

Glinus is a small genus of Molluginaceae with 8–10 species mostly distributed in the tropics of the World. Among Caryophyllales as well as Molluginaceae, *Glinus* is characterized by the remarkable seed aril divided into two parts: a white, usually well-visible hood covering the funiculus and a large ribbon-like appendage.

A new molecular phylogeny using nuclear (ITS) and chloroplast (*rbcL*, *trnK-matK*) markers confirmed the monophyly of the genus. In both trees based on nuclear and plastid datasets, the major phylogenetic clades cannot be characterized by the peculiar morphological characters. Ten new morphological and carpological traits distinguishing *Glinus* members were found in our study. A new key to the identification of all *Glinus* species in Sub-Saharan Africa, the most species-rich region of the genus, is provided. The results provide completely new insight into the taxonomy of *Glinus* in Sub-Saharan Africa. A checklist is given of all accepted species in this region (*G. bainesii*, *G. hirtus*, *G. lotoides*, *G. oppositifolius* s.l., *G. setiflorus*, and *G. zambesiacus*) with their nomenclature, morphological description and geographical distribution.

Glinus seems to have originated from Africa around the Late Eocene or Early Miocene, with further radiations to Australia and the Americas during the Late Miocene or Late Pliocene. Many shared character states leading to their contrasting pattern in the multivariate analysis model are interpreted as a high homoplasy in the phylogenetically distant species.



<http://phytokeys.pensoft.net>



EVOLUTIONARY RELATIONSHIPS, BIOGEOGRAPHY AND MORPHOLOGICAL CHARACTERS OF *GLINUS* (MOLLUGINACEAE), WITH SPECIAL EMPHASIS ON THE GENUS COMPOSITION IN SUB-SAHARAN AFRICA

BY

ALEXANDER P. SUKHORUKOV, ALEXANDER SENNIKOV,
MARIE CLAIRE VERANSO-LIBALAH, MARIA KUSHUNINA,
MAYA V. NILOVA, ROGER HEATH, ALISON HEATH,
YURI MAZEI, MAXIM A. ZAIKA



Glinus hirtus Sennikov & Sukhor., comb. nov.

PhytoKeys 173 ♦ 2021
Special Issue

<http://phytokeys.pensoft.net>

For those who want their work rapidly known to the World !

Editor-in-Chief

John Kress
Smithsonian Institution
P.O. Box 37012
Washington, DC 20013-7012
U.S.A.
E-mail: kressj@si.edu

Managing Editor

Lyubomir Penev
Institute of Biodiversity and Ecosystem Research
Bulgarian Academy of Sciences
Yurii Gagarin Street 2
1113 Sofia, Bulgaria
E-mail: info@pensoft.net

Editorial Board: <http://phytokeys.pensoft.net/board>

Focus and Scope

PhytoKeys is a peer-reviewed, open-access, rapidly disseminated journal launched to accelerate research and free information exchange in taxonomy, phylogeny, biogeography and evolution of angiosperms, gymnosperms, monilophytes, bryophytes, and algae. **PhytoKeys** aims to apply the latest trends and methodologies in publishing and preservation of digital materials to meet the highest possible standards of the cybertaxonomy era. **PhytoKeys** will publish papers in systematic botany containing taxonomic/floristic data on any taxon of any geological age from any part of the world with no limit to manuscript size.

PhytoKeys will consider for publishing works on the following topics:

- descriptions of new taxa, if they are accompanied with proper diagnoses, keys and/or distinction from close relatives or similar taxa
- taxonomic revisions of extant (or "recent") and fossil plant groups
- checklists and catalogues
- phylogenetic and evolutionary analyses
- papers in descriptive and/or historical biogeography
- methodology papers
- data mining and literature surveys
- monographs, conspecti, atlases
- collections of papers, Festschrift volumes, conference proceedings

Papers containing identification keys will be accepted with priority. Extensive manuscripts consisting mostly of keys will be considered for publishing as well.

ISBN numbers will be assigned to large monographic papers (i.e., major revisions of taxa), monographs, collections of papers, Festschrift volumes, atlases, checklists, conspecti.

All content is Open Access distributed under the terms of the *Creative Commons Attribution License*, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. Authors are thus encouraged to post the pdf files of published papers on their homepages or elsewhere to expedite distribution.

Editorial Office

Pensoft Publishers
Prof. Georgi Zlatarski 12, 1700 Sofia, Bulgaria. Tel. +359-2-8704281, Fax +359-2-8704282
E-mail: phytokeys@pensoft.net

AUTHOR GUIDELINES

Authors are kindly requested to submit their manuscript *only* through the online submission module at www.phytokeys.com. In case of difficulties with the submission procedure, please contact phytokeys@pensoft.net. Full text of author guidelines is available at: <http://phytokeys.pensoft.net/about#AuthorGuidelines>

EXCERPTS FROM THE GUIDELINES

BODY TEXT. All papers must be in English, checked by a native English-speaking colleague (if author(s) is/are not native English speaker(s)). Write with precision, clarity, and economy: use the active voice and first person whenever appropriate.

