.

- Gilbert, Bradleya 8: 28. 1990. Basionym: *Stapelia miscella*.
- Pachycymbium rogersii** (L. Bolus) M. G. Gilbert, Bradleya 8: 28. 1990. Basionym: *Stapelia rogersii*.
- Pachycymbium sacculatum** (N. E. Brown) M. G. Gilbert, Bradleya 8: 21, ill. 1990. Basionym: *Caralluma sacculata*.
- Pachycymbium schweinfurthii** (A. Berger) M. G. Gilbert, Bradleya 8: 23. 1990. Basionym: *Caralluma schweinfurthii*.
- Pachycymbium sprengeri** (N. E. Brown) M. G. Gilbert, Bradleya 8: 22. 1990. Basionym: *Caralluma sprengeri*.
- Pachycymbium sprengeri** ssp. *foetidum* (M. G. Gilbert) M. G. Gilbert, Bradleya 8: 23. 1990. Basionym: *Caralluma sprengeri* ssp. *foetida*.
- Pachycymbium sprengeri** ssp. *ogadense* (M. G. Gilbert) M. G. Gilbert, Bradleya 8: 23. 1990. Basionym: *Caralluma sprengeri* ssp. *ogadense*.
- Pachycymbium tubiforme** (Bruce & Bally) M. G. Gilbert, Bradleya 8: 21. 1990. Basionym: *Caralluma tubiformis*.
- Pachycymbium ubomboense** (Verdoorn) M. G. Gilbert, Bradleya 8: 25, 28. 1990. Basionym: *Caralluma ubomboensis*.
- Pachycymbium vibratilis** (Bruce & Bally) M. G. Gilbert, Bradleya 8: 22. 1990. Basionym: *Caralluma vibratilis*.
- Pachycymbium wilsonii** (Bally) M. G. Gilbert, Bradleya 8: 22. 1990. Basionym: *Caralluma wilsonii*.
- Pachycymbium wissmannii** (O. Schwartz) M. G. Gilbert, Bradleya 8: 24. 1990. Basionym: *Caralluma wissmannii*.
- Rhytidocaulon tortum** (N. E. Brown) M. G. Gilbert, Bradleya 8: 29. 1990. Basionym: *Caralluma torta*.
- Stapelianthus calcarophilus** Morat, Bull. Mus. Nation. Hist. Nat. Paris, sect. B, Adansonia 12(1): 3-6, ill. 1990. Typus: Morat 3973 (P).
- Senecio mweruensis** ssp. *saginitus* (Halliday) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Kleinia saginata*.
- Senecio nyikensis** var. *hildebrandtii* (Vatke) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Notonia hildebrandtii*.
- Senecio oxyriifolius** ssp. *milanjanus* (Moore) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Senecio milanjanus*.
- Senecio oxyriifolius** ssp. *tropaeolifolius* (Macowan) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Senecio tropaeolifolius*.
- Senecio* × *peregrinus* (Kunkel) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. *Nom. inval.*, based on *Kleinia* × *eregrina*, *nom. inval.* (Art. 9.5).
- Senecio picticaulis** ssp. *patriciae* (Jeffrey) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Kleinia patriciae*.
- Senecio polytomus** ssp. *squarrosus* (Cufodontis) Rowley, Cact. Succ. J. (US) 62(6): 282-283. 1990. Basionym: *Kleinia squarrosa*.
- Senecio rowleyanus** cv. *String-of-Pearls* Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. [Validity of name not assessed.]
- Senecio scaposus** var. *addoensis* (Compton) Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. Basionym: *Senecio addoensis*.
- Senecio sempervivus** ssp. *grantii* (Oliver & Hiem) Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. Basionym: *Notonia grantii*.
- Senecio talinoides** ssp. *aizoides* (De Candolle) Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. Basionym: *Kleinia aizoides*.
- Senecio talinoides** ssp. *chordifolius* (Hooker fil.) Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. Basionym: *Senecio chordifolius*.
- Senecio talinoides** ssp. *cylindricus* (A. Berger) Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. Basionym: *Kleinia cylindrica*.
- Senecio talinoides** ssp. *mandraliscae* (Tineo) Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. Basionym: *Kleinia mandraliscae*.

ASTERACEAE

- Othonna retrorsa** var. *spektakelensis* (Compton) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Othonna spektakelensis*.
- Senecio articulatus** cv. *Candlelight* Rowley, Cact. Succ. J. (US) 62(6): 283. 1990. [Validity of name not assessed.]
- Senecio descoingsii** (Humbert) Jacobsen ex Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. *Nom. inval.*, based on *Notonia descoingsii*, *nom. inval.* (Art. 37.1). [Combination first invalidly published by Jacobsen in Sukk.-Lex., 321, 1970.]
- Senecio longiflorus** ssp. *madagascariensis* (Humbert) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Notonia madagascariensis*.
- Senecio longiflorus** ssp. *scottii* (Balfour) Rowley, Cact. Succ. J. (US) 62(6): 282. 1990. Basionym: *Senecio scottii*.

CACTACEAE

- Astrophytum asterias** cv. *Super Kabuto* R. Mayer, Succulenta 69(7-8): 1068, ill. 1990.
- × **Cephalophyllum** Mottram, Contr. New Class. Cact. Fam., 26. 1990. [= *Cephalocereus* × *Epiphyllum*.]
- Cerei** Mottram, Contr. New Class. Cact. Fam., 4, 10. 1990. Typus: *Cereus* Miller. [Validated by reference to *Cereae* Salm-Dyck 1845 (as 'Cereastreae', corrected), published at the rank of *linea*.]
- × **Cerephyllum** Mottram, Contr. New Class. Cact. Fam., 26. 1990. [= *Cereus* × *Epiphyllum*.]
- Coryphantha wohlschlagerei** Holzeis, Kakt. and. Sukk. 41(3): 50-52, ill. 1990. Typus: *Wohlschlagerei* 223 (WU).
- × **Disberocereus** E. Meier, Kakt. and. Sukk. 41(4): 80. 1990. [= *Disocactus* × *Weberocereus*.]
- Discocactus zehntneri** var. *albispinus* (Buining &

