MODULE 10: Identification of Bacterial Unknowns

LEARNING OUTCOMES

1. Identify two bacterial unknown cultures using a dichotomous key and standard staining and biochemical techniques.

INTRODUCTION

Identification of bacterial isolates requires careful technique, deductive reasoning, and timely decision-making on the part of the microbiologist. In this module, you will apply the skills learned in previous exercises. Your aseptic technique, time management, and ability to work independently will also be assessed in the process.

For this exercise, you will receive one Gram-positive and one Gram-negative culture listed in Table 10.1. Your task is to determine which is which, and to correctly identify the genus and species of each unknown using the techniques that you've learned in lab. A dichotomous key is provided to help you with this task. The key includes positive and negative test results and the names of the bacteria that are potentially unknowns. You may consult your notes, lab manual or other references; however, your instructor will not help you in the identification process. Working independently provides an understanding of what the microbiologist experiences in a clinical situation.

A few important tips:

✓ Use controls (bacteria that give known results) to compare with results for your unknowns.
✓ View heavier smears near the edges where cells are less crowded.
✓ Confirm the results of biochemical tests with selective media.
✓ Organisms don't always read the textbooks! Expect some atypical results.

All organisms have been examined for purity and are quality-controlled prior to distribution, but occasionally cultures become weak or nonviable. If you experience problems with the quality of your unknown, notify your instructor as soon as possible.

Practice aseptic technique! It is your responsibility to keep your bacterial cultures free from contamination. Use the same color tape for everything to be incubated, and label all tubes and plates with your initials, date, and unknown letter. When setting up biochemical tests, try to use isolated colonies for the best results. Repeated sub-culturing may lead to mutation and should be avoided.

Good luck!