

FE 204 Experiment 4

Antiseptic & Disinfectant and Antibiotic sensitivity tests

Contents

- Definitions
- Antiseptic & Disinfectant tests
- Antibiotic sensitivity tests
- Procedure
- Result examination

Antiseptic & Disinfectant and Antibiotic tests

Definitions:

Antiseptics: Chemical compounds which are used to kill microorganisms.

Disinfectants: same as antiseptics but they are corrosive to tissues.

Bactericidal: means compounds that inhibit growth of microorganisms.

Antibiotic: Anti- against, bio- life, again chemical compounds that kill microorganisms and biosynthesized by other microorganisms.

QAC: Quaternary ammonium compounds which are very effective on a specific group of bacteria.

MIC: Minimum inhibitory concentration; The minimum concentration of a compound used to kill all microorganisms in a media.

MBC: Maximum bactericidal concentration; The maximum concentration of a compound that inhibits the growth of microorganisms so above is unnecessary.

Antiseptic &
Disinfectant and
Antibiotic tests



Disc Diffusion assay



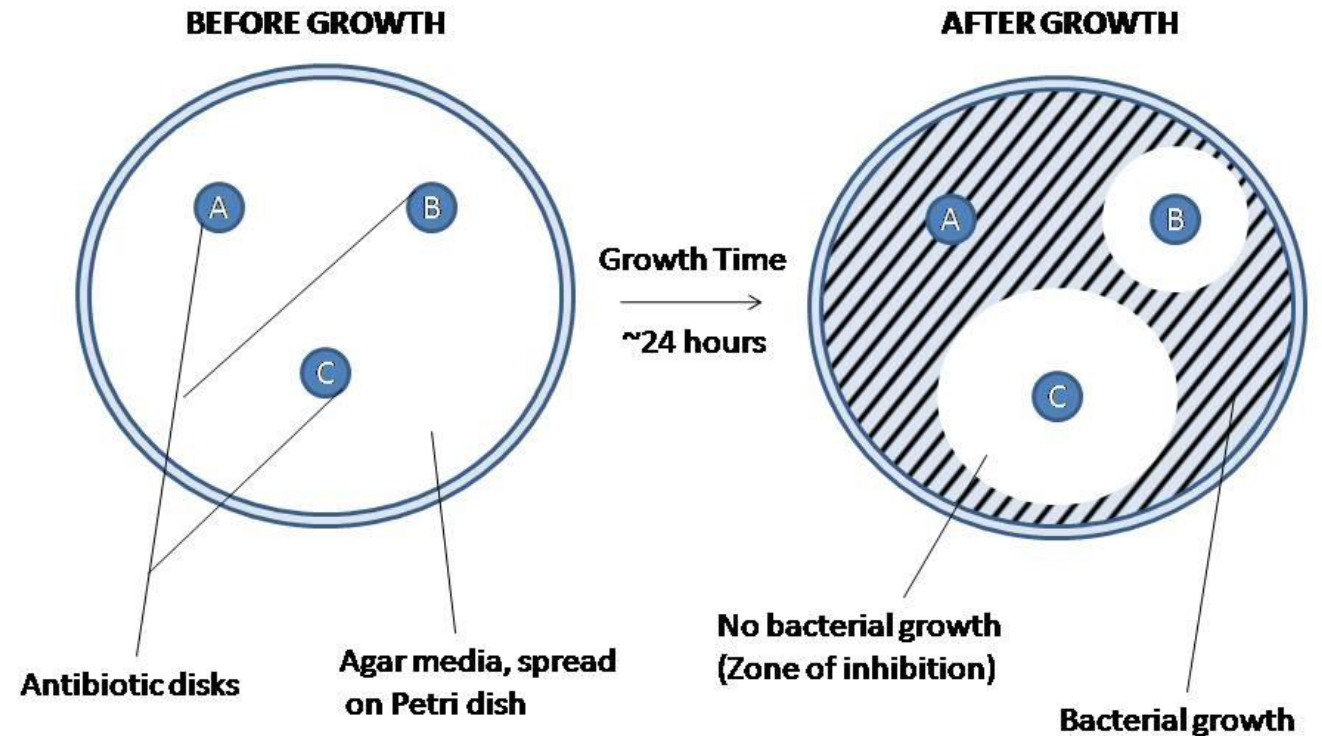
Well diffusion assay



Minimum Inhibitory
concentration

Antiseptic & Disinfectant and Antibiotic tests

Kirby-Bauer Method Disc Diffusion Method



Used for both antiseptic – disinfectant, and antibiotic sensitivity tests

Materials used in LAB

- Muller Hinton Agar petri plates
- Sterile disc papers for antiseptics and disinfectants
- 1 ml pipettes
- Antiseptics
- Disinfectants
- Antibiotic discs
- Forceps
- Spreader
- Bunsen burner
- *E. coli* broth culture

