

MICROBIOLOGICAL EXAMINATION of WATER and WASTEWATER

Maria Csuros
Csaba Csuros

*With Contributions By
Klara Ver*



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**MICROBIOLOGICAL
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Preface

Microbiological tests in environmental pollution control are intended to indicate the degree of contamination by the detection and enumeration of indicator organisms.

Many excellent microbiology textbooks and laboratory manuals are available to teach microbiology courses. A great number of published scientific materials and government agency releases are also available for selected areas of environmental microbiology. However, these texts are difficult to use as laboratory guides and they are not designed for training purposes.

There is a great need for information related to the general operation of environmental microbiology laboratories as well as for training laboratory technicians to detect indicator microorganisms in environmental samples. This book completely satisfies these demands and provides those requirements. It is designed as an important tool for environmental laboratory technicians and to serve as a complete guide in their training and in their work.

With the presentation of the fundamentals of microbiology, microbial metabolism, microbial growth and control, and the classification and introduction of microorganisms, the text helps to better understand the purpose and significance of the mechanisms of microbiological examination. Discussion of the general operations and techniques used in environmental microbiology laboratories, sample collection and preservation, detailed QA/QC requirements, and selected step-by-step methodologies, are provided to make this book a useful guide for laboratory technicians working in this field. The text is divided into four parts:

1. General microbiology,
2. Environmental microbiology,
3. Safety and quality control in environmental microbiology laboratories,
4. Techniques and methods in the routine environmental microbiology examination.

The authors of this book hope that as a practical handbook, it will be a valuable contribution to environmental education and special training programs. The aim is to assist environmental laboratory technicians in their work. This handbook also gives a helping hand to environmental laboratory managers, environmental consultants, water and wastewater treatment plant operators and managers, industrial hygienists and health officials.

Authors

Maria Csuros is an environmental chemist, she received her Ph.D. in Environmental Chemistry from the Janus Pannonius University, Hungary. Most of her professional life has revolved around environmental testing laboratories and teaching.

Her first encounter with environmental science occurred at the Environmental and Public Health Laboratory in Hungary, where she worked as the supervisor of the Water Department.

After moving to the United States, she continued to dedicate her knowledge and time to environmental analytical work and education. She designed and developed an environmental science program for Pensacola Junior College that focused on environmental sampling and analysis. An associate professor and coordinator of this program, she teaches chemistry and environmental courses.

She has published two books *Environmental Sampling and Analysis for the Technician* (1994) and *Environmental Sampling and Analysis Laboratory Manual* (1996) by CRC/LEWIS Publishers. She has also authored a number of environmental publications in Hungary.

Csaba Csuros is a professor of science at Pensacola Junior College and has received the excellence in teaching award.

He earned his Ph.D. at Jozsef Attila University, Hungary, in Microbiology. His professional life focused on medical and public health laboratory work and he teaches microbiology, anatomy, and physiology.

He was a delegate to the International Entomology Congress held in Moscow. His research interests center on serological diagnosis of parasitic diseases (ascariasis, echinococcosis, and filariasis).

He has published a number of papers in the field of microbiology, and he is a co-author of a book *Tropical Diseases* published by the Microbiology Department of the University of Medicine, in Pecs, Hungary.

Klara Czako-Ver received her Ph.D. in Biological Sciences from Eotvos Lorand University, Hungary. She is presently a faculty member of Janus Pannonius University, Hungary, and teaches microbiology.

Her present research interest is in isolation of chromium sensitive and tolerant *Schizosaccharomyces pombe* mutants, cytological, biophysical, and genetical investigations.

Her publications have mostly dealt with the effects of toxic metals on the microbial life.

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Warm words of thanks to our sons, Geza and Zoltan, and to our grandchildren, Aaron, Andrew, Daniel, Jordan, and Sebastian for their love, encouragement, and for their cheerful spirit.

To all of you, thank you!

Dedication

Our work is dedicated with all of our love to our sons Geza and Zoltan.

M. C. and C. C.

*I am honored to dedicate this book to the memory of my parents,
Maria and Geza Csuros.*

C.C.

