



BOOK REVIEW

Mass Spectrometry Handbook

Mike S. Lee, Editor

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Mass Spectrometry Handbook which is part of the Wiley Series on Pharmaceutical Science and Biotechnology: Practice, Applications, and Methods, brings together research from a wide variety of scientific areas. Topics include proteomics, mass spectral imaging of biological tissues, forensic science, and mass spectral analysis of materials with extraterrestrial origins, just to name a few.

Editor, Dr. Mike S. Lee (Milestone Development Services), has assembled works from over 160 contributing authors into a resource comprised of 13 sections separated into 52 chapters, totaling approximately 1300 pages. The 13 section headings are given below:

- Biotechnology/Proteins
- Pharmaceuticals
- Clinical Analysis
- Forensics
- Space Exploration
- Homeland Security
- Food Analysis
- Environmental
- Geological
- Archeology
- Surface Analysis
- Polymers
- Analytical Techniques

Each chapter is a complete work in itself and, as such, can be taken individually if desired. The structure of each chapter is organized in a consistent way, starting with background and history of the application, followed by a detailed description of the method, and finally ending with references for further study. As a rough estimate, each chapter is 20 pages in length, including figures and references.

This handbook would serve as an excellent resource for regular users of mass spectrometry who are looking to expand into new

areas of research or to approach an existing problem from a slightly different view point. Owing to the breadth of different topics covered, there is something for just about everyone. Even if the exact research problem of interest is not covered, one of the many methods described could be modified to suit an individual need.

It is unrealistic to expect this handbook to cover all the possible topics that fall under the umbrella of pharmaceutical science and biotechnology. It offers a good sampling of techniques and research areas that are representative of the work being done in modern laboratories. One area that is not touched on in this book, which I thought would be included, is the emerging use of ion mobility coupled with mass spectrometry for the study of protein structures in their native state.

Whereas the book is intended to be a resource for all levels of researcher, it is not ideally suited for the mass spectrometry neophyte. Each chapter contains sufficient background information on the topic of study and the application or method, but little information about the instrumentation being used. I am not suggesting that this book requires an in-depth theoretical explanation of all instrumental techniques utilized, but a chapter or two that give a basic description of separation methods, ionization techniques, and instrument types would be useful to the beginner. One feature included by the authors of a couple of chapters in the handbook was a description of the critical parameters and probable pitfalls of their method. Ideally, this information would have been included in each chapter, as I am sure that it would save the reader/researcher valuable time in the lab. There is no point in reinventing the wheel.

As an assistant professor at a liberal arts college, I can see using this handbook as a spring board for student research projects. Even though they may not be able to perform the exact same experiments as those described in the text, it provides for them a picture of how researchers think about and work toward solving problems. The handbook would also serve as a resource for students who are interested in learning more about work that is currently being done in modern research labs. The structure and organization of the chapters make them a bit easier to read than a journal article on the same subject. Each chapter contains on average 50 references, which would allow the student to dive into the subject as deeply as they would like. Despite the fact that my students would not have the ability to duplicate the experiments exactly, due to a lack of instrumentation, they could still learn from the experience of the authors. As stated earlier, it could be possible for us to modify existing methods detailed in the text to suit the infrastructure available to us.

In summary, this handbook presents research from a variety of areas tied together by the common thread of mass spectrometry. The authors present their works in a manner that is accessible to beginning researchers and include sufficient references to allow in depth exploration of the topic. More seasoned scientists could also benefit from this book as they venture into new areas of research.

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