Contents

1	Principles of health protection and safety rules in the microbiology laboratory	3
	1.1 The main principles of safe work in the microbiology laboratory	3
	1.2 Safety instructions for work in the microbiology laboratory	3
2	Principal microbiological procedures	5
	2.1 The aims of the clinical microbiology laboratory	
	2.2 Collection, handling and transport of clinical specimens	
3	Microscopy techniques for diagnosis of infection	11
	3.1 Native preparation	
	3.1.1 Bright field microscopy	12
	3.1.2 Dark field microscopy	12
	3.2 Stained preparation	15
	3.2.1 Simple (monochromatic) stain	
	3.2.2 Gram stain	15
	3.2.3 Staining of acid-fast microbes (Ziehl-Neelsen stain)	19
	3.2.4 Staining of metachromatic granules	
	3.2.5 Staining of microbial capsules (Burri stain)	
	3.2.6 Staining of microbial spores (Wirtz-Conklin stain)	
	3.2.7 Giemsa stain; vaginal secretion examination	
4	Cultivation of bacteria	28
- T	4.1 Cultivation of microorganisms growing under aerobic conditions	
	4.2 Cultivation of microorganisms growing under anaerobic conditions	
5	Determining bacterial sensitivity to antibiotics	37
J	5.1 Disc diffusion test	37 37
	5.2 Standard dilution micromethod – MIC method	
	5.3 E-test	
	5.4 Determining activity of combined antibiotics	
	5.5 Detection of bacterial β-lactamases	
	5.5 Detection of bacterial b-factamases	T J
6	Examination methods in serology	48
	6.1 Precipitation and its modifications	
	(precipitation in agar, Ascoli thermal precipitation reaction)	49
	6.2 Agglutination and its modifications	
	(Widal reaction, latex agglutination, hemagglutination, slide agglutination)	50
	6.3 Complement fixation test	
	6.4 Fluorescent antibody technique	
	6.5 Enzyme-labelled antibodies (enzyme immunoassay)	
	6.6 Neutralization test	
	6.7 Laboratory diagnosis of syphilis	
	· · · · · · · · · · · · · · · · · · ·	