

General introduction to taxonomic studies in South East Asian Gesneriaceae.

Beitr. Biol. Pflanzen 70: 149-151.

REFNO: 2943

KEYWORDS:

Codonoboea, Didissandra, Didymocarpus, Emarhendia, Henckelia, Loxocarpus, Platyadenia, Raphiocarpus, Ridleyandra, Senyumia, Spelaeanthus

*With kind regards
J. Weber*

Beiträge
zur
Biologie der Pflanzen

Herausgegeben von

Prof. Dr. Helmut Schraudolf

Prof. Dr. Stefan Vogel

Prof. Dr. Focko Weberling

70. Band · Zweites / Drittes Heft

Themenheft:

Taxonomic studies in South East Asian Gesneriaceae
Taxonomische Studien an südostasiatischen Gesneriaceen



DUNCKER & HUMBLLOT / BERLIN 1997/98

Inhalt

WEBER, A. and BURTT, B. L.: General introduction to taxonomic studies in South East Asian Gesneriaceae	149
1. WEBER, A. and BURTT, B. L.: <i>Didissandra</i> : redefinition and partition of an artificial genus of Gesneriaceae	153
2. SONTAG, S. and WEBER, A.: Seed coat structure in <i>Didissandra</i> , <i>Ridleyandra</i> and <i>Raphiocarpus</i> (Gesneriaceae)	179
3. WEBER, A. and BURTT, B. L.: Revision of the genus <i>Didissandra</i> (Gesneriaceae)	191
4. WEBER, A. and BURTT, B. L.: Revision of the genus <i>Ridleyandra</i> (Gesneriaceae)	225
5. VITEK, E., WEBER, A. and BURTT, B. L.: Generic position of the species hitherto referred to <i>Didissandra</i> (Gesneriaceae)	275
6. WEBER, A. and BURTT, B. L.: Remodelling of <i>Didymocarpus</i> and associated genera (Gesneriaceae)	293
7. BURTT, B. L.: Taxonomic history of <i>Didymocarpus</i> and <i>Henckelia</i> (Gesneriaceae)	365
8. BURTT, B. L.: New species of phytogeographical interest in <i>Beccarinda</i> and <i>Henckelia</i> (Gesneriaceae)	377
9. KIEW, R., WEBER, A. and BURTT, B. L.: Three new genera of Gesneriaceae from limestone of Peninsular Malaysia	383
10. WEBER, A.: New taxa of <i>Monophyllaea</i> (Gesneriaceae) from Peninsular Malaysia	405
11. KIEHN, M., HELLMAYR, E. and WEBER, A.: Chromosome numbers of Malayan and other paleotropical Gesneriaceae. I. Tribe <i>Didymocarpeae</i> ..	407
12. KIEHN, M. and WEBER, A.: Chromosome numbers of Malayan and other paleotropical Gesneriaceae. II. Tribes <i>Trichosporeae</i> , <i>Cyrtandreae</i> and <i>Epithemateae</i>	445

Ausgegeben am 26. November 1998

Indexed in Current Advances in Biological Sciences

General introduction to taxonomic studies in South East Asian Gesneriaceae

The Gesneriaceae of the Old World have not received an overall treatment since that of C. B. CLARKE in 1883. Over the intervening years it has become increasingly obvious that the initial pattern of genera built up by CLARKE could not take the strain of the enormous influx of unknown species. CLARKE himself clearly anticipated this, as two quotations from his introduction will show. He wrote (p. 10): "Looking to the future large extension to be anticipated for this tribe, I have thought it most convenient to disturb as little as possible the existing limits of genera and species", and later (p. 11) "My aim being to make a useful reduction of the Cyrtandreae, I have employed, as much as possible, obvious characters and have avoided characters requiring high magnification or prolonged preparations".

The position can be more easily understood if we look at the numbers of taxa involved. CLARKE remarked that, whereas DE CANDOLLE in 1845 listed 132 species in 30 genera, his own account dealt with 460 in 41 genera: a reasonable estimate to-day is that we know about 1850 species in over 80 genera. That is, there has been a doubling of genera and a fourfold increase in the known species since CLARKE's account; and incoming collections continue to disclose unknown plants.

One difficulty that has faced CLARKE's successors has been the placing of new species that have no obvious allies amongst those known to CLARKE. There are always two possible solutions to this problem: to stretch an existing genus or to make a new one (often monotypic). The genera under study here provide examples of both courses.

