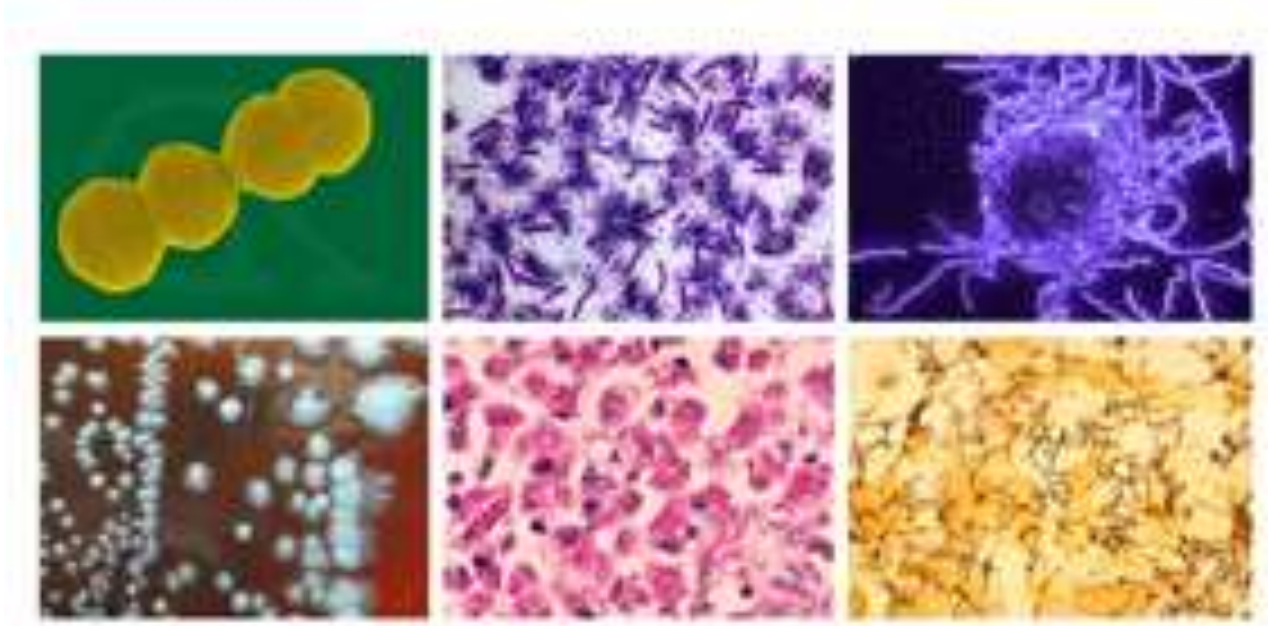


# Bacteriology

# Bacteria

- Small Unicellular Organisms
- Can be grown in nutrient enriched environments (Agar, Broth)
- Standard Medias:
  Tryptic Soy Agar (TSA), Brain Heart Infusion (BHI), Tryptic Yeast Extract and Salt (TYES)

# Common Bacterial Fish Pathogens

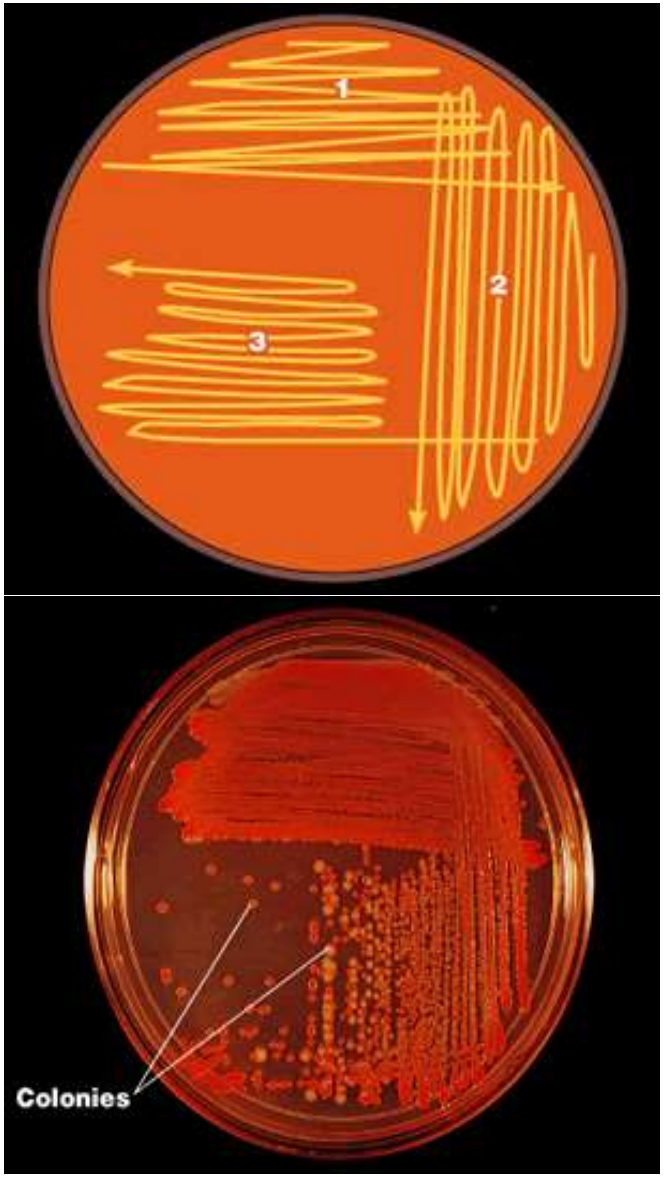
- *Flavobacterium psychrophilum*
  -Coldwater Disease
  -Gram Negative Rods
- *Renibacterium salmoninarum*
  -Bacterial Kidney Disease
  -Gram Positive Rod
- *Yersinia Ruckeri*
  -Enteric Red Mouth Disease
  -Gram Negative Rods
- *Aeromonas salmonicida*
  -Furunculosis
  -Gram Negative Rod
- *Streptococcus iniae*
  -O –sherical shape
  -Gram Postive

