VIRTUAL LAB 5 - DIFFERENTAL VS. SELECTIVE MEDIA

Food samples can contain numerous different types of microorganisms. Some of these (e.g. lactic acid bacteria in yogurt, molds in blue cheese) contribute to the preservation or flavor qualities of the food product. Others (e.g. Staphylococcus sp. and some strains of E. coli) can contribute to food spoilage and can be pathogenic to humans, causing serious illness. In this lab, you will be using differential and selective media to help decipher what types of bacteria can be found in food samples.

Materials (per pair):

2 x mannitol salt agar (MSA) plates
2x phenol ethyl alcohol (PEA) plates
2 x Eosin methylene blue (EMB) plates
2 x MacConkey agar plates
2 x TSA plates
9 ml tube of sterile peptone water
Your own liquid food sample
Broth cultures of E. coli, S. aureus, S. epidermidis

Procedure (to be carried out in pairs):

1. Obtain the plates and tubes needed for this lab and ensure all are labelled.

2. Divide 1 plate of each media type into thirds and streak each 1/3 with known broth cultures.

3. Prepare spread plates of your liquid food sample:

a. Prepare a dilution of your liquid food sample by adding 1000 µl of your sample into a tube of sterile peptone water. Mix well.

b. Pipette 100 µL of your diluted liquid food sample onto the center of a TSA plate. Using a sterilized spreader, spread your liquid evenly onto the surface of your plate. Allow to “soak in” before inverting your plate

c. Repeat this procedure for the remaining 4 types of media.

4. Incubate all plates at 37oC for 24 hours. Observe your plates and record a description of colony morphology, the number of colonies with each morphology, and the total number of colonies.