The two major papers, on *Didissandra* (paper n°. 1) and *Didymocarpus* (paper n°. 6), cover wide geographical areas, as the names have been very extensively used from the Sino-Himalayan region southeastwards, but the main focus of these investigations has been the Malesian plants. *Didissandra* is resolved into three genera: *Didissandra* s. str. and *Ridleyandra* gen. nov. are Malesian; *Raphiocarpus* Chun in S. China and Vietnam is reluctantly left to cover the species in that area previously referred to *Didissandra*; only lack of adequate material persuades us to leave all these under a single generic name. *Didymocarpus* splits on a partly geographical pattern, the true genus is primarily Sino-Himalayan,

extending south through Vietnam and Thailand to the Malay Peninsula (where there are 8 species, out of about 80, one of them reaching Sumatra). For the species of S. India and Sri Lanka (for long known as *Didymocarpus* sect. *Orthoboea*) the genus *Henckelia* Spreng. is revived. The difficult problem has been whether or not to merge with *Henckelia* the bulk of the 'Malesian *Didymocarpus*', which certainly do not belong to *Didymocarpus* in the strict sense. The decision was taken in favour of merger and *Henckelia* is now a large genus, comprising about 180 species, including *Loxocarpus* R. Br., *Codonoboea* Ridl. and *Platyadenia* B. L. Burtt as synonyms. The reasons for each of these three reductions are fully discussed.

CLARKE's avoidance of high magnification, in order to preserve the practical utility of his work, is understandable, but with greater resources available, including SEM for seeds (paper n°. 2) and pollen (paper n°. 9), and chromosome studies (papers n°. 11 & 12), the emphasis has shifted somewhat. These all provide valuable evidence to improve classifications and are in constant use in most families; more easily observable differentials are then sought for practical identification.

The papers on *Didissandra* s. lat. and on *Didymocarpus* s. lat. both provide examples of a group of related species showing considerable changes in floral morphology (in these cases a reduction in the length of the corolla tube, which is interpreted as meaning a switch from long-tongued to short-tongued pollinators); vegetative characters (patterns of growth, phyllotaxis), on the other hand, are here more constant and provide valuable help in the taxonomy. In contrast, the vegetative similarities (thin leaf-blades, indumentum of long hairs) that give the three new genera, *Senyumia*, *Emarhendia* and *Spe-laeanthus*, a superficial likeness, prove to be deceptive: differences in flower and fruit (reinforced by pollen and chromosome numbers) show that three separate genera have to be recognized and indicate that the vegetative features are almost certainly due to ecological convergence in the shady limestone habitats that all three occupy. The contrast between these groups shows that vegetative and floral characters are not inherently of different value, it is simply those that have reacted most obviously to the latest change in the physical or biotic environment that are, at the moment, of lower (specific rather than supraspecific) value.

Names in the taxa under consideration are in strong demand: for local checklists, for ecological surveys, for conservation areas, for chromosome studies (paper n°. 10 also providing new names in *Monophyllaea*), for phytochemical screening surveys, for molecular and phylogenetic studies, for regional floras. Moreover, new species await description under the new generic names. Publication thus has become a matter of urgency,

and has had to be anticipated: *Henckelia* has been adopted in the Checklist of the Flowering Plants and Gymnosperms of Brunei Darussalam (ed. D. W. KIRKUP, 1996), although the full reasons for its use are only now published here.

Arranging publication of papers that include long lists of name changes can be difficult; and if there are cross-links between concurrent papers that are to be separated in different journals, it is a nightmare trying to ensure that they appear in the right order. We are therefore very greatly indebted to the editors of "Beiträge zur Biologie der Pflanzen", Prof. Dr. FOCKO WEBERLING, Prof. Dr. STEFAN VOGEL and Prof. Dr. HELMUT SCHRAUDOLF, for stretching the normal coverage of the journal and agreeing to publish this series of papers synchronously in a single number. This is not only a great help to the authors; to have so much in one place will be a very real aid to those who wish to consult work on this family.

Special thanks are also due to the Austrian "Fonds zur Förderung der wissenschaftlichen Forschung" for the financial support of the research projects on Malayan Gesneriaceae (project numbers: P 8166-B, P 6969-B and P 7984-BIO). During field work in Malaysia A. W. profited from the help of Dr. RUTH KIEW (now Singapore Botanic Gardens) and Mr. ANTHONYSAMY (Universiti Pertanian Malaysia, Serdang).

Last but not least our thanks go to the following persons (in alphabetical order) from the Institute of Botany, Vienna, for manifold assistance: Dr. ROLAND EBERWEIN, Mag. DAGMAR HADL, Dr. PETER LASSNIG, Dr. VERONIKA MAYER, Mag. IRENE MÜHLBAUER, MONIKA PASCHINGER, JOHANNES SELINGER, Mag. SUSANNE SONTAG, Dr. ERNST VITEK and Prof. Dr. STEFAN VOGEL. The latter is specially thanked for reading carefully all manuscripts.

A. WEBER

B. L. BURTT