Contents

Chapter 1

Scope and History of Microbiology	1
1.1 Microbes and Microbiology	1
1.1.1 General Concepts of Microbiology	1
1.1.2 Size of Microorganisms	1
1.1.3 Unicellular and Noncellular Organisms	1
1.1.4 Basic Characteristics of Living Systems	2
1.1.5 Investigation of Microorganisms	2
1.2 Brief History of Microbiology	2
1.2.1 The Microscope and Microbes	2
1.2.2 Spontaneous Generation vs. Biogenesis Theory	2
1.2.3 Aseptic Techniques	5
1.3 The Golden Age of Microbiology	5
1.3.1 Fermentation and Pasteurization	6
1.3.2 The Germ Theory of Disease	6
1.3.3 Vaccination	7
1.4 Chemotherapy	8
1.4.1 The First Synthetic Drugs	9
1.4.2 Antibiotics	9
1.5 Modern Developments in Microbiology	10
1.6 Naming and Classifying of Microorganisms	10
1.6.1 Naming of Microorganisms	10
1.7 The Diversity of Microorganisms	11
1.7.1 Bacteria	11
1.7.2 Fungi	11
1.7.3 Protozoa	12
1.7.4 Algae	12
1.7.5 Viruses	12
1.7.6 Multicellular Parasites	12

Chapter 2

Prokaryotic Cells	15
2.1 Introduction of Prokaryotic and Eukaryotic Cells	15
2.2 The Prokaryotic Cell	15
2.2.1 Morphology of the Bacterial Cell	15
2.2.1.1 Spiral Bacteria	16
2.2.1.2 Bacilli	17
2.2.1.3 Cocci	17
2.3 Structures External to the Cell Walls	18
2.3.1 Glycocalyx	18
2.3.2 Flagella	19
2.3.3 Pili	19
2.4 The Cell Wall	19
2.4.1 Gram Positive Bacteria	20
2.4.2 Gram Negative Bacteria	20

2.4.3	Atypical Cell Wall	20
2.4.4	Damage to the Cell Wall	21
2.5	Structures Internal to the Cell Wall	21
2.5.1	Plasma or Inner Membrane	21
2.5.2	Movement of Material Across Membranes	22
2.5.2.1	Diffusion	22
2.5.2.2	Transport by Carriers	23
2.5.2.3	Endocytosis and Exocytosis	23
2.5.3	Cytoplasm	23
2.5.4	Nuclear Area	24
2.5.5	Ribosomes	24
2.5.6	Inclusion	25
2.5.6.1	Metachromatic Granules	25
2.5.6.2	Polysaccharide Granules	26
2.5.6.3	Lipid Inclusions	26
2.5.6.4	Sulfur Granules	26
2.5.6.5	Gas Vacuoles	26
2.5.7	Endospores	26
2.5.7.1	Sporulation	26
2.5.7.2	Germination	26

Chapter 3

Microbial Metabolism	29
3.1 Meaning of Metabolism	29
3.1.1 The First and Second Law of Thermodynamics	29
3.1.1.1 The First Law of Thermodynamics	30
3.1.1.2 The Second Law of Thermodynamics	30
3.1.2 Energy Transport through ADP and ATP	30
3.2 Metabolic Pathways	30
3.3 Enzymes	31
3.3.1 Mechanism of Enzyme Action	32
3.3.2 Naming the Enzymes	32
3.3.3 Temperature and pH Effect on Enzymes	32
3.3.4 Inhibition of Enzymes	33
3.3.4.1 Competitive Inhibition of Enzymes	33
3.3.4.2 Noncompetitive Inhibition of Enzymes	33
3.4 Nutritional Classification of Organisms	34
3.4.1 Energy Production	34
3.4.1.1 Carbon and Energy Sources	35
3.4.1.2 Nitrogen Sources	35
3.4.1.3 Other Chemical Requirements	35
3.5 Energy Production of Organisms	35
3.5.1 Oxidation–Reduction	36
3.5.2 Phosphorylation as ATP Formation in a Biological System	36
3.5.2.1 Substrate Level Phosphorylation	36
3.5.2.2 Oxidative Phosphorylation	36
3.5.2.3 Photophosphorylation	36
3.5.3 Formation of ATP during Respiration	36
3.5.3.1 Aerobic Respiration	37
3.5.3.2 Anaerobic Respiration	37
3.5.3.3 Fermentation	37
3.5.4 Formation of ATP during Fermentation	37

