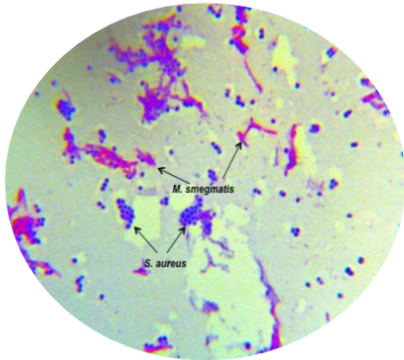


# Acid Fast (Ziehl-Neelson)

## Results & Observations



### Purpose:

To identify the bacteria belonging to genus mycobacterium.

### Procedure

- 1) Air dry then heatfix
- 2) Steam -5 mins.
- 3) Paper towel square - carbol fuchsin  
- 5 min.
- 4) Decolorize with acid alcohol  
(rinse with water right away)
- 5) Straining rack methylene blue  
- 2 min.
- 6) Rinse - blot dry

### Interpretation & Questions:

- 1. Why was it important to steam slides in the Ziehl-Neelsen method?**

Steaming melts the waxy wall so the carbolfuchsin can get into the acid-fast cells; steaming enhances the penetration.

- 2. Why is the acid-fast stain clinically important?**

The acid-fast stain is used in the diagnosis of TB (*Mycobacterium tuberculosis*) a significant health concern worldwide. Additionally, this stain is useful in the diagnosis of diseases caused by other members of the genus *Mycobacterium* (*M. avium* and *M. leprae*) and *Nocardia*.

- 3. Which of the stained organisms was acid-fast?**

*Mycobacterium* was acid-fast.

*2 acid fast pathogenic bacteria:*  
*Mycobacterium* (causes tuberculosis TB) & *Mycobacterium leprae* (causes leprosy)

- 4. The patient in the case file had to undergo a 4-month course of treatment. A typical course of treatment for a bacterial infection is 10 days. What does this suggest about mycobacterial diseases? Noncompliance is a major issue when treating TB because of the length of time of the treatment and the population typically exposed to the disease. What potential issues or problems does noncompliance pose in the area of public health?**

The need for extended treatment time suggests that either TB is difficult to treat because of the organism's various protective or invasive mechanisms, or that the drugs used in treating TB have a level of toxicity to the body that is mitigated by long-term low dosage treatment. In actuality, it has been

shown that in vivo Mycobacterium populations include rapidly growing cells and slowly growing cells. Long-term treatment is designed to destroy all of these subpopulations.

Noncompliance has two important implications for public health: first, the patient remains infected and contagious and therefore can continue to spread the disease and second, by using chemotherapeutic agents for short periods of time, but not for the full course of treatment, the patient is selecting for the more drug-resistant members of the population.