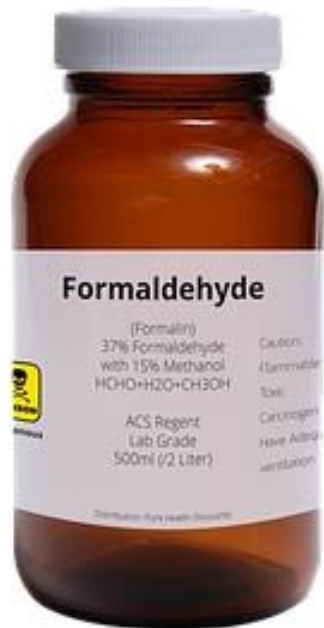
Sterile Disc papers



Antibiotic Discs



Antiseptics & Disinfectants



Formaldehyde



Ethanol

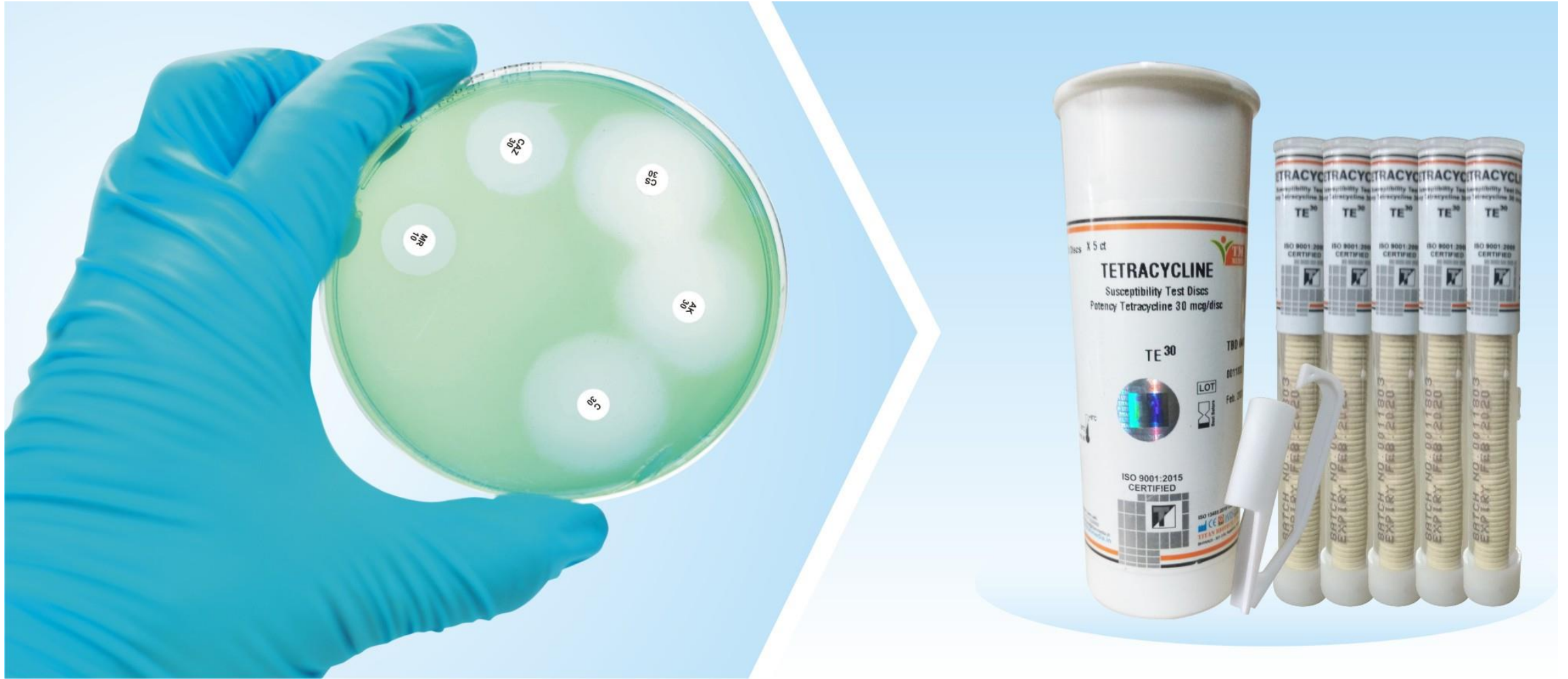


Iodine



Zefirolium

Antibiotics



TETRACYCLINE

OXACILLIN

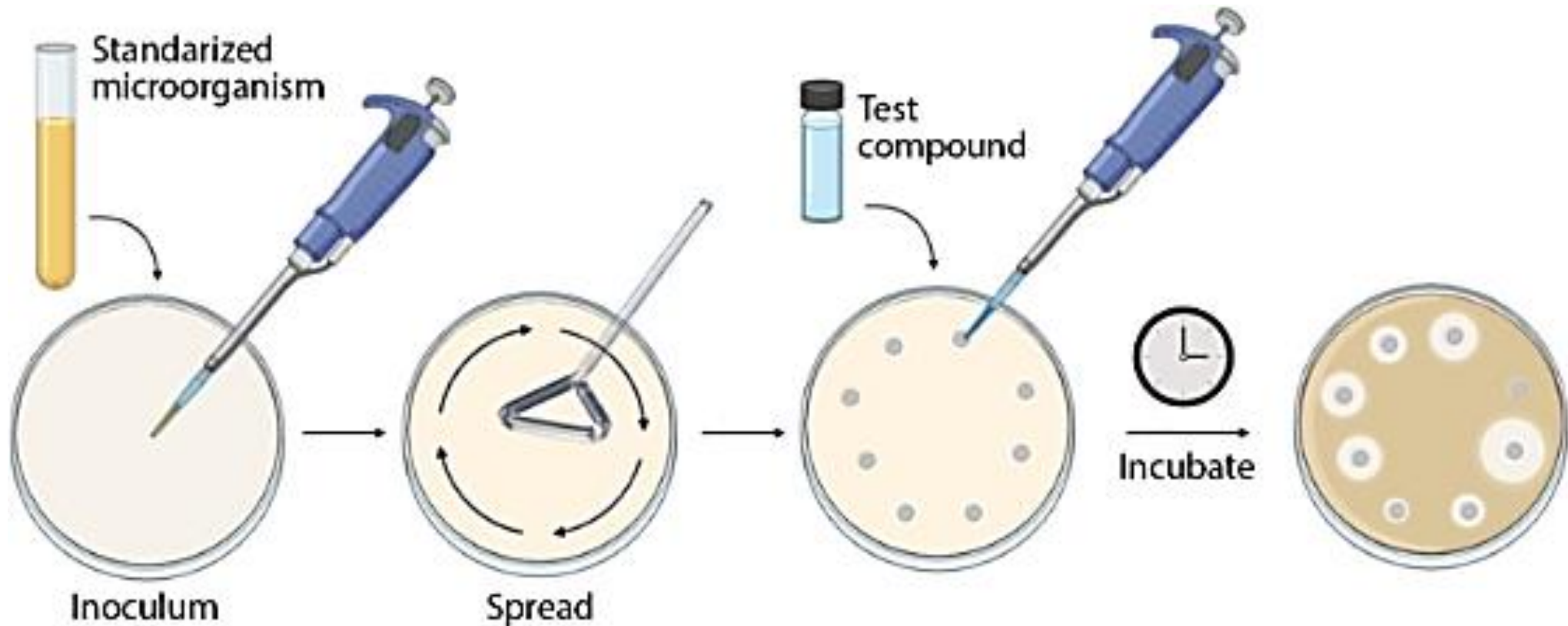