3.6	Carbohydrate Catabolism	37
3.6.1	Glycolysis	38
3.6.2	Alternative Pathway of Glycolysis by Bacteria	38
3.6.3	Transition Reaction	38
3.6.4	Krebs Cycle or Citric Acid Cycle	39
3.6.5	Respiratory Chain or Electron Transport System or Cytochrome System	41
3.6.6	Aerobic Respiration	42
3.6.7	Fermentation	43

Chapter 4

Microbial Growth and Its Control	45
4.1 Microbial Growth	45
4.1.1 The Lag Phase	45
4.1.2 The Log Phase	45
4.1.3 The Stationary Phase	45
4.1.4 The Death Phase	45
4.2 Physical Requirements	46
4.2.1 Temperature	46
4.2.1.1 Cold Loving Microbes: Psychrophiles	46
4.2.1.2 Moderate Temperature Loving Microbes: Mesophiles	46
4.2.1.3 Heat Loving Microbes: Thermophiles	47
4.2.2 pH and Buffers	47
4.2.3 Osmotic Pressure	48
4.3 Chemical Requirements	48
4.3.1 Carbon	48
4.3.2 Nitrogen, Sulfur, and Phosphorus	48
4.3.3 Trace Elements	48
4.3.4 Oxygen	49
4.3.5 Organic Growth Factors	49
4.4 Control of Microbial Growth	50
4.4.1 Terms Related to Destruction of Organisms	51
4.4.1.1 Sterilization	51
4.4.1.2 Disinfection	51
4.4.1.3 Pasteurization	51
4.4.1.4 Germicide	51
4.4.1.5 Antiseptics	51
4.4.1.6 Asepsis	51
4.4.1.7 Degerming	51
4.4.1.8 Sanitization	51
4.5 Physical Methods of Microbial Control	52
4.5.1 High Heat	52
4.5.1.1 Moist Heat Sterilization	52
4.5.1.2 Dry Heat Sterilization	52
4.5.2 Filtration	52
4.5.3 Low Temperature	52
4.5.4 Desiccation	53
4.5.5 Radiation	53
4.5.5.1 Ionizing Radiation	53
4.5.5.2 Nonionizing Radiation	53
4.6 Chemical Methods of Microbial Control	53
4.6.1 Surfactants or Surface Acting Agents	53
4.6.1.1 Soap	53

4.6.1.2	Acid–Anionic Surface Acting Sterilizers	53
4.6.1.3	Quaternary Ammonium Compounds (Quats)	54
4.6.2	Organic Acids	54
4.6.3	Aldehydes	54
4.6.4	Ethylene Oxide	54
4.6.5	Oxidizing Agents	54
4.6.6	Phenol (Carbolic Acid)	55
4.6.7	Halogens	55
4.6.8	Alcohols	55
4.6.9	Heavy Metals	55

Chapter 5

Microorganisms in the Environment	57
5.1 Biochemical Cycles	57
5.1.1 The Water Cycle or Hydrologic Cycle	57
5.1.2 The Carbon Cycle	58
5.1.2.1 The Greenhouse Effect	59
5.1.3 The Nitrogen Cycle	59
5.1.3.1 Nitrogen-Fixing Bacteria	60
5.1.3.2 Nitrifying Bacteria	61
5.1.3.3 Denitrifying Bacteria	62
5.1.4 The Sulfur Cycle	62
5.1.4.1 Sulfate Reducing Bacteria	62
5.1.4.2 Sulfur Reducing Bacteria	62
5.1.4.3 Sulfur Oxidizing Bacteria	63
5.1.5 The Phosphorus Cycle	63
5.2 Microorganisms Found in Air	63
5.2.1 Sources of Indoor Pollution	64
5.2.1.1 Outdoor Environment	64
5.2.1.2 Indoor Contamination	64
5.2.2 Factors Affecting Indoor Microbial Levels	65
5.2.3 Controlling Microorganisms in Air	65
5.2.3.1 Chemical Agents	65
5.2.3.2 Ultraviolet Radiation	65
5.2.3.3 Air Filtration	65
5.3 Microorganisms in Soil	66
5.3.1 Components of Soil	66
5.3.1.1 Inorganic Components	66
5.3.1.2 Organic Matter	66
5.3.1.3 Root Systems	67
5.3.1.4 Living Organisms	67
5.3.2 Microorganisms in Soil	67
5.3.2.1 Bacteria	67
5.3.2.2 Actinomycetes	68
5.3.2.3 Fungi	68
5.3.2.4 Cyanobacteria, Algae, Protista and Viruses	69
5.3.3 Abiotic Factors Influence Microorganisms in the Soil	69
5.3.3.1 Water and Oxygen	69
5.3.3.2 Soil pH	69
5.3.3.3 Temperature	69

