PRE-LAB 10: FOOD LAB

We are using another new medium this week, XLD. This medium has one selective reagent and three differential tests. To help you interpret the test results, complete the table below. Based on information in the lab and in the <u>Dehydrated Culture Media link</u>, fill in the cells of the table with the result for each test by species. Keep in mind that when you observe the colony on the plate, you are seeing all the results combined.

Table 1: Appearance of Enterobacteriaceae on XLD based on individual chemical reactions

Appearance of colonies	Xylose + Phenol Red	Lysine + Phenol Red	Thiosulphate
Positive result			
Negative result			
Salmonella			
E. coli			
Shigella			

21 marks

Food Lab Worksheet

Sample name:

Create a figure showing a representative plate from each medium tested: one TSA plate, XLD plate, Oxford Agar, and one petri film and any other media used to test pathogens. There are two ways you can choose to do this: **(4 marks)**

- Either make a descriptive legend for the entire set of four images that indicates your sample name and each media type.
- OR label each image with its own legend to indicate the media type.

Table 1: Raw data of colony counts of the sample on selective and non-selective media (4 marks)

	NA plates	PDA-C film		XLD agar	
Dilution	Total	Yeast and mould	Salmonella	Shigella	Other
Plate	Aerobic				enterics
	Bacteria				
XLD 10 ⁻¹					
XLD 10 ⁻²					
TSA 10 ^{-*}					
TSA 10 ^{-*}					
Y&M ⁻²		Yeast:			
		Mould:			
Y&M ⁻³		Yeast:			
		Mould:			

Use TNTC as required

* indicates a dilution that you fill in, based on the countable dilutions

Table 2: Total organisms in sample (4 marks)

Organism	CFU/g		
Total aerobic bacteria			
Yeast			
Mould			
Pathogen	Presence (+) / Absence (-)		
Salmonella			
Shigella			
Other enterics			
Listeria			

Show your work for a sample CFU/g calculation (4 marks)

 Refer to <u>Public Health Ontario</u> for acceptable levels for each of the pathogens tested (Table under the heading 'Interpretation'). Based on your results, is the food safe to consume? (2 marks)

Using our experimental parameters (1 cfu is the lower limit counted for Salmonella, and 100 ul of 10⁻¹ dilution is plated), what is the detection limit of the XLD plating assay in cfu/g? In other words, what is the least number of bacteria that could be enumerated in a sample (e.g. calculate the cfu using these lower-limit values)? Show your work. (3 marks)