GENTAMICIN

STREPTOMYCIN

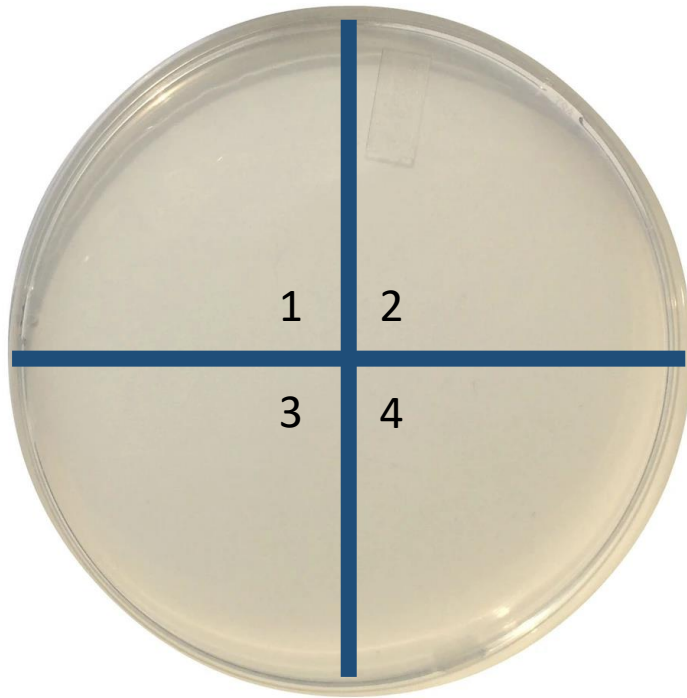
Procedure Steps

- Inoculation from *E. coli* broth to Muller Hinton agar plates
- Spread plate technique
- Application of antimicrobials
- Incubation
- Growth and antimicrobial effectiveness examination

