Heterocycles in Life and Society. An Introduction to Heterocyclic Chemistry, Biochemistry and Applications. 2nd Edition

Description:

Heterocycles in Life and Society is an introduction to the chemistry of heterocyclic compounds, focusing on their origin and occurrence in nature, biochemical significance and wide range of applications. Written in a readable and accessible style, the book takes a multidisciplinary approach to this extremely important area of organic chemistry.

Topics covered include an introduction to the structure and properties of heterocycles; the key role of heterocycles in important life processes such as the transfer of hereditary information, how enzymes function, the storage and transport of bioenergy, and photosynthesis; applications of heterocycles in medicine, agriculture and industry; heterocycles in supramolecular chemistry; the origin of heterocycles on primordial Earth; and how heterocycles can help us deal with challenges of the 21st century.

For this second edition, Heterocycles in Life and Society has been completely revised and expanded, drawing on a decade of innovation in heterocycles chemistry. The new edition includes discussions of the role of heterocycles in nanochemistry, green chemistry, combinatorial chemistry, molecular devices and sensors, and supramolecular chemistry. Impressive achievements include the creation of various molecular devices, the recording and storage of information, the preparation of new organic conductors, and new effective drugs and pesticides with heterocyclic structures. Much new light has been thrown on various life processes, while the chemistry of heterocyclic structures and reactions, and the use of heterocyclic molecules as ionic liquids and proton sponges.

Heterocycles in Life and Society is an essential guide to this important field for students and researches in chemistry, biochemistry, and drug discovery, and for scientists at all levels who wish to expand their scientific horizon.

Contents:

PREFACE TO SECOND ENGLISH EDITION.
PREFACE TO FIRST ENGLISH EDITION.

1 MOLECULAR RINGS STUDDED WITH JEWELS.
1.1 From Homocycle to Heterocycle.
1.2 Building Heterocycles from Benzene.
1.3 Some More Kinds of Heterocycles.
1.4 Problems.
1.5 Suggested Reading.

2 WHY NATURE PREFERS HETEROCYCLES .
2.1 Reactions for All Tastes.
2.2 Heterocycles as Acids and Bases.
2.3 Heterocycles and Metals.
2.4 There are Subtle Ties of Power m'.
2.5 Tautomerism: Heterocycles and Their Masks'.
2.6 Problems.
2.7 Suggested Reading.

3 HETEROCYCLES AND HEREDITARY INFORMATION.

3.1 Nucleic Acids.

3.2 The Double Helix.

3.3 How One DNA Doubles Itself.

3.4 Protein Synthesis. Genetic Code and Genome.

3.5 What are Mutations?

3.6 Mysterious Telomers.

3.7 Gene Expression.

3.8 Problems.

3.9 Suggested Reading.

4 ENZYMES, COENZYMES AND VITAMINS.

4.1 Molecular Robots.

4.2 Coenzymes and Enzymes as Joint Molecular Ventures.

4.3 Vitamins, the Molecules of Health.


4.5 Problems.

4.6 Suggested Reading.

5 HETEROCYCLES AND BIOENERGETICS.

5.1 ATP as the Universal Currency of Energy.

5.2 Breathing.

5.3 Problems.

5.4 Suggested Reading.

6 HETEROCYCLES AND PHOTOSYNTHESIS.

6.1 Chlorophyll: Sunlight-receiving Antenna and Energy Carrier.

6.2 What Daylight can Achieve.

6.3 Photosynthesis without Light.

6.4 Problems.

6.5 Suggested Reading.

7 HETEROCYCLES AND HEALTH.

7.1 Medicines from a Natural Storehouse.
7.2 Heterocycles versus Infectious Microbes.
7.3 Heterocycles and Viral Infections.
7.4 Heterocycles and the Diseases of Our Century.
7.5 Heterocyclic Molecules in Combat with Ulcer and Sexual Disfunctions.
7.6 Problems.
7.7 Suggested Reading.

8 HETEROCYCLES IN AGRICULTURE.
8.1 A Century of Chemical Warfare against Weeds.
8.2 Regulators of Plant Growth.
8.3 The Struggle against Voracious Insects.
8.4 Resisting the Kingdoms of Mustiness and Rot.
8.5 Heterocycles in Animal Husbandry.
8.6 Combinatorial Chemistry and Functional Genomics in the Synthesis of Biologically Active Heterocyclic Compounds.
8.7 Problems.
8.8 Suggested Reading.

9 HETEROCYCLES IN INDUSTRY AND TECHNOLOGY.
9.1 Heterocycles and Natural Colors.
9.2 Dyes.
9.3 Fluorescent Agents.
9.4 Color Change Compounds.
9.5 Fire Retardancy.
9.6 Photographic Materials and Recorders of Information.
9.7 Heterocycles as Food Additives.
9.8 Heterocycles as Cosmetics and Perfumery Ingredients.
9.9 Other Applications.
9.10 Problems.
9.11 Suggested Reading.

10 HETEROCYCLES AND SUPRAMOLECULAR CHEMISTRY.
10.1 Molecular Recognition and Host–Guest Interactions.
10.2 Self-assembling Molecular Systems.
10.3 Problems.
10.4 Suggested Reading.

11 HETEROCYCLES AND 21st CENTURY CHALLENGES.

11.1 Energy Problems.

11.2 Ecology and Green Chemistry.

11.3 Biotechnology and Related Problems.

11.4 From Molecular Devices to Molecular Computer.

11.5 Problems.

11.6 Suggested Reading.

12 THE ORIGIN OF HETEROCYCLES.

12.1 Origin of the Universe and Appearance of Chemical Elements.

12.2 Iterstellar Molecules.

12.3 Organic Compounds in Comets and Meteorites.

12.4 Do Heterocycles exist on the Moon and Mars?.

12.5 The Atmosphere of Earth and Other Planets.

12.6 Heterocycles and the Origin of the Biosphere.

12.7 Problems.

12.8 Suggested Reading.

CONCLUSION.

ANSWERS AND REFERENCES TO SELECTED PROBLEMS.

INDEX.
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit http://www.researchandmarkets.com/contact/

Order Information
Please verify that the product information is correct and select the format(s) you require.

Product Name: Heterocycles in Life and Society. An Introduction to Heterocyclic Chemistry, Biochemistry and Applications. 2nd Edition
Web Address: http://www.researchandmarkets.com/reports/2171629/
Office Code: SCDKYPU4

Product Formats
Please select the product formats and quantity you require:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard Copy (Paper back):</td>
<td>USD 106 + USD 29 Shipping/Handling</td>
</tr>
<tr>
<td>Hard Copy (Hard Back):</td>
<td>USD 162 + USD 29 Shipping/Handling</td>
</tr>
</tbody>
</table>

* Shipping/Handling is only charged once per order.

Contact Information
Please enter all the information below in BLOCK CAPITALS

Title: [ ] Mr [ ] Mrs [ ] Dr [ ] Miss [ ] Ms [ ] Prof
First Name: ___________________________________________ Last Name: _______________________________________
Email Address: * _______________________________________
Job Title: ___________________________________________
Organisation: _________________________________________
Address: ____________________________________________
City: _________________________________________________
Postal / Zip Code: __________________________________
Country: ____________________________________________
Phone Number: _______________________________________
Fax Number: _________________________________________

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:

Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:

Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: ____________________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:

(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World