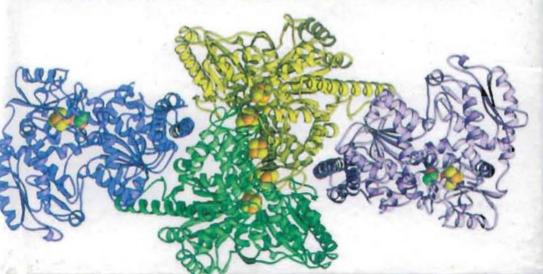


BIOINORGANIC CHEMISTRY

M. SATAKE · Y.MIDO · M.S. SETHI · S. A. IQBAL



BIOINORGANIC CHEMISTRY

The teaching of Chemistry at the introductory stage becomes each day a more challenging task as the subject matter becomes more diverse and more complex. These challenges have evoked a series of responses—the present set of introductory chemistry monographs is one such. The teaching of chemistry recognises a number of problems that confront those who select text books. In order to overcome these problems, this volume "Bioinorganic Chemistry"—one of about fifty in the Chemistry Monograph Series—is introduced. Each volume is independent of the others deals with one of Chemistry topics and constitutes and complete entity. Each volume is more comprehensive than can be possible in a single volume text. It is intended to provide a range of topics to cover most undergraduate and chemistry main courses of study. These volumes can be used to enrich the more conventional courses of study.

THE AUTHORS

M. Satake is well known in the field of Analytical Chemistry and is associated with Fukui University, Japan. Professor Stake has published over 200 research papers and books in Chemistry, and has extensively travelled all over the world.

Y. Mido a Dr. Sc., from Hiroshima University, has been teaching in Chemistry Department, Kobe University, Japan from 1965. He has been a visiting Professor in Universided Autonomade Guadalajara (Mexico) and Universided Complutense de Madrid (Spain). He has published over 40 research papers, mostly in spectroscopy, in International journals of repute.

M.S. Sethi a Ph.D., from Delhi University, has been teaching in ARSD College (Delhi University) from over two decades. He has published several research papers and co-authored 10 books in Chemistry.

S.A. Iqbal presently Professor of Chemistry at Saifia College, Bhopal, India is also the Chief Editor of Oriental Journal of Chemistry. He has large number of publications to his credit.

Rs. 800



DISCOVERY PUBLISHING HOUSE PVT. LTD

4831/24, Ansari Road, Darya Ganj New Delhi-110002 (India)

Phone: +91-11-23279245/43764432, Fax.: +91-11-23253475

E-mail: info@discoverypublishinggroup.com discoverypublishinghouse@gmail.com parul.wasan@gmail.com

web:www.discoverypublishinggroup.com



Contents

 Introduction Transport and Storage of Metal Ions Elements in Biology and Medicine The Role of Biological Macromolecules and Polymers 	1 51 62 81 140
3. Elements in Biology and Medicine 4. The Role of Biological	62 81
4. The Role of Biological	81
•	
and a second sec	140
5. Energy in Biological Systems and Hydrogen Biochemistry	
6. The functional Value of the Chemical Elements in Biological Systems	163
7. Sodium, Potassium and Chlorine	190
8. The Biological Chemistry of Magnesium	213
9. Calcium	243
10. Zinc	278
11. Non-haem Iron :Redox Reactions and Controls	301
12. Haem Iron: Coupled Redox Reactions	328
13. Manganese	355
14. Copper	375
15. Nickel and Cobalt	388
16. Molybdenum, Vanadium and Tungsten	401
17. Phosphate, Silica and Chloride: Acid-base Non-metals	431
18. Sulphur, Selenium and Halogens: Redox non-metals	448