Antiseptic & Disinfectant and Antibiotic tests

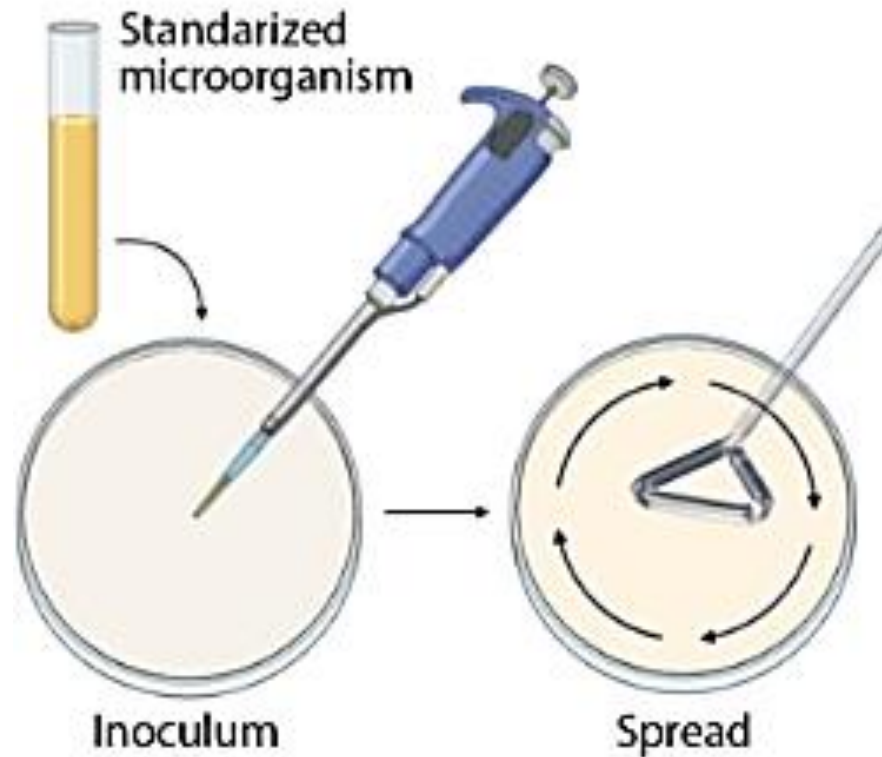


Inoculation of E. coli to Muller Hinton Agars



Divide bottom side of Muller Hinton