5.3.4	Importance of Decomposers in the Soil	69
5.3.5	Soil Pathogens	70
5.4	Aquatic Microbiology	70
5.4.1	Freshwater Environment	70
5.4.1.1	Ground water	70
5.4.1.2	Surface Water	70
5.4.2	Factors Affecting Microorganisms in Aquatic Environments	71
5.4.2.1	Temperature	71
5.4.2.2	pH	71
5.4.2.3	Nutrients	71
5.4.2.4	Oxygen	71
5.4.2.5	Depth	71
5.4.3	Marine Environments	71
5.4.3.1	Temperature	71
5.4.3.2	pH	72
5.4.3.3	Salinity	72
5.4.3.4	Hydrostatic Pressure	72
5.4.3.5	Sunlight and Oxygen Concentration	72
5.4.3.6	Nutrient Concentrations	72
5.4.4	Water Pollution	72
5.4.4.1	Organic Wastes	73
5.4.4.2	Industrial Wastes	73
5.4.4.3	Synthetic Chemicals	73
5.4.4.4	Radioactive Substances	73
5.4.4.5	Agricultural, Mining, and Construction Activities	73
5.4.4.6	Heat	73
5.4.5	Pathogens in Water	73
5.5	Water Purification	74
5.5.1	Flocculation	74
5.5.2	Filtration	74
5.5.3	Chlorination	74
5.6	Sewage Treatment	75
5.6.1	Primary Treatment	75
5.6.2	Secondary Treatment	75
5.6.2.1	Trickling Filter Systems	76
5.6.2.2	Activated Sludge Systems	76
5.6.3	Tertiary Treatment	76
5.6.4	Septic Tanks	77

Chapter 6

Bioremediation of Organic Contaminants	79
6.1 Bioremediation	79
6.1.1 The Objective of Bioremediation	79
6.1.2 Advantage of Bioremediation	79
6.1.3 Disadvantage of Bioremediation	80
6.1.4 Development of Bioremediation	80
6.1.5 Biotransformation by Subsurface Microorganisms	80
6.2 Application of Bioremediation	80
6.2.1 Wood Preservative Industries	81
6.2.2 Soil and Hazardous Waste Bioremediation	81

6.2.2.1	Bioreactors	82
6.2.2.2	Solid Phase Bioremediation	82
6.2.2.3	Soil Heaping	82
6.2.2.4	Composting	82
6.2.3	Degradation of Synthetic Chemicals in Soil	82
6.2.4	Biological Control of Groundwater Pollution	83
6.2.5	Modern Microbiological Concepts and Pollution Control	84

