

Preface

Old and new techniques are essential for any research program. New instrumentation, techniques, methodologies, and ideas continue to appear in the literature. Some will have a profound influence on our future research activities. At present, many traditional methods are still routinely in use in many laboratories, and simple methods such as hand sections and related techniques are extremely useful in botanical research. It is unfortunate, however, that many traditional methods are not being taught. Students often lack a clear understanding of the methods used and, therefore, cannot take full advantage of the different microtechniques available for their experimental studies. The usefulness of many histological methods is that by providing basic structural information, they help in generating questions and hypotheses needed to advance research.

The purpose of putting together a volume related to plant microtechniques is to gather the commonly used methods and update their procedures using a simple and fully understandable approach. Although, many similar monographs have been published in the past, unfortunately, the majority of them are out of print. We hope this book can serve as a handy resource for scientists familiar with the protocols, and as a guide for the novices, especially students just beginning to learn about various structural methods for the first time.

In terms of organization, it is not possible to include all methods in a single volume. Many related techniques including those used for the study of animal biology, can be found in the Protocol Book Series. Readers are urged to look for specific methods by checking the “Protocol” website from Springer (www.springerprotocol.com). In the first section of this volume, we have selected the more commonly used embedding methods, with emphasis on the preparative methods for light and electron microscopy. A number of cell biology-related protocols are compiled in Sect. 2 to showcase the usefulness of various techniques based on different processing and staining methods. Section 3 highlights some common and recent procedures in wood preparation. The last section includes botanical methods related to archaeological uses of plant materials. A special chapter on field and herbarium procedures is also included to serve as a guide for students interested in plant collection and taxonomic studies. It is our aim to include a range of topics in order to generate cross

talks among scientists in different research disciplines. We realize that the methods selected are incomplete and hope to update and include new methods in the future.

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