- Brederoo) P. J. Braun, *Succulenta* 69(10): 215. 1990. Basionym: *Discocactus albispinus*.
- Discocactus zehntneri** var. **araneispinus** (Buining & Brederoo) P. J. Braun, *Succulenta* 69(10): 215. 1990. Basionym: *Discocactus araneispinus*.
- Discocactus zehntneri** var. **boomianus** (Buining & Brederoo) P. J. Braun, *Succulenta* 69(10): 218. 1990. Basionym: *Discocactus boomianus*.
- Discocactus zehntneri** var. **horstiorum** P. J. Braun, *Succulenta* 69(10): 218, ill. (p. 220). 1990. Typus: *Horst 667* (ZSS, B, K, KOELN).
- × **Disophyllum** cv. **Frühlingsahnen** Petersen, *Kakt. and. Sukk.* 41(10): 238-239, ill. 1990. [*Disocactus macranthus* fa. × ?]
- × **Disophyllum** cv. **Frühlingselfe** Petersen, *Kakt. and. Sukk.* 41(10): 238-239, ill. 1990. [*Disocactus macranthus* fa. × ?]
- × **Disophyllum** cv. **Frühlingsgold** Petersen, *Kakt. and. Sukk.* 41(10): 238-239, ill. 1990. [*Disocactus macranthus* fa. × ?]
- × **Disophyllum** cv. **Frühlingspracht** Petersen, *Kakt. and. Sukk.* 41(10): 238-239, ill. 1990. [*Disocactus macranthus* fa. × ?]
- × **Disophyllum** cv. **Frühlingsreigen** Petersen, *Kakt. and. Sukk.* 41(10): 238-239, ill. 1990. [*Disocactus macranthus* fa. × ?]
- × **Disophyllum** cv. **Frühlingsstern** Petersen, *Kakt. and. Sukk.* 41(10): 238-239, ill. 1990. [*Disocactus macranthus* fa. × ?]
- × **Disophyllum** cv. **Frühlingstraum** Petersen, *Kakt. and. Sukk.* 41(10): 238-239, ill. 1990. [*Disocactus macranthus* fa. × ?]
- × **Disoselenicereus** E. Meier, *Kakt. and. Sukk.* 41(4): 80. 1990. [= *Disocactus* × *Selenicereus*.]
- × **Echinobergia** Mottram, *Contr. New Class. Cact. Fam.*, 35. 1990. [Validity depends on the application of the name *Echinofossulocactus*.] [= *Echinofossulocactus* × *Leuchtenbergia*.]
- Echinocacti* Mottram, *Contr. New Class. Cact. Fam.*, 4, 10. 1990. *Nom. inval.* (Art. 36.1). [Published at the rank of *linea*.]
- Echinocereus metornii** G. R. W. Frank, *Kakt. and. Sukk.* 41(10): 210-218, ills., SEM-ills. 1990. Typus: *Metorn 49* (ZSS).
- Echinocereus mombergerianus** G. R. W. Frank, *Kakt. and. Sukk.* 41(11): 261. 1990. Typus: *Momberger 1* (ZSS). [First published (with unclear typification and therefore invalidly [Art. 37.1]) in *l.c.* 40(11): 272-277, ills., 1989 (cf. RPS 40).]
- Echinocereus schereri** G. R. W. Frank, *Kakt. and. Sukk.* 41(8): 154-159, ills., SEM-ills. 1990. Typus: *Scherer 123* (ZSS).
- × **Echinoparodia** Mottram, *Contr. New Class. Cact. Fam.*, 36. 1990. [= *Echinopsis* × *Parodia*.]
- Echinopsis aurea** var. **albiflora** (Rausch) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Lobivia aurea* var. *albiflora*.
- Echinopsis aurea** var. **callochrysea** (Ritter) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Hymenorebutia aurea* var. *callochrysea*.
- Echinopsis aurea** var. **catamarcensis** (Ritter) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Hymenorebutia aurea* var. *catamarcensis*.
- Echinopsis aurea** var. **depressicostata** (Ritter) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Hymenorebutia aurea* var. *depressicostata*.
- Echinopsis aurea** var. **dobeana** (Dölz) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Lobivia dobeana*.
- Echinopsis aurea** var. **fallax** (Oehme) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Lobivia fallax*.
- Echinopsis aurea** var. **lariojensis** (Ritter) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Hymenorebutia aurea* var. *lariojensis*.
- Echinopsis aurea** var. **sierragrاندensis** (Rausch) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Lobivia aurea* var. *sierragrاندensis*. [First invalidly published (Art. 33.2) by Lambert in *Succulenta* 67(9): 182, 1988 (cf. RPS 39).]
- Echinopsis aurea** var. **tortuosa** (Rausch) Ullmann, *Kaktusy* 26(1): 7. 1990. Basionym: *Lobivia aurea* var. *tortuosa*.
- Epiphyllum floribundum** Kimmach, *Cact. Succ. J. (US)* 62(2): 83-85, ills. 1990. Typus: *Mathias* s.n. (HNT, MO, UCLA, US).
- Epiphyllum laui** Kimmach, *Cact. Succ. J. (US)* 62(3): 148-151, ills. 1990. Typus: *Lau 1319* (HNT, CAS, MEXU).
- × **Espostocactus** Mottram, *Contr. New Class. Cact. Fam.*, 38. 1990. [= *Espostoa* × *Cleistocactus*.]
- Frailea buenekerii** Abraham, *Succulenta* 69(3): 64-68, ills. 1990. Typus: *Büneker 27* (KOELN [Succulentarium]).
- Gymnocalycium alboareolatum** var. **ramosum** Rausch, *AG Gymnocalycium* 3(2): 31, ills. 1990. Typus: *Rausch 716b* (ZSS).
- Gymnocalycium obductum** Piltz, *Succulenta* 69(4): 73-78, ills., SEM-ills. 1990. Typus: *Piltz 121/1* (U).
- Gymnocalycium rauschii** H. Till & W. Till, *Succulenta* 69(2): 27-31, ills., SEM-ills. 1990. Typus: *Rausch 350* p.p. (WU) [Ex cult. H. Till.]. [German translation and emendation in *AG Gymnocalycium* 3(4): 41-42, ills., 1990.]
- Gymnocalycium tanningaense** Piltz, *Kakt. and. Sukk.* 41(2): 22-26, ills., SEM-ills. 1990. Typus: *Piltz 212/6* (KOELN [Succulentarium]).
- Hatiora gaertneri* fa. *serrata* (Lindinger) Süpplie, *Rhipsalidinae*, [63]. 1990. *Nom. inval.*, based on *Rhipsalidopsis serrata*, *nom. inval.* (Art. 36.1). [Basionym not actually given in the publication.]
- Hatiora rosea* fa. *remanens* (Backeberg) Süpplie, *Rhipsalidinae*, [64]. 1990. *Nom. inval.*, based on *Rhipsalidopsis rosea* var. *remanens*, *nom. inval.* (Art. 9.5, 37.1).
- Hatiora salicornioides* fa. *bambusoides* (F. A. C. Weber) Süpplie, *Rhipsalidinae*, [65]. 1990. Basionym: *Rhipsalis salicornioides* var. *bambusoides*.
- Hatiora salicornioides* fa. *cylindrica* (Britton & Rose) Süpplie, *Rhipsalidinae*, [65]. 1990.