agars into 4 for antiseptic-disinfectant and into 2 for antibiotic sensitivity test.

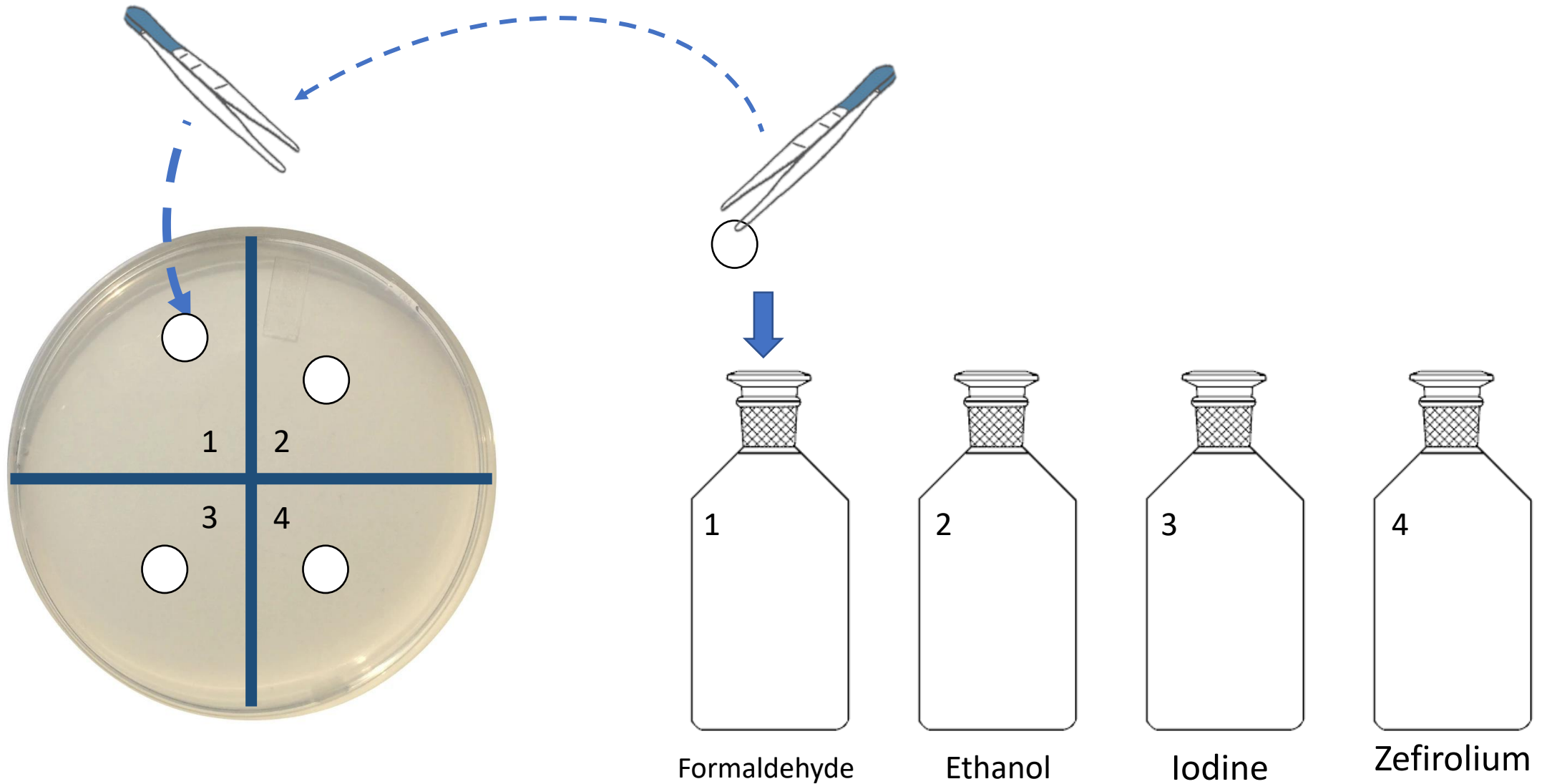
Inoculation of E. coli to Muller Hinton Agars



