



PHARMACEUTICS

BASIC PRINCIPLES AND APPLICATION
TO PHARMACY PRACTICE

EDITED BY
ALEKHA K. DASH | SOMNATH SINGH | JUSTIN TOLMAN



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Basic Principles and Application to Pharmacy Practice

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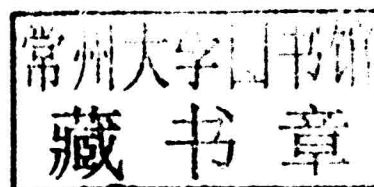
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PHARMACEUTICS

We dedicate this text to our teachers and professors who inculcated in us a love of scientific principles and pharmaceuticals.

Preface

Pharmaceutical education in the United States of America has been undergoing substantial changes over the past several decades to address changes in a pharmacist's role in the provision of pharmaceutical care. Pharmacy education has had a historical perspective that prepared student pharmacists to engage in pharmaceutical dispensing or pursue graduate pharmaceutical education focused on research. Any clinically-focused education was then obtained through post- baccalaureate training and experience. The currently evolving perspective of pharmacy education is focused on preparing student pharmacists as providers of clinical pharmaceutical care and as the medication expert in the healthcare system.

These evolutions have increased the need for pharmacy education to be solidly-grounded in scientific principles. Key domains of pharmaceutical knowledge include: medicinal chemistry and pharmacology for an understanding of drug molecule properties and mechanisms of action; pharmaceutics and biopharmaceutics to utilize physicochemical properties of drugs to develop a safe, effective and reliable drug product and their interactions with human physiology; pharmacokinetics and pharmacodynamics to explain drug movement and pharmacologic effects within systems; pharmacy practice to interpret the role of medications in the diagnosis, treatment, and prevention of disease;

and social and administrative studies to evaluate health services and patient safety. Pharmaceutical education should substantively address all of these domains to provide scientific foundations for rational clinical decision making. Additionally, only pharmacy education can provide the scientific depth and breadth across these various levels of knowledge domains.

This textbook is intended to provide a basic scientific introduction to the fields of pharmaceutics and biopharmaceutics specifically tailored to meet the need of practice of Pharmacy. Current educational resources in these fields are principally focused on a historical perspective of pharmaceutical education. They either provide a mathematically rigorous and theoretical introduction to these fields or are briefly integrated into larger resources focused on other knowledge domains. *Pharmaceutics: Basic Principles and Application to Pharmacy Practice* will help pharmacy students gain the scientific foundation to understand drug physicochemical properties, practical aspects of dosage forms and drug delivery systems, and the biological applications of drug administration.

Alexha H. Dash
Justin Tolman
Somnath Singh

Pharmaceutics: Basic Principles and Application to Pharmacy Practice includes a companion website with a full color image bank and flip videos featuring difficult processes and procedures, as well as sample questions for students to test their knowledge. To access these resources, please visit booksite.elsevier.com/9780123868909.

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Contents

Preface	ix
Acknowledgments	xi
List of Contributors	xii

I

PHYSICAL PRINCIPLES AND PROPERTIES OF PHARMACEUTICS

1. Introduction: Terminology, Basic Mathematical Skills, and Calculations

EMAN ATEF AND SOMNATH SINGH

1.1. Introduction	3
1.2. Review of Basic Mathematical Skills	3
1.3. Graphical Representation	11
1.4. Dimensions and Units	12
1.5. Conclusions	14
Case Studies	14
References	15

2. Physical States and Thermodynamic Principles in Pharmaceutics

VIVEK S. DAVE, SEON HEPBURN
AND STEPHEN W. HOAG

2.1. Introduction	17
2.2. Composition of Matter	17
2.3. Forces of Attraction and Repulsion	18
2.4. States of Matter	22
2.5. Thermodynamics	33
2.6. Basic Concepts and Definitions	35
2.7. The First Law of Thermodynamics	37
2.8. Enthalpy and Heat Capacity	39
2.9. The Second Law of Thermodynamics	41
2.10. The Third Law of Thermodynamics	44
2.11. Free Energy and Thermodynamic Functions	44
2.12. Chemical Equilibrium	46
2.13. Open Systems	46
2.14. Conclusions	47
Case Studies	47
Appendix 2.1 Calculus Review	48
References	49

3. Physical Properties, Their Determination, and Importance in Pharmaceutics

SOMNATH SINGH AND ALEKHA K. DASH

3.1. Introduction	51
3.2. Surface and Interfacial Tension	52
3.3. Adsorption	53
3.4. Solubilization	59
3.5. Rheology	61
3.6. Colligative Properties	65
3.7. Osmolarity and Osmolality	68
3.8. Solubility and Solutions of Nonelectrolytes	71
3.9. Spectroscopy	73
3.10. Conclusions	83
Case Studies	82
References	84

4. Equilibrium Processes in Pharmaceutics

SUNIL S. JAMBHEKAR

4.1. Introduction	85
4.2. Gastrointestinal Physiology	87
4.3. Ionization	90
4.4. Partition Coefficient: Lipophilicity	93
4.5. Equilibrium Solubility	96
4.6. The Effect of pH	98
4.7. Use of Co-solvents	99
4.8. Drug Dissolution and Dissolution Process	100
4.9. Factors Influencing the Dissolution Rate	102
4.10. Passive Diffusion	104
4.11. Biopharmaceutics Classification System (BCS)	105
4.12. Conclusions	106
Case Studies	106
References	107
Suggested Readings	108

5. Kinetic Processes in Pharmaceutics

RAMPRAKASH GOVINDARAJAN

5.1. Introduction	109
5.2. Thermodynamics vs. Kinetics	109
5.3. Chemical Reaction Kinetics and Drug Stability	110
5.4. Diffusion	127
5.5. Dissolution	130
5.6. Conclusions	136