- Basionym: *Hatoriya cylindrica*.
- Hatoriya salicornioides* fa. *gracilis* (F. A. C. Weber) Süpplie, Rhipsalidinae, [66]. 1990. *Nom. inval.* (Art. 33.2), based on *Rhipsalis gracilis*. [Sphalm. 'gracilles'. The basionym citation is completely wrong, and the name may not be valid at all.]
- Hatoriya salicornioides* fa. *stricta* (F. A. C. Weber) Süpplie, Rhipsalidinae, [66]. 1990. *Nom. inval.* (Art. 33.2), based on *Rhipsalis stricta*. [The place given as basionym citation is completely wrong.]
- Hatoriya salicornioides* fa. *villigera* (K. Schumann) Süpplie, Rhipsalidinae, [66]. 1990. Basionym: *Hariota villigera*.
- Heliocereus aurantiacus** var. **blomianus** Kimmach, *Cact. Succ. J. (US)* 62(6): 268-271, ills. 1990. Typus: *MacDougall* A202 (HNT, CAS, US).
- Leocereus bahiensis** var. **barreirensis** P. J. Braun & E. Esteves Pereira, *Kakt. and. Sukk.* 41(9): 205. 1990. Typus: *Esteves Pereira* 118 (UFG 12.360, ZSS).
- Leocereus bahiensis** var. **exiguospinus** P. J. Braun & E. Esteves Pereira, *Kakt. and. Sukk.* 41(9): 205. 1990. Typus: *Esteves Pereira* 135 (UFG, ZSS).
- Leocereus bahiensis** var. **robustispinus** P. J. Braun & E. Esteves Pereira, *Kakt. and. Sukk.* 41(9): 205. 1990. Typus: *Braun* 702 (ZSS).
- Leocereus bahiensis** var. **urandianus** (Ritter) P. J. Braun & E. Esteves Pereira, *Kakt. and. Sukk.* 41(9): 205. 1990. Basionym: *Leocereus urandianus*.
- Leocereus estevesii** P. J. Braun, *Kakt. and. Sukk.* 41(9): 204-205. 1990. Typus: *Esteves Pereira* 207 (UFG 12.380, B, ZSS).
- Lepismium cruciforme** fa. **anceps** (F. A. C. Weber) Süpplie, Rhipsalidinae, [11]. 1990. Basionym: *Rhipsalis anceps*.
- Lepismium cruciforme** fa. **myosurus** (Salm-Dyck) Süpplie, Rhipsalidinae, [11]. 1990. Basionym: *Cereus myosurus*.
- Lepismium erectum** (Ritter) Süpplie, Rhipsalidinae, [15]. 1990. Basionym: *Pfeiffera erecta*. [Sphalm. 'erecta'.]
- Lepismium mataralensis** (Ritter) Süpplie, Rhipsalidinae, [13]. 1990. Basionym: *Pfeiffera mataralensis*.
- Lepismium mataralensis** var. **floccosa** (Ritter) Süpplie, Rhipsalidinae, [13]. 1990. Basionym: *Pfeiffera mataralensis* var. *floccosa*. [Basionym erroneously given as *Pfeiffera mataralensis*, treated as bibliographic error.]
- Lobivia haematantha** fa. **sublimiflora** (Backeberg) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia sublimiflora*.
- Lobivia hertrichiana** fa. **binghamiana** (Backeberg) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia binghamiana*.
- Lobivia hertrichiana** fa. **incaica** (Backeberg) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia incaica*.
- Lobivia hertrichiana** fa. **minuta** (Ritter) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia minuta*.
- Lobivia jajoiana** var. **vatteri** (Krainz) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia vatteri*.
- Lobivia lateritia** var. **cintiensis** (Cardenas) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia cintiensis*.
- Lobivia pentlandii** fa. **brunneo-rosea** (Backeberg) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia brunneo-rosea*. [Sphalm. 'brunneo-rosea'.]
- Lobivia pentlandii** fa. **schneideriana** (Backeberg) Ullmann, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia schneideriana*.
- Lobivia wrightiana** fa. **chilensis** hort. ex Herzog, *Kakt. / Sukk.* 24: 102. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1989, published 1990. Published as nude name.]
- Lobivia zecheri** fa. **ferruginea** hort. ex Herzog, *Kakt. / Sukk.* 24(3/4): 108. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1989, published 1990. Published as nude name.]
- Lobivia zecheri** fa. **fungiflora** (Braun) Herzog, *Kakt. / Sukk.* 24: 107. 1990. *Nom. inval.*, based on *Lobivia fungiflora*, *nom. inval.* (Art. 36.1, 43.1). [Dated 1989, published 1990. Published as provisional invalid name.]
- Mammillaria* subgen. *Cryptocarpa* Keizer, *Succulenta* 69(5): 102. 1990. *Nom. illeg.* (Art. 63.1). [Typus: *Mammillaria longiflora*.]
- Mammillaria dasyacantha* (D. Hunt) Reppenhagen, *Kakt. and. Sukk.* 41(2): 39. 1990. *Nom. inval.* (Art. 33.2), based on *Mammillaria laui* fa. *dasyacantha*. [Non *Mammillaria dasyacantha* Engelm., cf. Art. 64.1.]
- Mammillaria laui* var. *subducta* (D. Hunt) Reppenhagen, *Kakt. and. Sukk.* 41(2): 39. 1990. *Nom. inval.* (Art. 33.2), based on *Mammillaria laui* fa. *subducta*.
- Mammillaria linaresensis** R. & F. Wolf, *Kakt. and. Sukk.* 41(11): 262-264, ills. 1990. Typus: *Wolf* 84/84 (WU).
- × **Myrtocereus** Mottram, *Contr. New Class. Cact. Fam.*, 59. 1990. [= *Myrtillocactus* × *Nyctocereus*.]
- Neobuxbaumia squamulosa** Scheinvar & Sanchez-Mejorada, *Cact. Suc. Mex.* 35(1): 13-18, ills., SEM-ill. 1990. Typus: *Sanchez-Mejorada et al.* 4250 (MEXU).
- Notocactus* sect. *Astrophiolatae* Havlicek, *Kakt. Vilag* 18(4): 80. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus alacriportanus*. Sphalm. for 'Astrophiolatae'? Dated 1988.]
- Notocactus* sect. *Campanulatiflorales* Havlicek, *Kakt. Vilag* 18(4): 76. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus mammulosus*. Dated 1988.]
- Notocactus* sect. *Infundibuliflorales* Havlicek, *Kakt. Vilag* 18(4): 73. 1989. Typus: *Notocactus ottonis*. Dated 1988.
- Notocactus* sect. *Interflorales* Havlicek, *Kakt. Vilag* 18(4): 77. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus rauschii*. Dated 1988. Used as provisional name since 1976.]

