

Lab 12: Bacteria of the Respiratory System

Introduction:

The respiratory system is divided into two parts: the upper and lower respiratory systems. The lower respiratory system is an because of the cilia that lines the respiratory tract, alveolar macrophages and IgA antibodies found in the mucus. The upper p microbiota such as Gram-negative bacteria *Hemophilus*, Gram-positive bacteria such as *Staphylococcus aureus* and diphthero opportunistic infections leading to infection like pneumonia and diphtheria.

Blood agar plates (BAP) mimic our respiratory system- they are differential in nature and demonstrate the different ways in w hemolyze the red blood cells (RBCs) in the medium. The 3 different types of hemolysis seen on BAP are:

1. **Alpha hemolysis:** Alpha or partial hemolysis is demonstrated by organisms such as *Streptococcus pneumoniae*, which only partially. The colonies are a greenish-yellow and discoloration of agar is observed on plates (think about appeara you are sick with throat infection).
2. **Beta hemolysis:** In Beta or complete hemolysis bacteria like *Streptococcus pyogenes* completely digests RBCs creating the colonies.
3. **Gamma hemolysis:** *Enterococcus faecalis* with gamma or no hemolysis does not digest RBC so agar is unchanged and

Materials:

Liquid cultures of *B. subtilis*, *E. coli*, *S. epidermidis* and *S. marcescens*, BAP plates, Incinerators, Metal loops

Method:

1. Obtain liquid cultures of *S. epidermidis*, *E. coli*, *B. subtilis* and *S. marcescens* as well as two BAP plates per group of four
2. Take one BAP plate and divide it in three parts.
3. Label each part correctly with the name of the bacteria. Leave the third area empty.
 - o *B. subtilis*
 - o *E. coli*
4. Take second BAP plate and divide it in three parts.
5. Label each part correctly with the name of the bacteria. Leave the third area empty.
 - o *S. epidermidis*