Chapter 7

	Microbiological Quality of Environmental Samples	85
7.1	Monitoring Microbiological Quality	85
7.1.1	Waterborne Disease Outbreaks	85
7.1.1.1	Swimming Associated Outbreaks	86
7.1.2	Recovery of Pathogens from Environmental Samples	87
7.1.3	Indicator Bacteria	87
7.1.3.1	Coliform Group	87
7.1.3.2	Fecal Coliform Bacteria	87
7.1.4	Standards on Microbiological Quality	88
7.2	Introduction to Microbiological Parameters to the Sanitary Quality of Environmental Samples	88
7.2.1	Heterotrophic Plate Count (HPC)	88
7.2.2	Coliform Bacteria Group	88
7.2.2.1	Total Coliform Group	88
7.2.2.2	Fecal Coliform, <i>Escherichia coli</i> (<i>E. coli</i>)	88
7.2.2.3	Fecal streptococcus	89
7.2.2.4	Klebsiella	89
7.3	Pathogenic Microorganisms	89
7.3.1	Pathogenic Bacteria	89
7.3.1.1	Salmonella	90
7.3.1.2	<i>Salmonella typhi</i>	90
7.3.1.3	Shigella	90
7.3.1.4	<i>Vibrio cholera</i>	90
7.3.1.5	Enteropathogenic <i>Escherichia coli</i>	90
7.3.1.6	Yersinia	90
7.3.1.7	Campylobacter	91
7.3.1.8	<i>Legionella pneumophila</i>	91
7.3.1.9	<i>Clostridium</i>	91
7.3.2	Viruses	92
7.3.2.1	Hepatitis A Virus (HAV)	93
7.3.2.2	Norwalk Agent	93
7.3.3	Pathogenic Protozoa	93
7.3.3.1	<i>Giardia lamblia</i>	93
7.3.3.2	<i>Entamoeba histolytica</i>	94
7.4	Iron and Sulfur Bacteria	94
7.5	Actinomycetes	96
7.6	Fungi	96
7.6.1	<i>Aspergillus</i>	96
7.6.2	<i>Candida albicans</i>	96
7.7	Regulations for Drinking Water Quality	96
7.7.1	Monitoring Agencies	97
7.7.1.1	World Health Organization (WHO)	97

7.7.1.2	European Economic Community (EEC)	97
7.7.1.3	Environmental Protection Agency (EPA)	97
7.7.2	Monitoring Requirements	98
7.7.3	Minimum Coliform Monitoring Requirements	98
7.7.4	Standards	99
7.7.5	Disinfection Requirements for All Public Water Supplies	99
7.7.6	Disinfection By-Product Regulations	100
7.8	Groundwater	100
7.8.1	Classification of Groudwater	100
7.8.2	Groundwater Standards	101
7.9	Surface Waters	101
7.9.1	Surface Water Classification	101
7.9.2	Surface Water Treatment Rule (SWTR)	102
7.9.3	Surface Water Quality Standards	103
7.10	Wastewater	103
7.10.1	Industrial Wastewater	103
7.10.2	Permit for Industrial and Domestic Wastewater Effluents	104
7.10.3	Minimum Treatment Standard of Domestic Wastewater Effluents	104
7.10.3.1	Effluents for Direct Surface Water Disposal or Surface Water Disposal via Ocean Outfall	104
7.10.3.2	Discharging to Open Ocean Water	104
7.10.3.3	Effluent Disinfection	104
7.10.3.3.1	Basic Disinfection	104
7.10.3.3.2	High-Level Disinfection	105
7.10.3.3.3	Intermediate Disinfection	105
7.10.3.3.4	Low-Level Disinfection	105
7.11	Soil and Sediment	105
7.12	Air	106

Chapter 8

Safety in Environmental Microbiology Laboratory	107
8.1 Laboratory Facilities	107
8.2 Laboratory Safety Considerations	108
8.2.1 General Laboratory Safety Rules	108
8.2.2 Standard Safety Practices in a Microbiological Laboratory	109
8.2.3 General Handling and Storage of Chemicals and Gases	111
8.2.4 Electrical Precautions	111
8.3 Summarized Safety Check List for Environmental Microbiology Laboratories	111
8.3.1 Administrative Considerations	111
8.3.2 Personal Conduct	114
8.3.3 Laboratory Equipment	114
8.3.4 Disinfection/Sterilization	115
8.3.5 Biohazard Control	115
8.3.6 Handling and Storage of Chemicals and Gases	115
8.3.7 Emergency Precautions	115

Chapter 9

Laboratory Quality Assurance and Quality Control	117
9.1 Introduction	117
9.1.1 Quality Assurance (QA)	117
9.1.2 Quality Control (QC)	117