- Notocactus* sect. *Malacocarpoformia* Havlicek, Kakt. Vilag 18(4): 78. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus corynodes*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* sect. *Microseminiformia* Havlicek, Kakt. Vilag 18(4): 77. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus schumannianus*. Dated 1988. Used as provisional name since 1976. As this section contains all the taxa which can serve as lectotype for the genus, the name would be invalid under Art. 22 also.]
- Notocactus* sect. *Protoseminiformia* Havlicek, Kakt. Vilag 18(4): 78. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus graessneri*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* ser. *Brasilianae* Havlicek, Kakt. Vilag 18(4): 79. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus longispinus*. Dated 1988.]
- Notocactus* ser. *Buxbaumianae* Havlicek, Kakt. Vilag 18(4): 80. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus alacriportanus*. Dated 1988.]
- Notocactus* ser. *Cephalioideae* (Fric & Kreuzinger) Havlicek, Kakt. Vilag 18(4): 77. 1989. *Nom. inval.* (Art. 22). [Dated 1988. As this series contains all the taxa which can serve as lectotype for the genus, the name will be invalid.]
- Notocactus* ser. *Corynodinae* Havlicek, Kakt. Vilag 18(4): 79. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus corynodes*. Dated 1988.]
- Notocactus* ser. *Fricianae* Havlicek, Kakt. Vilag 18(4): 75. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus minimus*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* ser. *Graessnerianae* Havlicek, Kakt. Vilag 18(4): 78. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus graessneri*. Dated 1988.]
- Notocactus* ser. *Herterianae* Havlicek, Kakt. Vilag 18(4): 75. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus herteri*. First used provisionally since 1976. Dated 1988.]
- Notocactus* ser. *Krainzianae* Havlicek, Kakt. Vilag 18(4): 78. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus magnificus*. Dated 1988.]
- Notocactus* ser. *Mammulosi* Fric & Kreuzinger ex Havlicek, Kakt. Vilag 18(4): 76. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus* group *Mammulosi* in Kreuzinger, Verzeichn. Amer. and. Sukk., 21, 1935. Dated 1988.]
- Notocactus* ser. *Melchersianae* Havlicek, Kakt. Vilag 18(4): 77. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus mueller-melchersii*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* ser. *Paucispini* (Fric & Kreuzinger) Havlicek, Kakt. Vilag 18(4): 73. 1989. Basionym: *Notocactus* group *Paucispini*. [Dated 1988. First used as a provisional name since 1976. Validity of name not assessed.]
- Notocactus* ser. *Rauschianae* Havlicek, Kakt. Vilag 18(4): 77. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus rauschii*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* ser. *Scopanae* Havlicek, Kakt. Vilag 18(4): 74. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus scopae*. First used provisionally since 1976.]
- Notocactus* ser. *Setacei* (Fric & Kreuzinger) Havlicek, Kakt. Vilag 18(4): 75. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus concinnus*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* ser. *Uebelmannianae* Havlicek, Kakt. Vilag 18(4): 75. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus uebelmannianus*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* ser. *Werdermannianae* Havlicek, Kakt. Vilag 18(4): 75. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus werdermannianus*. Dated 1988. Used as provisional name since 1976.]
- Notocactus* subgen. *Acanthocephala* (Backeberg) Havlicek, Kakt. Vilag 18(4): 78. 1989. Basionym: *Acanthocephala*. [Dated 1988.]
- Notocactus* subgen. *Erioccephala* (Backeberg) Havlicek, Kakt. Vilag 18(4): 77. 1989. *Nom. inval.* (Art. 22). [Dated 1988. This subgenus contains all the taxa from which the lectotype for the genus can be selected and is therefore invalid.]
- Notocactus* subgen. *Notobrasilia* Havlicek, Kakt. Vilag 18(4): 79-80. 1989. *Nom. inval.* (Art. 36.1). [Based on *Notocactus alacriportanus*. Dated 1988.]
- Notocactus* subser. *Arechavaletai* Havlicek, Kakt. Vilag 18(4): 73. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Blaawianus* Havlicek, Kakt. Vilag 18(4): 76. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Concinnus* Havlicek, Kakt. Vilag 18(4): 75. 1989. *Nom. inval.* (Art. 36.1, 37.1).
- Notocactus* subser. *Floricomus* Havlicek, Kakt. Vilag 18(4): 76. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Glaucinus* Havlicek, Kakt. Vilag 18(4): 74. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Linkii* Havlicek, Kakt. Vilag 18(4): 74. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Mammulosus* Havlicek, Kakt. Vilag 18(4): 76. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Muricatus* Havlicek, Kakt. Vilag 18(4): 74. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Otonis* Havlicek, Kakt. Vilag 18(4): 73. 1989. *Nom. inval.* (Art. 36.1). [Notocactus otonis. Dated 1988.]
- Notocactus* subser. *Oxycostatus* Havlicek, Kakt. Vilag 18(4): 73. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]
- Notocactus* subser. *Tabularis* Havlicek, Kakt. Vilag 18(4): 76. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988.]

