K. Sridharan

Spectral Methods in Transition Metal Complexes

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K. Sridharan
School of Chemical and Biotechnology
SASTRA University
Thanjavur
Tamil Nadu
India

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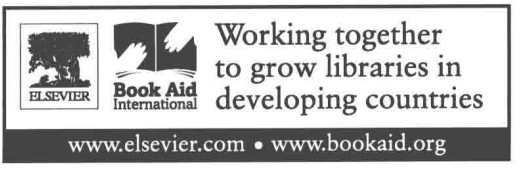

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PREFACE

It is very important to determine the structure of compounds in order to predict and understand their properties so that they can be used as drugs, materials of importance, catalysts, etc. Natural products belong to another important class of compounds in the field of drug discovery. They are isolated from natural sources such as plants, animals, ocean, etc., with great difficulty. Sometimes when it is started with thousands of kilograms of leaves, barks, roots, flowers, etc., we may end up with a few milligrams of the active compound. Hence, we cannot afford to waste this precious compound in order to determine its structure. Therefore, spectral techniques are very valuable in structure determination. These techniques do not destroy the compounds and also the results are obtained quickly. Thus "spectral methods of identification of organic compounds" are widely used.

Just like organic compounds, metal complexes are also widely used as anticancer drugs, catalysts, sensors, labels in MRI techniques to detect various diseases, etc. Spectral techniques such as UV-Vis, IR, NMR, and EPR are widely used in determining their structures. While a large number of books are available for organic compounds, books on spectral methods for inorganic compounds and complexes are scarce. In particular, all these methods are discussed in this single book. This book has taken shape after about three decades of teaching. I hope that this book may be very useful for students and teachers.

I am quite fascinated by Cardinal Newman's words quoted in I.L. Finar's book *Organic Chemistry* (Longman's, 1951), "A man would do nothing, if he waited until he could do it so well that no one would find fault with what he has done." Hence, I welcome suggestions and criticisms on this book.

K. Sridharan
SASTRA University
November, 2015

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