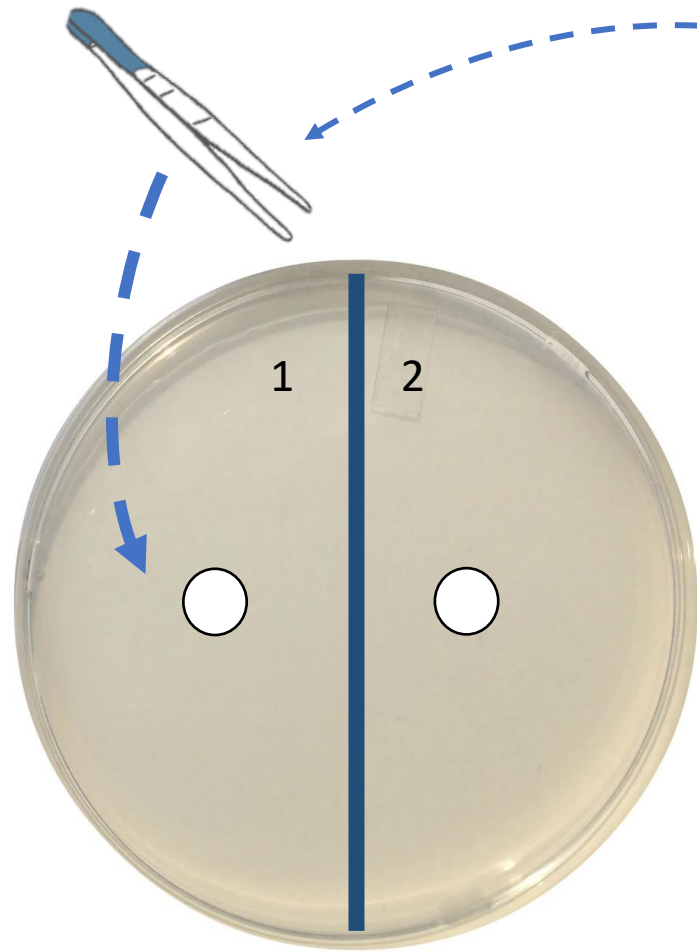
1 ml of E. coli sample is taken from E. coli broth culture and inoculated on Muller Hinton agar plates at aseptic conditions.

Inoculum is spread on whole agar surface by using sterile spreader.