- Notocactus concinnus** fa. **joadii** (Arechavaleta) Havlicek, Kakt. Vilag 18(4): 75. 1989. Basionym: *Echinocactus concinnus* var. *joadii*. [Dated 1988.]
- Notocactus darilhoensis** Prestlé, *Minimus* 21(4): 71-73, ill. 1990. Based on Prestlé 354. *Nom. inval.* (Art. 36.1).
- Notocactus gerloffii** Havlicek, Kakt. Vilag 18(4): 77. 1989. [*Nom. nov. pro Notocactus fuscus* var. *longispinus* Ritter 1979. Dated 1988.]
- Notocactus graessneri** var. *stellatus* hort. ex Havlicek, Kakt. Vilag 18(4): 78. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Used as provisional name. Dated 1988.]
- Notocactus grossei** fa. **aureispinus** (Ritter) Theunissen ex Havlicek, Kakt. Vilag 18(4): 78. 1989. Basionym: *Eriocactus grossei* var. *aureispinus*. [The combination is ascribed to Theunissen. Dated 1988.]
- Notocactus incomptus** Gerloff, *Internoto* 11(2/3): 37-41, ills., SEM-ill. 1990. Typus: *Horst et Uebelmann* HU 96 (1967) (ZSS).
- Notocactus infernensis** hort. ex Gerloff, *Internoto* 11(4): 155-157, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus leninghausii** fa. **minor** (Ritter) Theunissen ex Havlicek, Kakt. Vilag 18(4): 78. 1989. Basionym: *Eriocactus leninghausii* var. *minor*. [The combination is ascribed to Theunissen.]
- Notocactus linkii** var. **albispinus** Abraham, *Succulenta* 69(5): 117-120, ills. 1990. Typus: *Abraham* 281 (KOELN). [= *N. ottonis* var. *albispinus* Backeb., *nom. inval.* (Art. 37). First used by Gerloff & Schäfer in *Internoto* 10(1): 11-15, ills., 1989 (cf. RPS 40).]
- Notocactus mammulosus** var. **albispinus** Oster, *Internoto* 11(2/3): 94, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus mammulosus** var. **arbolitoensis** Oster, *Internoto* 11(2/3): 94, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus mammulosus** var. **artinensis** Oster, *Internoto* 11(2/3): 94, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus mammulosus** var. **gracilior** Oster, *Internoto* 11(2/3): 94, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus mammulosus** var. **gracilispinus** hort. ex Bergner, *Internoto* 11(4): 146. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as nude name.]
- Notocactus mammulosus** var. **multiflorus** Oster, *Internoto* 11(2/3): 94, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus mammulosus** var. **paucicostatus** Oster, *Internoto* 11(2/3): 94, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus mammulosus** var. **rubrispinus** Oster, *Internoto* 11(2/3): 94, ill. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus miniatispinus** (Ritter) Havlicek, Kakt. Vilag 18(4): 73. 1989. Basionym: *Notocactus securituberculatus* var. *miniatispinus*. [Dated 1988.]
- Notocactus minimus** var. **tenuicylindricus** (Ritter) Havlicek, Kakt. Vilag 18(4): 75. 1989. Basionym: *Notocactus tenuicylindricus*. [Dated 1988.]
- Notocactus neoarechavaletai** Havlicek, Kakt. Vilag 18(4): 79. 1989. [Dated 1988. First used as nude name by Elsner in *Succulenta* 56: 143-145, 1977 (cf. RPS 28). Based on *Echinocactus acutus* var. *arechavaletai* Spegazzini, *non Notocactus arechavaletai*.]
- Notocactus neoarechavaletai** var. **kovarikii** Havlicek, Kakt. Vilag 18(4): 79. 1989. *Nom. inval.* (Art. 36.1, 37.1). [Dated 1988, published 1989. Based on *Notocactus kovarikii* (Fric) Krainz, which is itself a combination based on a provisional name by Fric. Validity not assessed.]
- Notocactus nivosus** var. **albiflorus** Prestlé, *Minimus* 21(1): 9-13. 1990. Based on Prestlé 120. *Nom. inval.* (Art. 36, 37, 43). [Published as provisional name.]
- Notocactus ottonis** fa. **elegans** (Backeberg & Voll) Havlicek, Kakt. Vilag 18(4): 73. 1989. Basionym: *Notocactus ottonis* var. *elegans*. [Dated 1988.]
- Notocactus schumannianus** ssp. **nigrispinus** (K. Schumann) T. Engel, *Internoto* 11(2/3): 54. 1990. *Nom. inval.* (Art. 33.2), based on *Echinocactus nigrispinus*.
- Notocactus schumannianus** var. **ampliocostatus** (Ritter) Theunissen ex Havlicek, Kakt. Vilag 18(4): 77. 1989. Basionym: *Eriocactus ampliocostatus*. [The combination is ascribed to Theunissen. Dated 1988.]
- Notocactus scopa** var. **albicans** (Arechavaleta) Hofacker, *Internoto* 11(2/3): 69. 1990. Basionym: *Echinocactus scopa* var. *albicans*.
- Notocactus tabularis** fa. **boomelianus** Prauser, *Internoto* 11(2/3): 86. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus tabularis** fa. **setispinus** Prauser, *Internoto* 11(2/3): 86. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus tabularis** fa. **splendens** Prauser, *Internoto* 11(2/3): 86. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus tabularis** var. **splendens** Prauser, *Internoto* 11(2/3): 84. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus tabularis** var. **tolomban** Prauser, *Internoto* 11(2/3): 84. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Notocactus uebelmannianus** var. **nilsonii** Königs, *Internoto* 11(4): 119-124, ills. 1990. *Nom. inval.* (Art. 37.1). [While the herbarium is given where the type is deposited, no actual collection is cited as being type or holotype.]
- Notocactus villa-velhensis** var. **carambeiensis**