# Aseptic Technique

- Minimizes contamination from outside sources
- Prevents work surfaces from becoming contaminated

# Bacterial Isolation

- Streaking technique used to isolate individual bacterial colonies.
- Can be used to isolate colonies in pure or mixed cultures

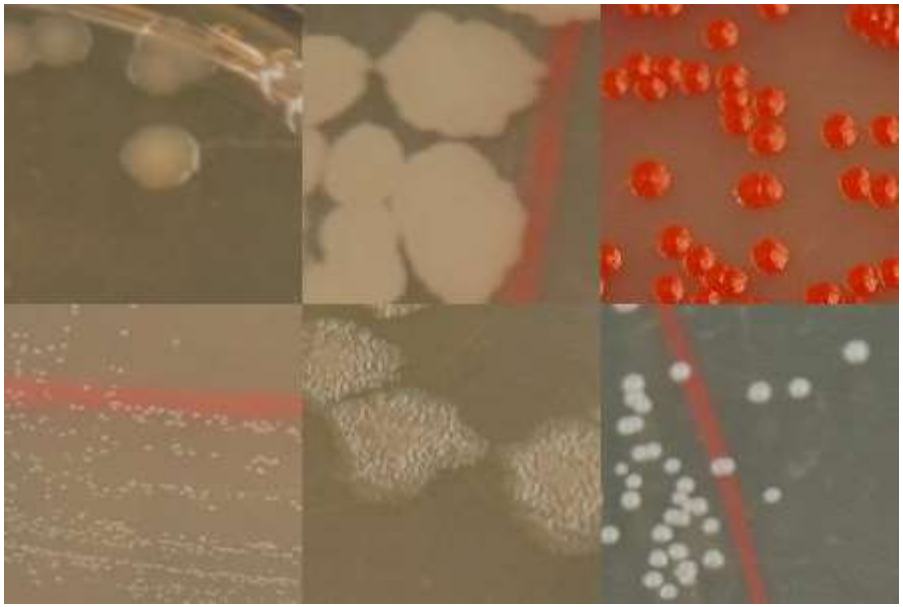


# Wet Mounts

- Used to determine motility of organism
- Can help in bacterial identification
- Do not confuse with Brownian motion

