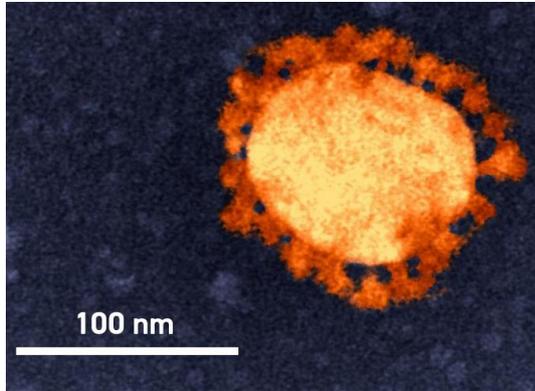


EPGL – B201
Introduction to Microbiology:
Germs or Gems?

Dr. Amy Li



1) Diversity of microbes

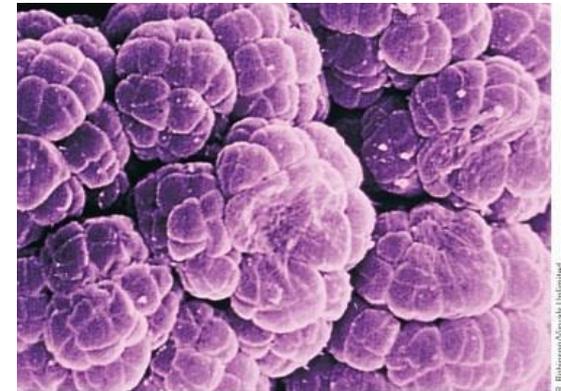


SARS-CoV-2 (Virus)



Micrococcus (Bacteria)

1.0 μm



Methanosarcina (Archaea) 5 μm



Amoeba (Protist)

100 μm

Lebendkulturen.de/Shutterstock.com

Diameter = ? mm



Pilobolus (Fungus)