- (Buning & Brederoo) Gerloff, *Internoto* 11(4): 131. 1990. *Nom. inval.* (Art. 57.1), based on *Notocactus carambeiensis*.
- × **Nyctocéphalocereus** Mottram, *Contr. New Class. Cact. Fam.*, 62. 1990. [= *Nyctocereus* × *Cephalocereus*.]
- Nyctocerei** Buxbaum (*pro linea*), *Madroño* 14(6): 181. 1958. Typus: *Nyctocereus*. [Repeated by Mottram, *Contr. New Class. Cact. Fam.*, 6, 10, 1990, as *Echinocactinae* linea *Nyctocerei*, "comb. nov."]
- Opuntia estevesii** P. J. Braun, *Cact. Succ. J. (US)* 62(4): 165-169, ill. 1990. Typus: *Esteves Pereira* 191 (UFG 12.377, B, ZSS).
- Opuntia lilae** Trujillo & Ponce, *Ernstia* 58-60: 1-7, ill. 1990. Typus: *Trujillo et Ponce* 18643 (MY).
- Opuntia macrorhiza** var. **potosina** Hernandez-Valencia, *Acta Ci. Potosina* 10(2): 155-168. 1988. Typus: *Hernandez-Valencia* 385 (SLPM).
- Parodia mesembrina** var. **juanensis** Weskamp, *Kakt. and. Sukk.* 41(7): 122-123, ill. 1990. Typus: *Herzog* 88 (WU).
- Parodia microsperma** ssp. **horrida** (Brandt) Kiesling & Ferrari, *Cact. Succ. J. (US)* 62(4): 198. 1990. Basionym: *Parodia horrida*.
- Parodia nana** Weskamp, *Kakt. and. Sukk.* 41(9): 186-187, ill. 1990. Typus: *Herzog* 133 (WU).
- Parodia tucumanensis** Weskamp, *Succulenta* 69(6): 137-139, ill. 1990. Typus: *Lau* 471 (WU) [ex cult. Weskamp].
- Parodia** Mottram, *Contr. New Class. Cact. Fam.*, 6, 12. 1990. Typus: *Parodia* Spegazzini. [Published at the rank of *linea*.]
- Pediocactus simpsonii** var. **indraianus** Hochstätter, *Succulenta* 69(9): 178-183, ill. 1990. Typus: *Hochstätter* 4 (HBG).
- Pediocactus simpsonii** var. **nigrispinus** Hochstätter, *Succulenta* 69(9): 178-183, ill. 1990. Typus: *Hochstätter* 15 (HBG).
- Pilosocereus flexibilispinus** P. J. Braun & E. Esteves Pereira, *Kakt. and. Sukk.* 41(5): 82-88, ill., SEM-ills. 1990. Typus: *Esteves Pereira* 145 (UFG 12.364, ZSS).
- × **Rathbunillocactus** Mottram, *Contr. New Class. Cact. Fam.*, 72. 1990. [= *Rathbunia* × *Myrtillocactus*.]
- Rebutia einsteinii** var. **karrereri** (Fric ex Backeberg) Sida, *Kaktusy* 26(1): 19. 1990. Basionym: *Mediolobivia schmiedcheniana* var. *karrereri*.
- Rebutia haagei** var. **orurensis** (Backeberg) Sida, *Kaktusy* 26(1): 19. 1990. Basionym: *Lobivia orurensis*.
- Rebutia** Mottram, *Contr. New Class. Cact. Fam.*, 7, 11. 1990. Typus: *Rebutia*. [Validated by reference to *Rebutiinae* Donald 1955. Published at the rank of *linea*.]
- Rhipsales** Buxbaum (*pro linea*), *Madroño* 14(6): 185. 1958. Typus: *Rhipsalis*. [Repeated by Mottram, *Contr. New Class. Cact. Fam.*, 7, 11, 1990 as *Cactinae* linea *Rhipsales* "comb. nov.".]
- Rhipsalis baccifera** ssp. **rhodocarpa** (F. A. C. Weber) Süpple, *Rhipsalidinae*, [27]. 1990. Basionym: *Rhipsalis cassytha* var. *rhodocarpa*.
- Schlumbergera truncata* var. **kautskyi** Horobin & McMillan, *Epiphytes* 14(56): 111-115, ill. 1990. *Nom. inval.* (Art. 37.1). [Attempt to validate as ssp. in l.c. 15(57), 1991.]
- Siccobaccatus** P. J. Braun & Esteves, *Succulenta* 69(1): 3-8, ill. 1990. Typus: *Austrocephalocereus dolichospermaticus*.
- Siccobaccatus dolichospermaticus** (Buning & Brederoo) P. J. Braun & Esteves Pereira, *Succulenta* 69(1): 7. 1990. Basionym: *Austrocephalocereus dolichospermaticus*.
- Siccobaccatus estevesii** (Buning & Brederoo) P. J. Braun & Esteves Pereira, *Succulenta* 69(1): 7. 1990. Basionym: *Austrocephalocereus estevesii*.
- Siccobaccatus estevesii** ssp. **grandiflorus** (Diers & Esteves P.) P. J. Braun & Esteves Pereira, *Succulenta* 69(1): 7. 1990. Basionym: *Austrocephalocereus estevesii* ssp. *grandiflorus*.
- Siccobaccatus estevesii** ssp. **insigniflorus** (Diers & Esteves P.) P. J. Braun & Esteves Pereira, *Succulenta* 69(1): 7. 1990. Basionym: *Austrocephalocereus estevesii* ssp. *insigniflorus*.
- Sulcorebutia tiraquensis** var. **aglaia** (Brandt) Sida, *Kaktusy* 26(1): 19. 1990. Basionym: *Weingartia aglaia*.
- Trichocereus arboricola** Kimmach, *Cact. Succ. J. (US)* 62(1): 3-5, ill. 1990. Typus: *Solomon* 11311 (HNT, MO, US).
- Turbincarpus krainzianus** var. **minimus** (G. Frank) Diers, *Succulenta* 69(12): 269. 1990. Basionym: *Turbincarpus krainzianus* fa. *minimus*.
- Wilcoxia lazaro-cardenasii* (Contreras & al.) Cartier, *Maandbl. Liefhebb. Cact. Vetpl.* 3(11): 164. 1990. *Nom. inval.* (Art. 33.2), based on *Neoevansia lazaro-cardenasii*.
- Wilcoxia schmollii* var. **lanata** hort. ex Cartier, *Maandbl. Liefhebb. Cact. Vetpl.* 3(10): 146. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]
- Wilcoxia tamaulipensis* var. **brevispina** hort. ex Cartier, *Maandbl. Liefhebb. Cact. Vetpl.* 3(8): 123. 1990. *Nom. inval.* (Art. 36.1, 37.1). [Published as provisional name.]

