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0521809991 - Gentianaceae: Systematics and Natural History

Edited by Lena Struwe and Victor A. Albert

Frontmatter

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## GENTIANACEAE: SYSTEMATICS AND NATURAL HISTORY

The family Gentianaceae is a diverse lineage of over 1600 angiosperm species, including many tropical and temperate trees, shrubs, and herbs with a wide range of floral types and colors. This volume provides the first comprehensive review of the family, covering phylogeny, classification, biogeography, palynology, phytochemistry, and morphology, and also presents the first classification of the entire family to be published for over 100 years, generated using modern molecular- and morphology-based phylogenetic data. The volume places the Gentianaceae in context with its relatives in the order Gentianales and subclass Asteridae; presents an updated, phylogenetic classification of tribes, subtribes, and genera; investigates the corroborative value of morphological features in phylogenetic diagnoses; and comprehensively summarizes palynology, seed morphology, and phytochemistry. Descriptions of each of the 87 gentian genera are provided, as are discussions on morphological evolution and biogeography for each major evolutionary lineage.

LENA STRUWE is Assistant Professor in Plant Systematics at Rutgers University, New Jersey. Her main research interests are the evolution and biogeography of the Gentianaceae, and also the order Gentianales, specifically the families Loganiaceae and Gelsemiaceae.

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# GENTIANACEAE

## Systematics and Natural History

*Edited by*

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## Foreword

I am very pleased to introduce this important new contribution to systematics. This book is an excellent example of what can be achieved when a plant family is studied by an interdisciplinary group of researchers who each bring their different skills to answer the problems. The Gentianaceae is a good model for this kind of study because it is reasonably large, with its over 1600 species in 87 genera, and also because it contains several genera that were of dubious position before this work was carried out. The family has considerable morphological variation and has adapted to several different functional syndromes for pollination and dispersal. It is also a family that has not been studied on a complete worldwide basis at the tribal and subtribal level since the work of Gilg in 1895. This was a work waiting to be done. Many previous workers have speculated about the systematic position of *Fagraea* and *Potalia* and about *Saccifolium* with its extraordinary pouch-like leaves. These are now shown to fit well within the circumscription of the monophyletic Gentianaceae as defined here. I was also most interested to see where the strange saprophytic genera *Voyria* and *Voyriella* fit into the system, the latter near to *Saccifolium*. The authors have truly used all the available evidence to produce a phylogenetic framework that has yielded a monophyletic classification for the family.

I am also impressed with how the morphological work has combined so well with the molecular. The tribal system that has been produced here, using evidence from many different fields, also keys out well on morphology. This is something that has not always been true for systems based on molecular work. Here we have a well-integrated system that should be a model for other similar studies. This whole work is a most thorough study from the taxonomic history of the family to the molecular phylogeny. It also includes many interesting data on pollen and biogeography. The sources of data from the different contributors from around the world are

well integrated. It was a delight and not a chore to read the manuscript in order to write this foreword, because it is a significant new contribution to systematics that has greatly expanded our knowledge of the Gentianaceae. I hope that this study will encourage other researchers to follow its example of the co-operative approach to systematic work for other plant families. I congratulate the authors and the editors for their good work.

The first chapter makes it quite clear that, even after a study of a family at this depth, much still remains to be done, especially at the species level and regarding the biogeographic history of Gentianaceae. This further work will certainly be stimulated and made easier by the study presented here. The data produced here also need to be applied to the conservation of some of the very interesting and rare plants that are included in this study.

Kalaheo, Hawaii,  
June 2001

*Ghilleen T. Prance FRS, VMH*