

Antimicrobial assay worksheet



**ASSIGN
BUSTER**

University of Phoenix Material Antimicrobial Assay Worksheet Review the image and refer to Ch. 26 of Brock Biology of Microorganisms to answer the following questions. [pic] Adapted from The National Oceanic and Atmospheric Administration, by Islands in the Sea, 2002. Answer the following in 100 to 200 words each: 1. What does this picture represent? To what is the area around the disks proportional?

This picture represents an antimicrobial agent susceptibility assay by using the disc diffusion technique. The test measures the antimicrobial activity, by determining the smallest amount of agent necessary to inhibit the growth of a specific test organism, this value is the minimum inhibitory concentration (MIC). The MIC expresses the lowest concentration of agent that completely inhibits the growth of the test organism (Madigan, Martinko, Stahl, & Clark, 2012).

The areas around the disks are the zone of inhibition, which are “proportional to the amount of antimicrobial agent added to the disc, the solubility of the agent, the diffusion coefficient, and the overall effectiveness of the agent” (Madigan, Martinko, Stahl, & Clark, 2012, p. 763). 2. Which letter disk has the least potent antibiotic? Why? Which has the most? How do you know? Letter F disc has the least potent antibiotic because the zone of inhibition is not present with indicates that the antimicrobial agent is not an affective inhibitor of the test organism.

Letter D disc has the greatest potent antibiotic because the agent is quite an affective inhibitor of the test organism. This agent creates a proportionally large zone of inhibition, which is greater than other test agents are. 3. Refer to Figure 26. 10 of Brock Biology of Microorganisms. What has happened in

the minimum inhibitory concentration tube? Approximately, what is the bacterial concentration in that tube? In the minimum inhibitory concentration tube, the agent inhibits the growth of the test organism.

This level of inhibition varies with certain factors to include the incubation conditions, culture medium, test organism, incubation time, and composition of the culture (Madigan, Martinko, Stahl, & Clark, 2012). The bacterial concentration is approximately the same in the tube that contains the minimum inhibitory concentration level of antimicrobial agent because the agent inhibits the growth of the test organism. Reference Madigan, M. T. , Martinko, J. M. , Stahl, D. A. , & Clark, D. P. (2012). Brock biology of microorganisms (13th ed.). Upper Saddle River, NJ: Pearson.