Case Studies	136
References	137

6. Biopolymers

SOMNATH SINGH AND JUSTIN TOLMAN

6.1. Introduction to Polymers	139
6.2. Introduction to Peptides and Proteins	142
6.3. Introduction to Oligonucleotides	146
6.4. Conclusions	149
Case Studies	149
References	150
Suggested Readings	150

II

PRACTICAL ASPECTS OF PHARMACEUTICS

7. Drug, Dosage Form, and Drug Delivery Systems

ALEKHA K. DASH

7.1. Introduction	153
7.2. Pharmaceutical Ingredients	154
7.3. Preformulation Studies	154
7.4. Physical Description	154
7.5. Liquid Dosage Forms	154
7.6. Solid Dosage Forms	156
7.7. Partition Coefficient and pK_a	157
7.8. Solubility	157
7.9. Dissolution	157
7.10. Polymorphism	157
7.11. Stability	158
7.12. Conclusions	158
Case Studies	158
References	159

8. Solid Dosage Forms

ALEKHA K. DASH

8.1. Introduction	161
8.2. Powders	161
8.3. Capsules	165
8.4. Tablets	168
8.5. Manufacture of Compressed Tablets	170
8.6. Methods Used for Manufacture of Compressed Tablets	172
8.7. Tablet Compression and Basic Functional Units of a Tablet Press	173
8.8. Quality Control of Tablet Dosage Form	175
8.9. Tablet Coating	178
8.10. Conclusions	179
Case Studies	179
References	180

9. Liquid Dosage Forms

HARI R. DESU, AJIT S. NARANG, LAURA A. THOMA
AND RAM I. MAHATO

9.1. Introduction	181
9.2. Selection of Liquid Dosage Forms	181
9.3. Types of Liquid Dosage Forms	183
9.4. General Aspects of Liquid Dosage Forms	207
9.5. Manufacturing Processes and Conditions	210
9.6. Packaging	214
9.7. Labeling	217
9.8. Quality Assurance and Quality Control	217
9.9. Regulatory Considerations	219
9.10. Conclusions	221
List of Abbreviations	221
Case Studies	221
References	222

10. Aerosol Dosage Forms

JUSTIN A. TOLMAN AND MEGAN HUSLIG

10.1. Introduction	225
10.2. Lung Anatomy	226
10.3. Lung Physiology	227
10.4. Pulmonary Drug Targets	228
10.5. Pulmonary Drug Deposition	228
10.6. Therapeutic Gases	230
10.7. Inhaled Aerosols	232
10.8. Conclusions	237
Case Studies	238
Acknowledgments	238
References	238

11. Semisolid Dosage Forms

SHAILENDRA KUMAR SINGH, KALPANA NAGPAL
AND SANGITA SAINI

11.1. Introduction	241
11.2. Classification of Semisolid Dosage Forms	243
11.3. Percutaneous Absorption	249
11.4. Theory of Semisolid Dosage Forms	253
11.5. Methods of Enhancement of Percutaneous Absorption	255
11.6. Characterization and Evaluation of Semisolid Dosage Forms	260
11.7. Procedure and Apparatus for Diffusion Experiment	263
11.8. Conclusions	269
Case Studies	269
References	270

12. Special Dosage Forms and Drug Delivery Systems

SARAT K. MOHAPATRA AND ALEKHA K. DASH

12.1. Introduction	273
12.2. Special Dosage Forms	274

12.3. Parenteral Drug Delivery	275
12.4. Osmotic Delivery	277
12.5. Nanotechnology for Drug Delivery	280
12.6. Implantable Drug Delivery	292
12.7. Prodrugs	299
12.8. Conclusions	301
Case Studies	302
References	303

III

BIOLOGICAL APPLICATIONS OF PHARMACEUTICS

13. Membrane Transport and Permeation

JUSTIN A. TOLMAN AND MARIA P. LAMBROS

13.1. Introduction	307
13.2. Cell Membranes	307
13.3. Membrane Transport	309
13.4. Pharmacologically Relevant Membrane Transport Processes	311
13.5. Conclusions	315
Case Studies	315
References	315

14. Factors Affecting Drug Absorption and Disposition

CHONG-HUI GU, ANUJ KULDIPKUMAR
AND HARSH CHAUHAN

14.1. Introduction	317
14.2. Drug Absorption	317
14.3. Oral Drug Absorption Processes	318
14.4. Food Effects on Oral Drug Absorption	323

14.5. Evaluation of Oral Absorption	324
14.6. Drug Disposition	325
14.7. Conclusions	327
Case Studies	327
References	329

15. Routes of Drug Administration

MOHSEN A. HEDAYA AND JUSTIN A. TOLMAN

15.1. Introduction	333
15.2. Parenteral Drug Administration	334
15.3. Transdermal Drug Administration	337
15.4. Ophthalmic Drug Administration	338
15.5. Auricular (Otic) Drug Administration	340
15.6. Nasal Drug Administration	341
15.7. Pulmonary Drug Administration	341
15.8. Oral Drug Administration	342
15.9. Rectal Drug Administration	346
15.10. Vaginal Drug Administration	347
15.11. Conclusions	347
References	348

16. Bioavailability and Bioequivalence

AJIT S. NARANG AND RAM I. MAHATO

16.1. Introduction	349
16.2. Bioavailability	349
16.3. Factors Affecting Bioavailability	352
16.4. Bioequivalence	359
16.5. Conclusions	362
Case Studies	362
References	362

Index 365



P A R T I

PHYSICAL PRINCIPLES AND
PROPERTIES OF PHARMACEUTICS

