

**BOOK REVIEW**

Necchi, Orlando Júnior and Vis, Morgan L. 2012. Monograph of the genus *Kumanoa* (Rhodophyta, Batrachospermales). Bibliotheca Phycologica vol. 116, J. Cramer in der Gebr. Borntraeger Verlagsbuchhandlung, Stuttgart. 79 pages. ISBN 978-3-443-60043-3, paperback, 14 x 23 cm, €5, 00 for inquiries refer to [www.borntraeger-cramer.de](http://www.borntraeger-cramer.de)

The study of freshwater red algae around the world as well as for most algal groups has entered an exciting phase with the use of molecular methods for phylogenetic analyses. Up until about a decade ago, the taxonomy of freshwater red algae has relied solely on morphological features. That era was highlighted by the publication of the monumental work by Shigeru Kumano (2000) describing all known species around the world at that time. Kumano himself was one of the most prolific and earliest students of freshwater Rhodophyta who described numerous new taxa along with his students and various collaborators. His monographic treatise, originally written and illustrated in Japanese, was subsequently translated into English for the wider international audience (Kumano 2002).

The publication of the monograph under review served to signal the emerging role of molecular approaches in the phylogenetic reconstruction within the freshwater red algal hierarchy. Coincidentally, this monograph deals with the new genus *Kumanoa* first removed from its parent genus *Batrachospermum* by Entwisle *et al.* (2009) that rightfully honors the man who was responsible for encouraging the taxonomic study of freshwater Rhodophyta during the last 35 years. Authors Orlando Necchi Júnior (São Paulo State University, Brazil) and Morgan L. Vis (Ohio University, USA) who earlier collaborated with Kumano had published this fine monographic work focusing on species level taxonomy based on morphological and morphometric analysis of many type specimens coupled with molecular data.

The new segregate genus *Kumanoa* was recognized as distinct based on extensive morphological and molecular studies over the years. It is essentially comprised of members previously assigned to sections *Hydrida* and *Contorta* of *Batrachospermum*, a well known, cosmopolitan freshwater red algal genus. A total of 35 species around the world are recognized in this monograph. Each species is provided with detailed descriptions from cursory morphological and morphometric investigations accompanied by outstanding black and white photomicrography showing important diagnostic features. Using these morphological information, the authors provided a dichotomous key that allows identification of species from anywhere in the world. The authors consolidated molecular information from *rbcL* gene, UPA (Universal Plastid Amplicon) and *cox1* barcoding region for 26 species out of the 35 species treated in this work. Many species show restricted distribution often confined only to the type

locality, while a few others show disjunct distribution (e.g., *K. faroensis* first collected from the Caroline Islands in the western Pacific and now also reported from a creek in Ohio, continental U.S.A., and *K. mahlacensis* originally from Guam and now known from Texas and New Mexico) and even cosmopolitan distribution (e.g., the type species *K. virgatodecaisneana* which is recorded from its type locality in France, and then from Latvia and Sweden, and Canada, Alabama and Japan, and which the monograph authors alluded to as morphologically plastic for many features). The monograph concludes with a list of doubtful *Batrachospermum* species which the authors could not ascertain as belonging to *Kumanoa* for various reasons such as inaccessible type specimens, absence of key diagnostic characters, etc. Of the twelve taxa listed as doubtful, Ganesan and West (2013) recognized four as species of *Kumanoa* and therefore effected their transfer. Two more species from India not in the current list of doubtful species were likewise recognized under *Kumanoa* by them bringing the total tally of *Kumanoa* species worldwide to 41. A short but comprehensive references list is also included together with an index to taxa.

Some comments about the nomenclature and synonymy of species as applied in this monograph are in order. A number of species previously recognized under *Batrachospermum* have been transferred to *Kumanoa* in the present work on top of those already transferred in earlier publications. One can see two “sets” of new combinations: those which are proposed in the current monograph (five species) and another seven species which were proposed in another 2012 work by a group of four authors which was cited as “in press” and provided only with a DOI (Vis *et al.* 2012). While the new combinations proposed in the paper published online are unquestionably valid for conforming to existing nomenclatural rules, some confusion on the attribution of the correct authorship might arise in the future because the actual date of publication for the monograph under review is not indicated. Furthermore, new synonymies have been proposed by the authors in the monograph under review as well as in their earlier publications. In the latter, species considered to be synonyms were listed using their original names as in the case of *Batrachospermum basilare*, *B. bicudo* and *B. exsertum* which are now recognized as heterotypic synonyms of *Kumanoa ambigua*. However, in the monograph under review, new combinations of *Kumanoa* were proposed (as transfers from *Batrachospermum*) and these were then subsumed by the authors as synonyms of other *Kumanoa* species. This seems cumbersome and unnecessary. When new combinations are proposed, it is mainly for the purpose of making a valid and legitimate name available for a taxon. Taxonomic synonyms are usually treated as illegitimate names by botanists. Unless the authors have some reservations in their decision to synonymize a particular name, their act to propose new combinations and subsequently synonymizing them is unconventional and probably uncalled for.

This monograph will be the definitive volume for this beautiful group of freshwater red algae for many years to come. However, it may need to be revised in the coming years when more species are sampled and described. The

authors deserved to be congratulated for laying the groundwork for work on this primarily tropical and subtropical group of freshwater algae. This volume is recommended for researchers and students working on limnology and phycology but the publisher's price may not be affordable to everyone.

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