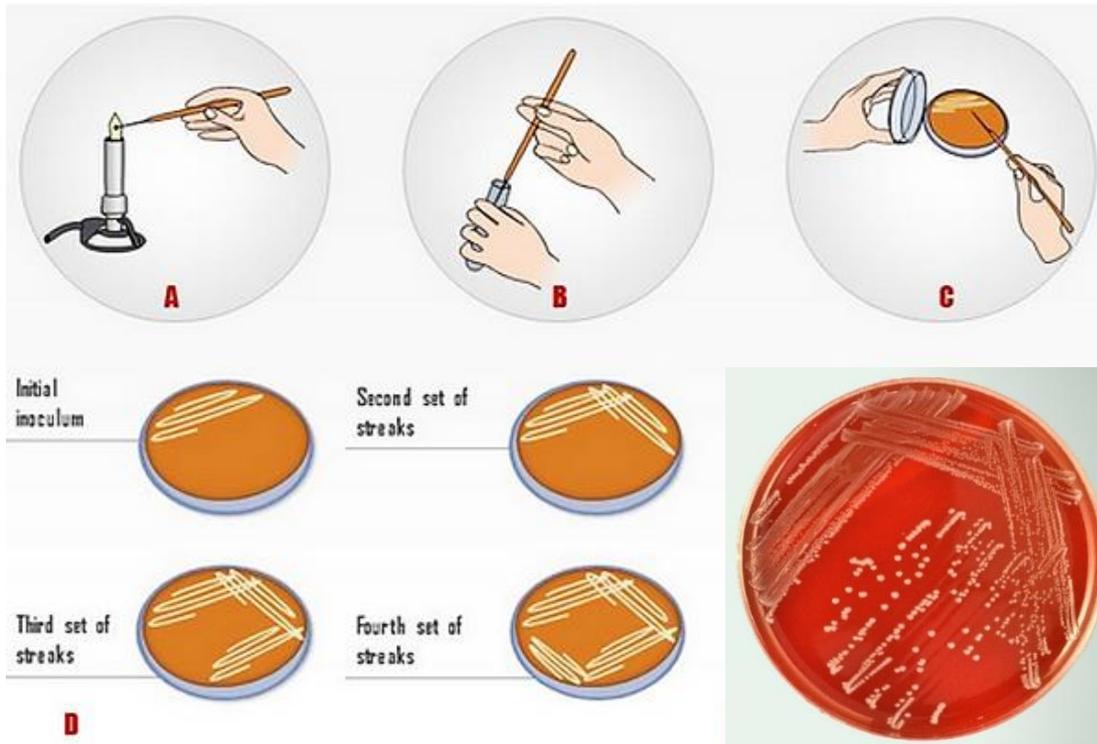
500 μm

John Hodgkin

2) Practical skills

Streak plate method

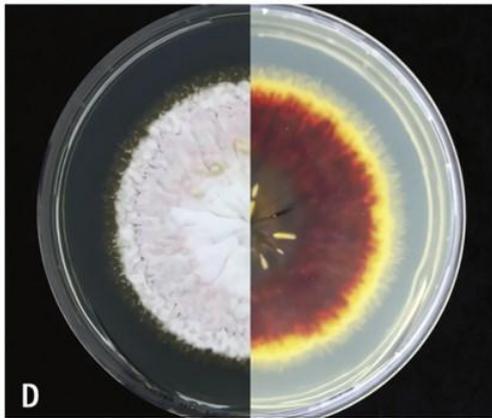
- For liquid or solid sample with various concentrations
- Sterilize & cool the inoculation loop between streaks



Isolated colony

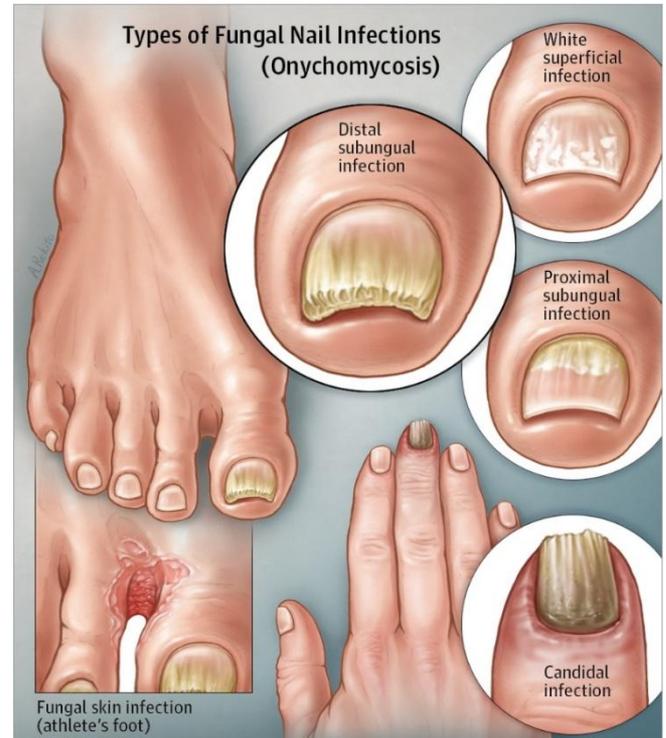
3) Pathogenic microbes

- An **ascomycete** that mainly reproduces asexually
- A major dermatophyte that infects keratinized tissues
- Causes nail discoloration, thickening & separation



