

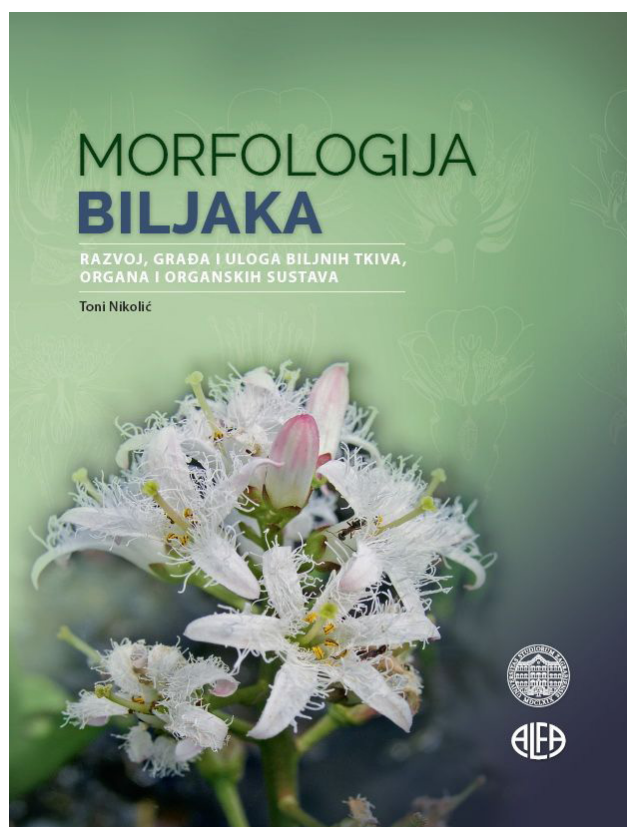
## BOOK REVIEW

### ***Morfologija biljaka. Razvoj, građa i uloga biljnih tkiva, organa i organskih sustava.***

by Toni Nikolić. 2017, 569 pp. ISBN 978-953-297-805-6.  
Publisher: Alfa d.d., Zagreb.

At the beginning of the development of botany as a scientific discipline morphological data was almost the only type in use. Even today, most of the information about plants we have is actually morphological data. In spite of numerous new biological disciplines, morphology still plays a central role in biology (Kaplan 2001) and still remains fundamentally relevant to practically all biological disciplines, such as molecular genetics, physiology, ecology, evolutionary biology and systematics (Sattler and Rutishauser 1997). For that reason, there is a need for quality, comprehensive books that will give an overview of all aspects of plant morphology. A new textbook, in Croatian, entitled „Plant Morphology. Development, Structure and Role of Plant Tissues, Organs and Organic Systems” by the author Tony Nikolić is presented here. In this textbook, the author gives a modern presentation of all scientific aspects of plant morphology as a fundamental botanical discipline. Plant morphology is interpreted in a broad sense, not only the external macro morphological features but also the form and structure at all organizational levels (whole plants, organs, tissues, cells and molecules). The book has 569 pages divided into 17 main chapters. The text is accompanied by 480 numbered illustrations (often very complex including micro- and macro-photographs, diagrams and hand drawings) and 30 tables.

In the Introduction the author defines morphology, and refers to the history of morphology from its founding to today’s modern concepts. He then continues with a chapter on Basic Morphological Terminology (prefixes and suffixes, names of surface forms and bodies, colour and symmetry) as a necessary prerequisite for the transfer of knowledge about the richness of forms and morphological phenomena among botanists. He then continues with a chapter on Alternations of Plant Generations in which he talks about sporophytes and gametophytes, fertilization and



embryogenesis. In the chapter Anatomy Basics, he presents plant tissues involved in the formation of plant organs. As the author himself states, only a brief overview of the basic types of tissue is given here and a deeper knowledge of the anatomy of plants requires reference to more extensive literature. However, this part of the textbook is very useful and will be of value primarily to teachers, professors and students because there are very few texts on plant anatomy available in Croatian.

In the chapter on Morphology of Vegetative Organs, root, shoot and leaf are elaborated in detail, as well as the morphological adaptation of plants to different abiotic conditions. Understandably, the greatest part of the textbook is

dedicated to the chapter on Morphology of Reproductive Organs. Considering the alternations of plant generations, it processes the structures of dual origin. Thus, in the introductory parts he presents structure, development and evolution of sporangia and sporophylls as well as gametophyte. Following that, the angiosperm flower morphology with its parts such as receptacle, perianth, stamen, pollen, carpel and nectary, are elaborated in detail. Finally, there is a chapter on the origin, structure and classification of the inflorescences.

As already mentioned, the morphology of plants is here understood broadly, so that the morphology of reproductive organs is understood in terms of generative propagation. Thus the structures and processes related to generative reproduction of plants are discussed in several chapters. Firstly, come two extensive chapters on pollination, fertilization and embryogenesis. Then chapters on Seeds and Fruits follow logically, where the author has detailed and illustrated the classification of fruits based on the fundamental morphology of the carpel. In this part of the textbook, a number of examples of morphology and fruit anatomy are described, including, among other things, the economically most important fruits such as citrus, apple, tomato, banana, coconut and others.

In separate chapters, the dispersion of propagules and dispersion strategy in plants, as well as germination and seedling morphology are shown. The last chapters cover vegetative propagation in plants, as well as teratology, chimeras and other morphological forms. At the end of the book the author gives an extensive list of references and an index.

Of particular value in the book are the 30 frames with excellent texts which give some morphological topics in more detail (e.g. leaf type classification, shapes of lamina apex, margin and base, floral diagrams, etc.) with some interesting specificities of the world of plant morphology

(e.g. pollination in the common fig, recognition of forms, colours and patterns, seeds as food, grain in human consumption, the strange balausta fruit – *Punica granatum*, etc.).

The book is generally presented in a highly systematic, clear and understandable way. This was not an easy task given the scope of the material, and also the fact that plant morphology is treated here as a multidisciplinary area that draws on a knowledge of numerous branches of biology. It offers the reader not only an overview of the structure and appearance of plant varieties, but also an understanding of the role and manner of functioning and the origins of certain plant organs and organisms as a whole. Considerable attention is devoted to issues of significance in applied botanical disciplines such as agriculture, forestry, pharmacy, horticulture etc.

It is of particular value that the textbook proposes unambiguous Croatian terms for certain plant organs, parts of organs and various processes. This will greatly help standardize Croatian terminology in plant morphology as a basic botanical discipline. The Croatian literature in this field is scarce and our botanical terminology comprises a great number of terms that overlap or are not clearly defined, as well as synonyms of Latin, Greek, German, Croatian and other origins.

All in all, this publication is an excellent example of a textbook that incorporates the latest scientific knowledge in the field of plant morphology. It can be concluded that such an original and up to date textbook will be a major contribution not only to the improvement of university botanical teaching in Croatia but also to the advancement of various scientific and professional disciplines relying on the morphology of plants.

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## References

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