Application of antiseptics and disinfectants

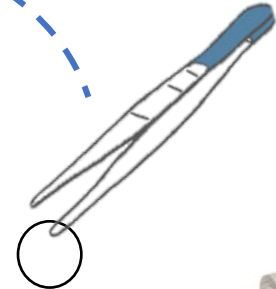


Application of antiseptics and disinfectants

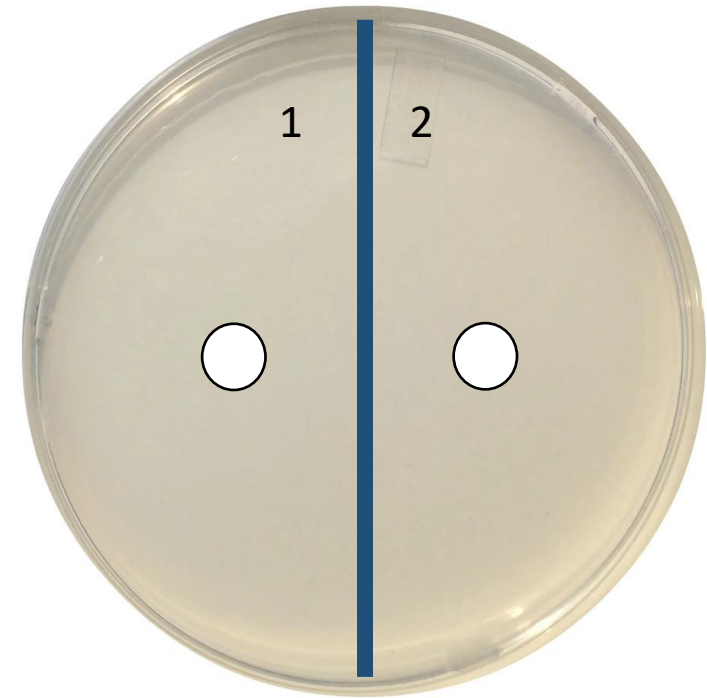
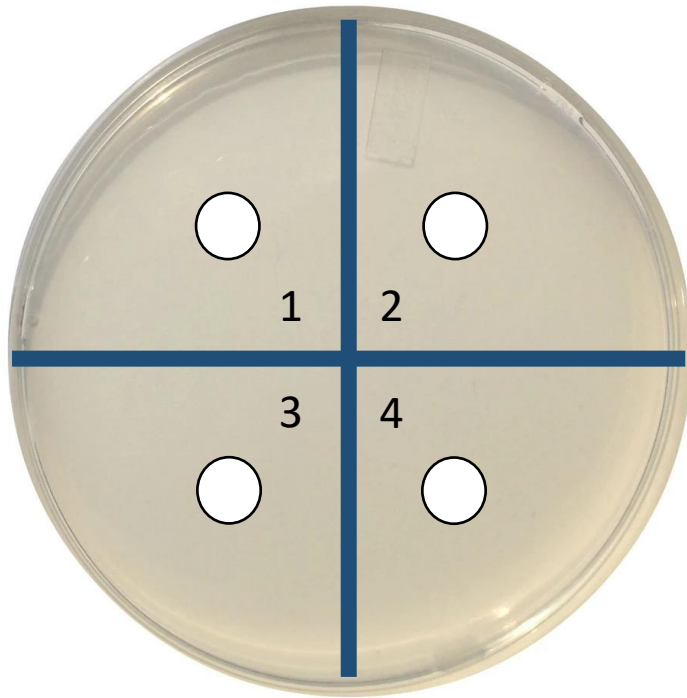


TETRACYCLINE

GENTAMICIN



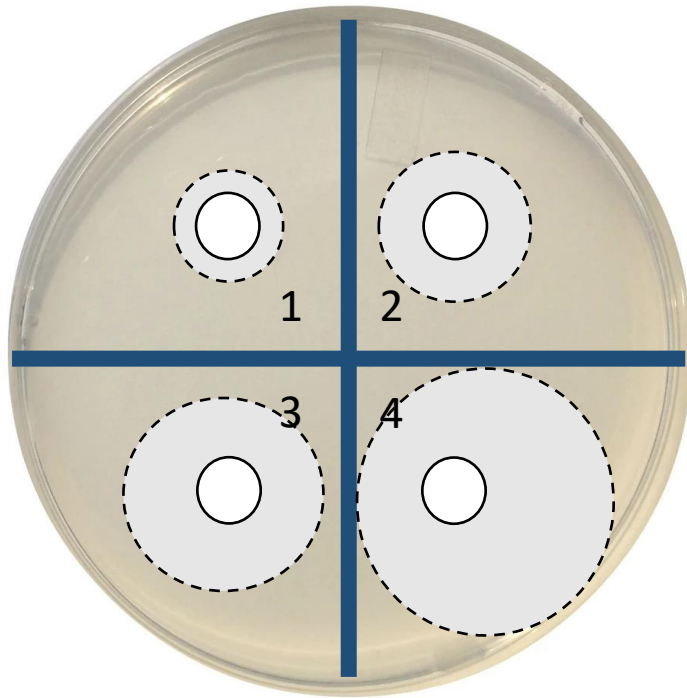
Incubation of Muller Hinton Agars



Inoculated agars are incubated at 37 C for 24-48 hours in order to see growth and antimicrobial effect.

