

## Book review

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## Book review

**Friis I. & Balslev H. (ed.): Tropical plant collections. Legacies from the past? Essential tools for the future? Proceedings of an international symposium held by The Royal Danish Academy of Sciences and Letters in Copenhagen, 19<sup>th</sup>–21<sup>st</sup> of May, 2015. Scientia Danica, Series B, Biologica vol. 6.** – Copenhagen: Det Kongelige Danske Videnskaberne Selskab, 2017. – ISSN 1904-5484, ISBN 978-87-7304-407-0. – 21 × 26.5 cm, 320 pp, English, softback. – Price: DKK 300 (± EUR 40).

This symposium brought together botanists from eighteen countries from the North and the South, from developed and developing countries, from various areas of research connected to the use and application of herbarium collections of tropical plants.

In this volume, 22 contributions are published, with an additional introductory chapter by the editors and organizers. Ib Friis (pp. 15–38) gives a general overview of the history of taxonomic concepts, from Dioscorides through the Darwinian revolution, from fixed to variable species, up to the recent internationalization and collaborations. This is useful background information, well summarized here.

The following chapters are grouped into six blocks, the longer ones also with a short summary of the convenor of the respective session. These blocks are “Herbaria in North and South”, “North-South Collaboration: Flora projects and training”, “Tropical plant collections and ‘Big Data’”, “Tropical plant collection and drug discovery”, “Tropical plant collections and molecular systematics” and “Tropical Botanic Gardens”. This already shows the variety of topics.

All contributions were given by renowned and very well-qualified experts on the topics. Taken together, this book can nearly be considered a reference work on the history, current situation and future prospects and areas of research of important herbaria holding tropical collections. The chapters are sometimes quite different in style and illustrations, but they also have much in common. All are well written and readable and include a wealth of information on the field. No obvious mistakes were found, the editors did a good job. The references are numerous and usually take several pages, and the texts include a multitude of relevant web links. Both are extremely useful, and one can only hope that the web links will remain valid in the near future. I am confident that the cited up-to-date resources will provide new information for every reader.

Herbaria from the North holding important tropical collections are usually connected to former colonies in the tropics (the United States are an exception here). Herbaria in the South may be based on collections originating from colonial times, or may have been initiated by more recent collaborations. The history of relevant collections and the current situation for herbaria holding important tropical collections is described for (in sequence of chapters) Italy, Netherlands (in two separate chapters with a different focus, on historical collectors and important recent collaborations, and on the recent changes in the re-organization of all Dutch herbaria), United Kingdom, United States, Sub-Saharan regions, Cameroon, South Africa and India. One may notice that France and Germany are missing here, as well as some important tropical countries such as Brazil. The coverage is therefore somewhat patchy, but this is hardly a mentionable short-coming given the overall wealth of information included.

Examples for successful collaborative projects discussed are the Flora of Thailand, the Norway-Africa projects (in particular with Zimbabwe), the Danish-Ecuadorian projects, and a spotlight on US-Brazilian collaborations from the memory of Prof. Ghilleen T. Prance (pp. 207–210). These chosen examples are certainly suitable ones. They describe commendable collaborative initiatives that resulted in capacity-building and excellent scientific results based on fair share for all partners, although some critical words are also added, such as by Inger Nordal & al. (pp. 187–197) on bureaucratic obstacles experienced.

In the remaining chapters the focus is moved to future prospects and challenges for tropical herbarium collections and botanical gardens. How can the specimens and their information be used for future benefit and research, as much as can be foreseen today? Digitalization (including “big data”) and increasingly advanced molecular methods are obvious paths, but also the connection with forest plot data, climate-modelling or the study of functional traits of individual plants or higher taxa. The chapters are quite well balanced: Chances are illustrated, but also possible reasons for caution are mentioned when, e.g., methods are applied without the right framework. Some of the examples, such as the analysis of functional traits (Simon Queenborough, pp. 223–236) may not be as obvious for a systematist, but are interesting and well illustrated. The chapter on the significance of herbarium collections for drug discovery (Nina Rønsted & al., pp. 255–268) brings the attention to very practical needs for

human society, not least the verification of identifications of medicinal plants with interesting examples.

The chapter on Botanical Gardens (Stephen Blackmore, pp. 287–299) gives a very different viewpoint, in that the scientific value is, obviously, only one out of several, and for future support of society (and funding) the whole range of benefits must be emphasized, not at least the health and well-being of people.

It is illustrated in several of the chapters that the value and wealth of information in herbarium collections in general is increasingly less appreciated in politics and society, and that funding and staff are therefore in decline. This is, among others, discussed by Vicki Funk (pp. 73–96); this chapter is mainly based on an analysis of data extracted from Index Herbariorum as of 2015, with a focus on US American institutions, but it illustrates this decline well. A more encouraging example are the Dutch herbaria (Peter van Welzen & Christel Schollaardt, pp. 163–174), where after severe budget and staff cuts and setbacks, the unified natural history collections in Naturalis, in combination with the mass-digitalization of Dutch herbaria, seem to lead to a more satisfying future.

Two details could perhaps have been stressed more: The irreplaceability and outstanding value of type specimens, and the need for voucher specimens that should be deposited in herbaria for studies in many areas of botanical research, and that help to increase the very practical importance of herbarium collections, not least in the tropics; both are perhaps obvious to many of us but not to all (Funk & al. 2018).

Reading this volume with this variety of expert viewpoints on the history and (current and future) benefits of tropical herbarium collections may hopefully contribute arguments and awareness to tackle the current threads to these collections, and to show what we may lose and what could be done. Even without this, this volume is enjoyable reading and a reference work for several aspects of tropical, herbarium-based studies that will remain useful in the near future.

Hans-Joachim Esser  
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## Reference

Funk V. A., Edwards R. & Keeley S. 2018: The problem with(out) vouchers.– *Taxon* **67**: 3–5.

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