WEB (HTML) LINKS. Authors may include links to other Internet resources in their article. This is especially encouraged in the reference section. When inserting a reference to a web-page, please include the **http://** portion of the address.

CITATIONS WITHIN THE TEXT. Citations within the text: Before submitting the manuscript, please check each citation in the text against the **References** and vice-versa to ensure that they match exactly. Citations in the text should be formatted as follows: Smith (1990) or (Smith 1990), Smith et al. (1998) or (Smith et al. 1998) and (Smith et al. 1998, 2000, Brock and Gunderson 2001, Felt 2006).

REFERENCES. It is important to format the references properly, because all references will be linked electronically as completely as possible to the papers cited. It is desirable to add a **DOI** (digital object identifier) number for either the full-text or title and abstract of the article as an addition to traditional volume and page numbers. If a DOI is lacking, it is recommended to add a link to any online source of an article. Please use the following style for the reference list:

Published Papers: Smith AR, Pryer KM, Schuettpelz E, Korall P, Schneider H, Wolf PG (2006) A classification for extant ferns. *Taxon* 55(3): 705–731.

Accepted Papers: Same as above, but "in press" appears instead the

year in parentheses.

Electronic Journal Articles: Agosti D, Egloff W (2009) Taxonomic information exchange and copyright: the Plazi approach. *BMC Research Notes* 2: 53. <https://doi.org/10.1186/1756-0500-2-53>

Paper within conference proceedings: Kress WJ, Specht CD (2005) Between Cancer and Capricorn: phylogeny, evolution, and ecology of the tropical Zingiberales. In: Friis I, Balslev H, (Eds) *Proceedings of a symposium on plant diversity and complexity patterns – local, regional and global dimensions*. Biologiske Skrifter, The Royal Danish Academy of Sciences and Letters, Copenhagen, 459–478.

Book chapters: Mayr E (2000) The biological species concept. In: Wheeler QD, Meier R (Eds) *Species Concepts and Phylogenetic Theory: A Debate*. Columbia University Press, New York, 17–29.

Books: Heywood VH, Brummitt RK, Culham A, Seberg O (2007) *Flowering Plant Families of the World*. Kew Publishing, 1–424.

Book with institutional author: International Commission on Zoological Nomenclature (1999) *International code of zoological nomenclature*. Fourth Edition. London: The International Trust for Zoological Nomenclature.

PhD thesis: Stahlberg D (2007) *Systematics, phylogeography and polyploid evolution in the *Dactylophiza maculata* complex (Orchidaceae)*. PhD Thesis, Lund University, Sweden.

Link/URL: BBC News (2018) Plants 'can recognise themselves'. http://news.bbc.co.uk/earth/hi/earth_news/newsid_8076000/8076875.stm

CITATIONS OF PUBLIC RESOURCE DATABASES: It is highly recommended all appropriate datasets, images, and information to be deposited in public resources. Please provide the relevant accession numbers (and version numbers, if appropriate). Examples of such databases include, but are not limited to:

- IPNI (www.ipni.org)

- Morphbank (www.morphbank.net)
 - Genbank (www.ncbi.nlm.nih.gov/Genbank)
 - BOLD (www.barcodinglife.org)
- Providing accession numbers to data records stored in global data aggregators allows us to link your article to established databases, thus integrating it with a broader collection of scientific information. Please hyperlink all accession numbers through the text or list them directly **after the References** in the online submission manuscript.

INTERNATIONAL CODE OF NOMENCLATURE FOR ALGAE, FUNGI, AND PLANTS. **PhytoKeys** will publish papers that strictly adhere the rules of the last edition of the *International Code of Nomenclature for algae, fungi, and plants*. Descriptions of new taxa (species and below) should include the following: 1) a short Latin diagnosis followed by a full description in English, 2) an illustration (line drawing or photograph) clearly showing the diagnostic characters, 2) a comparison of the new taxon with related taxa, a diagnostic key to identification of species-group members, or at least to the closest relatives is highly desirable and may be requested by the editors 3) a discussion of the distinctive morphological characteristics, ecology, geography, and/or reproductive biology, and 4) a statement on preliminary [at least] conservation status for the taxon being described.

OPEN ACCESS FEES. Publication fees in open access journals ensure a barrier-free distribution of your paper at no charge for the readers and include costs involved in processing, formatting, publishing, indexing and archiving your paper.

The journal charges Open Access Publication Fee. Please visit the "Article Processing Charges" section at <http://phytokeys.pensoft.net/about#ArticleProcessingCharges> to learn more of our discount and waiver policies.

PRINTED VERSION. Offprints and printed issues of the journal can be purchased additionally (see journal's website). For standing orders/subscriptions please contact the Managing Editor.