

CONTENTS

<i>Preface</i>	(vii)
<i>Acknowledgements</i>	(ix)

Microbiology Laboratory: Basic Rules and Requirements

1. Pharmaceutical Microbiology and Basic Rules of Laboratory	3
2. Basic Requirements of Microbiology Laboratory	6

Instrumentation

3. Microscope	9
4. Autoclave.....	15
5. Incubator.....	18
6. Hot Air Oven	21
7. Laminar Air Flow	24
8. pH Meter.....	27
9. Spectrophotometer.....	31
10. Colony Counter	33

Preparation of Culture Media, Sterilization and Culture Methods

11. Preparation and Sterilization of Media	37
12. Aseptic Technique and Transfer of Microorganisms	40
13. Growth Promotion Test of the Medium	46
14. Preparation of Agar Slants, Stabs and Plates.....	48
15. Preservation of Microbial Cultures.....	53

Techniques for Isolation of Pure Culture from Mixed Culture

16.	Streak Plate Method	63
17.	Pour Plate Method	66
18.	Spread Plate Technique	69

Staining Techniques of Microorganisms

19.	Preparation of a Bacterial Smear	73
20.	Staining.....	76
21.	Simple Staining	78
22.	Negative Staining	80
23.	Gram Staining.....	82
24.	Acid-Fast Staining	86
25.	Staining of Fungus by Lactophenol Cotton Blue	90

Biochemical Tests for Identification of Bacteria

26.	IMViC Tests	95
27.	Indole Test	97
28.	Methyl Red and Voges-Proskauer Test (MR-VP Test)	99
29.	Citrate Test	102
30.	Carbohydrate Fermentation Test	104
31.	Starch Hydrolysis Test	106
32.	Gelatin Hydrolysis Test.....	108
33.	H ₂ S Production Test	110

Bacterial Motility

34.	Wet Mount Method	115
35.	Hanging Drop Method.....	117
36.	Soft Agar and Agar Deep Tube Methods	121

Microbial Assay of Antibiotics	
37. Microbial Assay of Antibiotics.....	127
38. Turbidimetric or Tube Assay Method	143
Sterility Testing of Pharmaceuticals	
39. Sterility Testing of Pharmaceuticals.....	147
Environmental Monitoring	
40. Environmental Monitoring by Settling Plate Method	159
Bacterial Analysis of Water	
41. Bacterial Examination of Water by Multiple Tube Fermentation Test.....	165
42. Bacteriological Examination of Water by Membrane Filtration Method.....	172
43. Analysis of Water for Total Bacterial Population by Standard Plate Count	175
Microbial Taxonomy	
44. Fungi.....	179
45. Bacteria.....	190
Appendices	
Suppliers of Microorganisms	199