Results of Antiseptic Disinfectant tests

Discuss results of antiseptic and disinfectants according to effectiveness;



Results of Antibiotic test

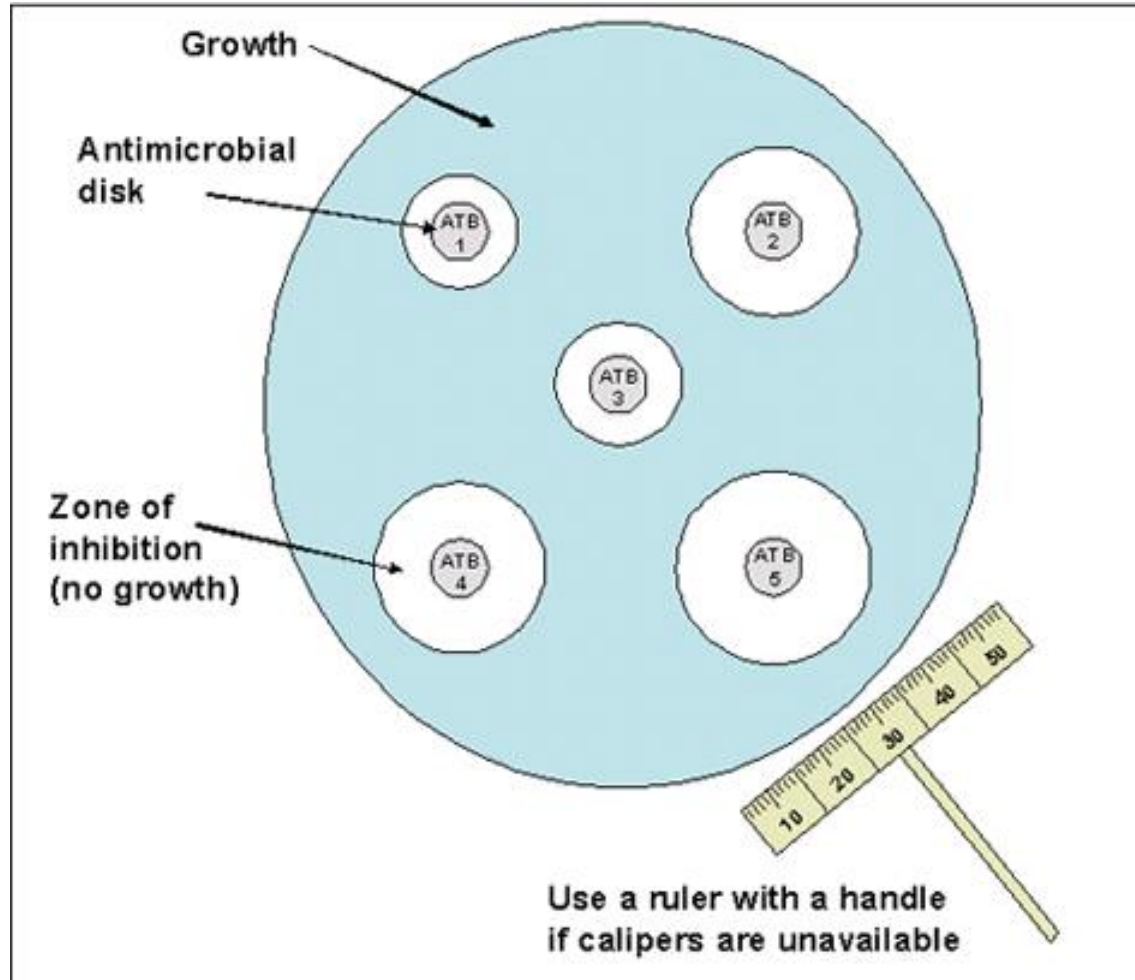


TETRACYCLINE

GENTAMICIN

Discuss results of antibiotics according to effectiveness;

Results Evaluation



Antimicrobial effectiveness is related with inhibition zone around antimicrobial discs.