9.1.3	Quality Assessment	117
9.2	Requirements for Facilities and Personnel	117
9.2.1	Ventilation	117
9.2.2	Laboratory Bench Areas	117
9.2.3	Walls and Floors	118
9.2.4	Laboratory Cleanliness	118
9.2.5	Air Monitoring	118
9.2.5.1	RODAC Plates	118
9.2.5.2	Air Density Plates	118
9.2.6	Personnel	119
9.3	Quality Control for Laboratory Equipment and Instrumentation	119
9.3.1	Thermometers and Temperature-Recording Instruments	119
9.3.2	Balances	119
9.3.3	pH Meter	120
9.3.4	Water Deionization Unit	120
9.3.5	UV Sterilizer	121
9.3.6	Membrane Filter Apparatus	123
9.3.7	Centrifuge	123
9.3.8	Hot-Air Oven	125
9.3.9	Autoclave	125
9.3.10	Refrigerators and Freezers	126
9.3.11	Incubators	126
9.3.12	Water Bath	126
9.3.13	Safety Hood	126
9.3.14	Microscope	127
9.3.15	Spectrophotometer	127
9.4	Quality Control of Laboratory Supplies	127
9.4.1	Glassware	127
9.4.2	Glass, Plastic, and Metal Utensils for Media Preparation	128
9.4.3	Culture Dishes	128
9.4.4	Sterility Check on Glassware	128
9.4.5	Chemicals and Reagents	128
9.4.6	Dyes and Stains	129
9.4.7	Membrane Filters and Pads	129
9.4.8	Culture Media	129
9.4.8.1	Quality Control Criteria for Prepared Media	130
9.5	Quality Control of Laboratory Pure Water	130
9.5.1	Checks and Monitoring Criteria	130
9.5.2	Test for Bacterial Quality	130
9.5.2.1	Reagents	131
9.5.2.2	Sample Preparation	132
9.5.2.3	Preparation of Bacterial Suspension	132
9.5.2.4	Test	132
9.5.2.5	Calculation	132
9.5.2.6	Interpretation of the Results	133
9.6	Analytical Quality Control Procedures	133
9.6.1	Quality Control in Routine Analysis	133
9.6.1.1	Negative (Sterile) Control	133
9.6.1.2	Positive Control	134
9.6.1.3	Duplicate Analysis	134
9.6.2	Measurement of Method Precision	134

9.6.3	Reference Sample	134
9.6.4	Performance Sample	134
9.6.5	Membrane Filter Method (MF) Verification	135
9.6.5.1	Total Coliform	135
9.6.5.2	Fecal Coliforms	136
9.6.5.3	Fecal Streptococci	136
9.7	Records and Data Reporting	136
9.8	Interlaboratory Quality Control	136

Chapter 10

Collecting and Handling Environmental Samples for Microbiological Examination	139
10.1 Sampling	139
10.1.1 Sampling Program	139
10.1.2 Type of Samples	139
10.1.3 Sample Containers	139
10.1.4 Dechlorinating Agent	140
10.1.5 Chelating Agents	140
10.1.6 Sampling Procedures	140
10.2 Sample Collection from Different Sources	141
10.2.1 Collecting Potable Water Samples	141
10.2.1.1 Sampling from Distribution System	141
10.2.1.2 Sampling from Wells	142
10.2.2 Collect Samples from River, Stream, Lake, Spring, or Shallow Well	143
10.2.3 Sample Collection from Bathing Beaches	143
10.2.4 Marine and Estuarine Sampling	146
10.2.5 Sample Collection from Domestic and Industrial Discharges	146
10.2.6 Collecting Samples from Sediments and Sludges	146
10.2.6.1 Bottom Sediments	146
10.2.6.2 Sludges	147
10.2.7 Soil Sampling	147
10.3 Sample Identification	148
10.4 Sample Transportation, Preservation and Holding Time	149
10.4.1 Sample Transportation and Preservation	149
10.4.2 Laboratory Custody Procedure	150
10.4.3 Holding Time	150
10.4.4 Discard Samples	151

Chapter 11

Laboratory Equipment and Supplies in the Environmental Microbiology Laboratory	153
11.1 Laboratory Equipment	153
11.1.1 Incubators	153
11.1.2 Hot-Air Sterilizing Oven	153
11.1.3 Autoclaves	153
11.1.4 pH Meter	154
11.1.5 Balances	155
11.1.6 Optical Counting Equipment	155
11.1.7 Refrigerator	156
11.1.8 Membrane Filtration Equipment	156
11.1.9 Line Vacuum or Electric Vacuum Pump	157
11.1.10 Inoculating Needles or Loops	157