CRASSULACEAE

- Aeonium ciliatum** ssp. **praegeri** Bañares, *Vieraea* 18: 87-90. 1990. Typus: *Bañares* s.n. (TFC 25025).
- Aeonium** × **meridionalis** Bañares, *Vieraea* 18: 68. 1990. [= *A. ciliatum* ssp. *praegeri* × *A. spatulatum* var. *cruentum*. Validity of name not assessed.]
- Aeonium** × **occidentalis** Bañares, *Vieraea* 18: 68. 1990. [= *A. sedifolium* × *A. goochiae*. Validity of name not assessed.]
- Aeonium** × **perezii** Bañares, *Vieraea* 18: 68, ill.

- (p. 81). 1990. Typus: *Bañares* s.n. (TFC 25024). [= *A. decorum* × *A. urbicum*.]
- Aeonium** × **timensis** Bañares & Macarrón, *Vieraea* 18: 68. 1990. [= *A. nobile* × *A. palmense*. Validity of name not assessed; typification unclear.]
- Bryophyllum fedtschenkoi** (Raymond Hamet & Perrier) Lauzac-Marchal, *Compt.-Rend. Acad. Sci. Paris ser. D*, 278: 2508. 1974. Basionym: *Kalanchoe fedtschenkoi*. [Repeated by C. Y. Cheng in *Fl. Hebeiensis* 1: 570, ?1986.]
- Dudleya cymosa** ssp. **costafolia** Bartel & Shevock, *Aliso* 12(4): 701-704, ills. 1990. Typus: *Bartel* 1223 (RSA, CAS).
- × **Greenonium laxiflora** Macarrón & Bañares, *Vieraea* 18: 71, ill. (p. 84). 1990. Typus: *Macarrón* s.n. (TFC 25003). [= *Greenovia diplocycla* × *Aeonium decorum*.]
- × **Greenonium riosjordanii** Bañares, *Vieraea* 18: 71-72, ill. (p. 85). 1990. Typus: *Rios Jordana et Bañares* s.n. (TFC 25042). [= *Greenovia aurea* × *Aeonium simsii*.]
- Hylotelephium sordidum** var. **oishii** (Ohwi) Ohba & Amano, *J. Phytogeogr. Taxon.* 38: 4. 1990. Basionym: *Sedum oishii*.
- Jovibarba globifera** (Linné) Tjaden ex Pamell, *Bot. J. Linn. Soc.* 103(3): 219. 1990. Basionym: *Sempervivum globiferum*. [First proposed invalidly (Art. 34) by W. Tjaden in *Bull. Afr. Succ. Pl. Soc.* 4: 170, 1969 (erroneously included as valid in RPS 20).]
- Jovibarba globifera** ssp. **allionii** (Jordan & Fourrier) Pamell, *Bot. J. Linn. Soc.* 103(3): 219. 1990. Basionym: *Diopogon allionii*.
- Jovibarba globifera** ssp. **arenaria** (Koch) Pamell, *Bot. J. Linn. Soc.* 103(3): 219. 1990. Basionym: *Sempervivum arenarium*.
- Jovibarba globifera** ssp. **hirta** (Linné) Pamell, *Bot. J. Linn. Soc.* 103(3): 219. 1990. Basionym: *Sempervivum hirtum*.
- Jovibarba hirta** ssp. **arenaria** (Koch) Pamell in Moriarty, *Taxonomy: putting plants & animals in their places*, 38. 1988. Basionym: *Sempervivum arenarium*. [Not seen, cited from secondary source. Validity of name not assessed.]
- Jovibarba hirta** ssp. **borealis** (H. Huber) Pamell in Moriarty, *Taxonomy: putting plants & animals in their places*, 38. 1988. Basionym: *Diopogon hirtus* ssp. *borealis*. [Not seen, cited from secondary source. Validity of name not assessed.]
- Monanthes** × **chamorgensis** Bañares, *Vieraea* 18: 70. 1990. Typus: *Bañares* s.n. (TFC 25009). [= *M. brachycaulon* var. *adenopetala* × *M. laxiflora* var. *laxiflora*. Validity of name not assessed; probably contravening ICBN H.5.]
- Monanthes** × **gomerensis** Bañares, *Vieraea* 18: 70, ill. (p. 82). 1990. Typus: *Bañares* s.n. (TFC 25030). [= *M. amydrus* × *M. laxiflora* var. *laxiflora*.]
- Monanthes wildpretii** Bañares & Scholz, *Stud. Bot.* 9: 129-138, ills., map. 1990. Typus: *Bañares* s.n. (TFC 27454).
- Orostachys malacophyllus** ssp. **lioutchenngoi** H. Ohba, *Jap. Bot.* 65(7): 198-199. 1990. Typus: *Liou* 8595 (PE).
- Sedum dongzhiense** Wang & Shi in Wang & al., *Bull. Bot. Res. North-East Forest. Inst.* 10(3): 48-40, ill. 1990. Typus: *Wang et Shi* 8745 (Herb. Anhui Tradit. Medic. College herb.).
- Sedum ekimianum** Metzger & Duman, *Bauhinia* 9(3): 231-232. 1990. Typus: *Duman* 4433 (ANK).
- Sedum hernandezii** Meyran, *Cact. Suc. Mex.* 35(2): 27-29, 48, ills. 1990. Typus: *Otero* 199 (MEXU, ENCB, IZTA) [Ex cult. J. Meyran].
- Sedum jiaodongense** Zhang & Chen, *Bull. Bot. Res. North-East Forest. Inst.* 10(1): 43. 1990. Typus: *Zhang* 885131 (Herb. Forest. School Shandong Prov. herb.).
- Sedum kiangnanense** Wang & Wu, *Bull. Bot. Res. North-East Forest. Inst.* 10(3): 45-47, ill. 1990. Typus: *Wang* 9229 (Herb. Anhui Tradit. Medic. College herb.).
- Sedum ursi** 't Hart, *Acta Bot. Neerl.* 39(2): 203-206, chrom. ills. 1990. Typus: *Eggl* 729a (Z, U).
- Sempervivum wulfenii** ssp. **juvanii** (Strgar) Favarger & Pamell, *Bot. J. Linn. Soc.* 103(3): 217. 1990. Basionym: *Sempervivum juvanii*.
- Tylecodon cremnophilus** Bruyns, *South Afr. J. Bot.* 56(1): 130-132, ills. 1990. Typus: *Bruyns* 3238 (BOL, K, PRE). [= *T. ellaphiae* van Jaarsveld, cf. l.c. p. 506.]
- Tylecodon** × **fergusoniae** (L. Bolus *pro sp.*) Rowley, *Kakt. and. Sukk.* 41(12): 282. 1990. Basionym: *Cotyledon fergusoniae*. [= *Tylecodon papillaris* × *T. paniculatus*.]
- Tylecodon papillaris** ssp. **ecklonianus** (Harvey) Rowley, *Kakt. and. Sukk.* 41(12): 282. 1990. Basionym: *Cotyledon eckloniana*.
- Tylecodon papillaris** ssp. **wallichii** (Harvey) Rowley, *Kakt. and. Sukk.* 41(12): 282. 1990. Basionym: *Cotyledon wallichii*.
- Villadia aristata** Moran, *Cact. Succ. J. (US)* 62(4): 177-182, ills. 1990. Typus: *Moran* 10006 (SD, CAS, CU, K, MEXU, NY, US).