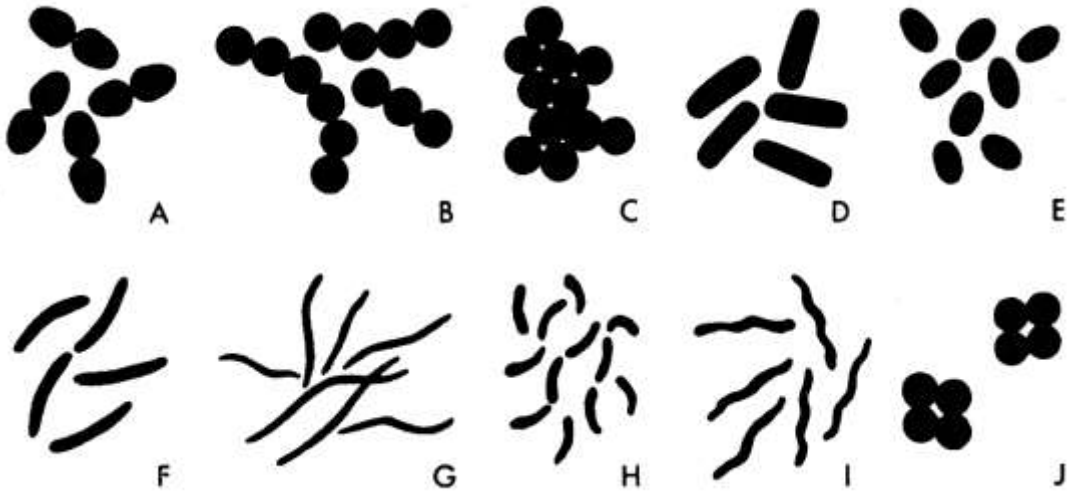
# Bacterial Morphology

- Colony Morphology
  - Size
  - Shape
  - Color



# Bacterial Morphology

- Cell Morphology
  - Cocci
  - Bacillus
  - Spirochete

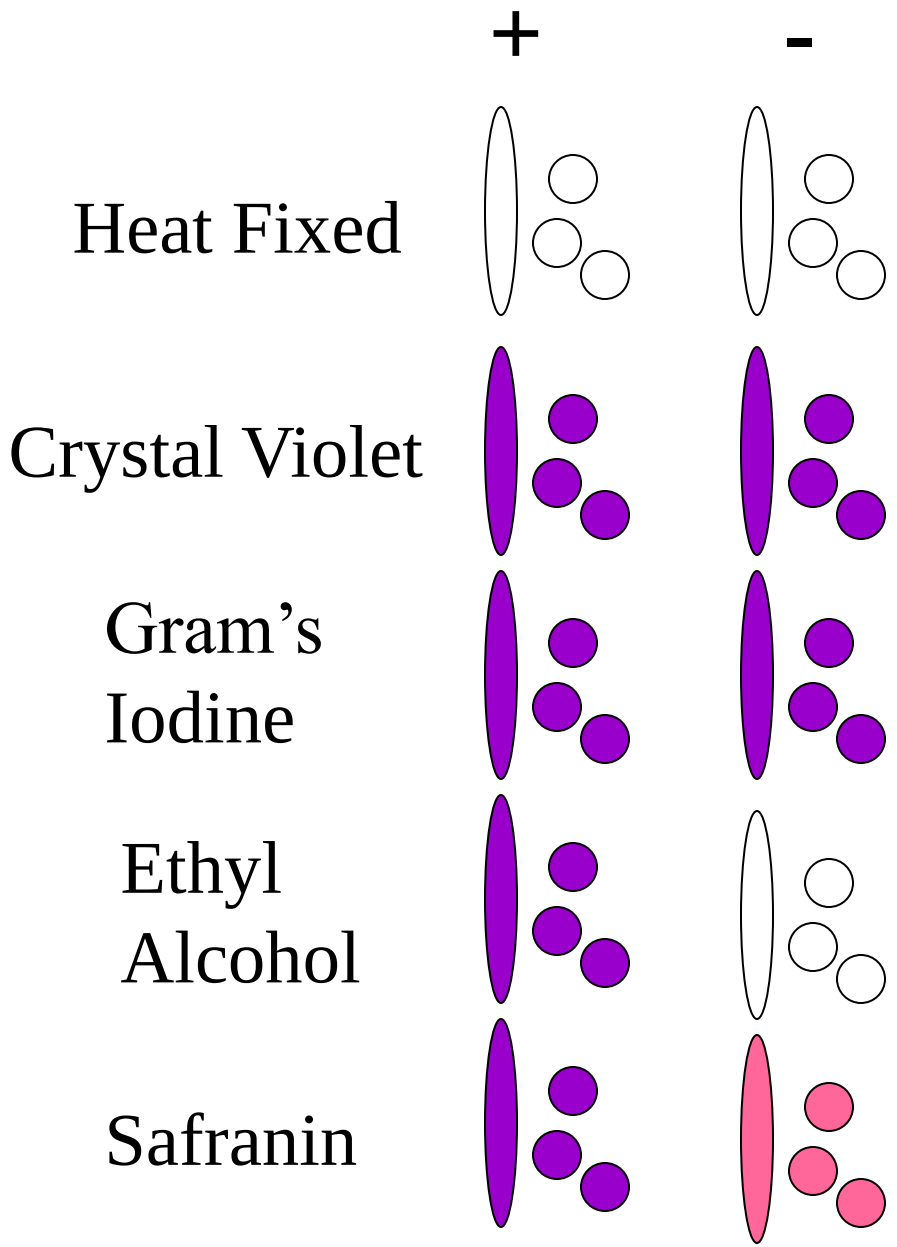


# Interpreting Antibiotic Sensitivity Test


- Measure diameter of zone of inhibition (mm)
- The larger the zone, the more effective an antibiotic will be.

# Gram Staining

- Gram positive organisms retain the primary stain
- During decolorization gram negative organisms will lose pigment and pick up the counter stain



# Gram Staining

Disadvantages:

- Some bacteria are Gram stain variable (positive **or** negative results)
- Some bacteria are resistant to Gram stain (i.e. acid-fast bacteria)
- False results may occur if over-decolorized
- Older cultures may give false results

# KOH (Potassium Hydroxide) Test

- Alternative to Gram stain
- Stringy and viscous = Gram negative
- No viscous or stringy = Gram positive
- KOH is caustic: wear gloves and immediately flush skin or eyes with water if they come into contact with KOH solution

# Cytochrome Oxidase Test

- Identifies organisms that produce cytochrome oxidase
- Solution remains colorless = negative (doesn’t produce cytochrome oxidase)
- Solution turns purple or blue = positive (does produce cytochrome oxidase)
- Results appear within 15 seconds