Microconidia

Macroconidia



4) Microbial control

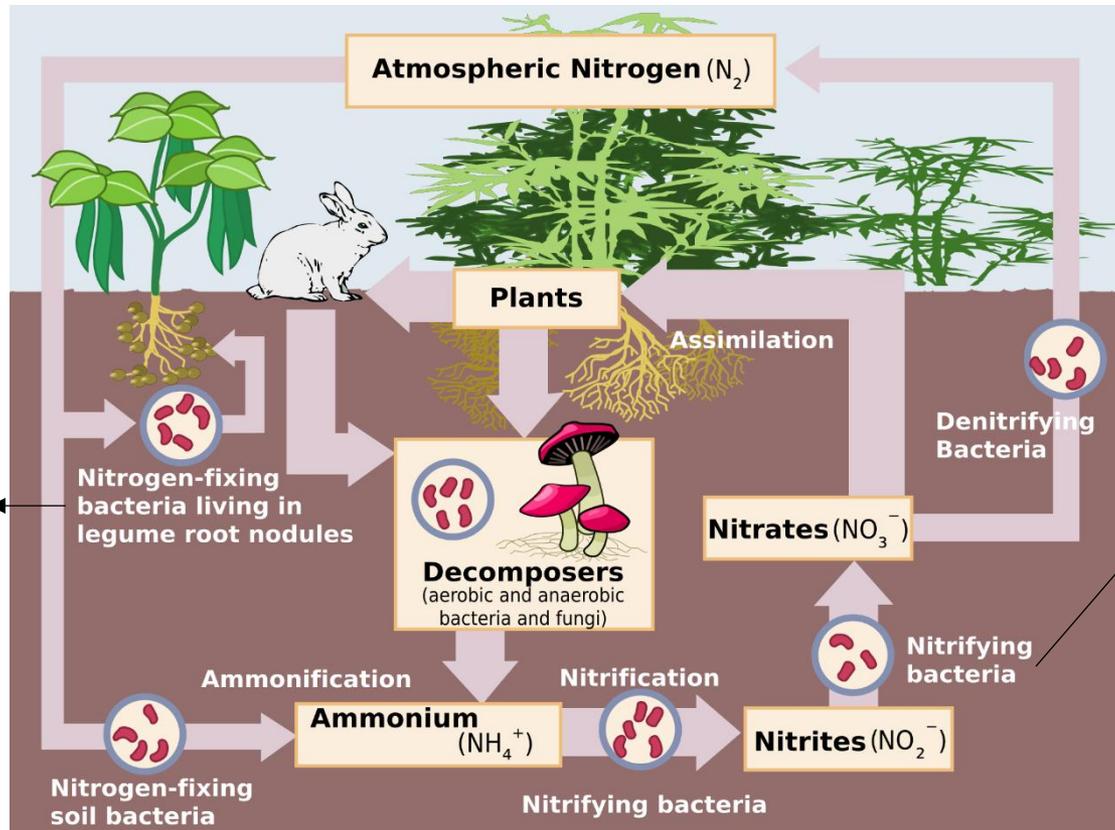
Moist heat sterilization

- Autoclave at 121°C for ≥ 15 min at 15 psi
- Complete cycle typically takes >1 hr

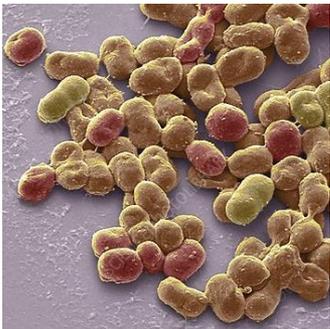


5) Useful microbes

- Increase soil fertility by increasing nutrient availability



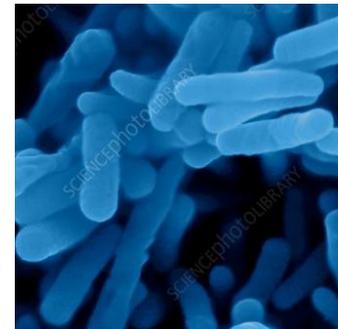
Rhizobium (symbiotic)



Azotobacter (free-living)



Nitrobacter



Nitrosomonas

6) Chikungunya fever

CHIKUNGUNYA SYMPTOMS

The infographic features a central image of a mosquito inside a white circle. Surrounding it are six circular icons, each with a label below it: 'Joint pain' (knee with starburst), 'Fever' (person with thermometer), 'Headaches' (person holding their head), 'Rashes' (hand with spots on face), 'Muscle Pain' (person with lightning bolts on back), and 'Swelling' (person with wavy lines at feet).

Joint pain

Fever

Headaches

Rashes

Muscle Pain

Swelling

SAY NO TO MOSQUITOES