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- Nolina hookeri** (Lemaire) G. Rowley, *Cact. Aventures* No. 5: 3. 1990. Basionym: *Dasyliiron hookeri*.

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- Euphorbia adenocheila** S. Carter, *Kew Bull.* 45: 656. 1990. Typus: *Lavranos et al.* 24929 (K).
- Euphorbia apparicianana** Rizzini, *Rev. Bras. Biol.* 49(4): 992-996, ills. 1990. Typus: *Duarte* 14097 (RB). [Dated 1989, published 1990.]
- Euphorbia attastoma** Rizzini, *Rev. Bras. Biol.* 49(4): 987-991, ills. 1990. Typus: *Duarte* 13254 (RB). [Dated 1989, published 1990.]
- Euphorbia attastoma** var. **xanthochlora** Rizzini, *Rev. Bras. Biol.* 49(4): 992. 1989. Typus: *Duarte* 9290 (RB).
- Euphorbia ephedroides** var. **debilis** Leach, *South*

- Afr. J. Bot. 56(1): 73. 1990. Typus: *Leach et Brunton* 15893 (NBG, K, MO, PRE).
- Euphorbia ephedroides** var. *imminuta* Leach & Williamson, South Afr. J. Bot. 56(1): 72-73. 1990. Typus: *Williamson* 3652 (NBG, K, PRE).
- Euphorbia exilis** Leach, South Afr. J. Bot. 56(1): 76-77, ills. 1990. Typus: *Leach et Bayer* 17129 (NBG, K, PRE).
- Euphorbia glandularis** Leach & Williamson, South Afr. J. Bot. 56(1): 75-76, ills. 1990. Typus: *Leach et Hilton-Taylor* 17019 (NBG, K, MO, PRE, etc.).
- Euphorbia globulicaulis** S. Carter, Kew Bull. 45: 655. 1990. Typus: *Lavranos et al.* 23439 (K).
- Euphorbia holochlorina** Rizzini, Rev. Brasil. Biol. 49(4): 983, ills. 1990. Typus: *Duarte* 3987 (RB). [Dated 1989, published 1990.]
- Euphorbia officinarum** var. *hernandezpachecoi* (A. Caballero) Oudejans, World Cat. Spec. Names Euphorbieae, 5. 1990. Basionym: *Euphorbia hernandezpachecoi*.
- Euphorbia orbiculifolia** S. Carter, Kew Bull. 45: 653. 1990. Typus: *Miller* 6160 (K, E).
- Euphorbia rugosiflora** Leach, Kirkia 13(2): 319-322, ills. 1990. Typus: *Richards & Thornton* sub *Leach* 17712 (SRGH, BM, K, MO, NBG).
- Euphorbia scyphadena** S. Carter, Kew Bull. 45: 657. 1990. Typus: *Thulin et Dahir* 6522 (K, UPS).
- Euphorbia suffulta** Bruyns, South Afr. J. Bot. 56(1): 128-130, ills., map. 1990. Typus: *Bruyns* 2902 (BOL, K, PRE).
- Monadenium clarae** Malaisse & Lecron, Bull. Jard. Bot. Belg. 59(3/4): 478-479. 1990. Typus: *Schajes* 3055 (BR).
- Monadenium cupricola** Malaisse & Lecron, Bull. Jard. Bot. Belg. 66(3-4): 301-306. 1990. Typus: *Malaisse* 10356 (BR).
- Monadenium hedigerianum** Malaisse, Bull. Jard. Bot. Belg. 66(3-4): 295-299. 1990. Typus: *Malaisse* 13804 (BR).
- Monadenium shebeliense** M. G. Gilbert, Bradleya 8: 45-46, ill. 1990. Typus: *Gilbert* 2128 (K).

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- Pelargonium antidysentericum** ssp. *inermis* Scheltema, South Afr. J. Bot. 56(3): 292-293, ill. 1990. Typus: *Scheltema* 1 (PRE, K, STEU).
- Pelargonium antidysentericum** ssp. *zonale* Scheltema, South Afr. J. Bot. 56(3): 293-294, ill. 1990. Typus: *Scheltema* 11 (PRE, K, STEU).
- Pelargonium torulosum** E. M. Marais, J. South Afr. Bot. 56(5): 565-570, ills., SEM-ills., map. 1990. Typus: *Marais* 230 (STE, BOL, K, MO, PRE).

PORTULACACEAE

- Anacampseros** *Nyananyo*, Feddes Reper. 101(5-6): 239. 1990. *Nom. inval.* (Art. 33, 36, 37). [Given as 'stat. nov.' but without basionym, and likewise without type or Latin diagnosis.]
- Anacampseros kurtzii** Bacigalupo, Bol. Soc. Argent. Bot. 26(3-4): 197-199, ills., SEM-ills. 1990. Typus: *Kiesling et al.* 6350 (SI).
- Cistanthe** sect. *Amarantoideae* (A. Reiche) Hershkovitz, Phytologia 68(4): 269. 1990. Basionym: *Calandrinia* sect. *Amarantoideae*.
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