# **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 [Dehydrated Culture Media link](http://www.oxoid.com/UK/blue/prod_detail/prod_detail.asp?pr=CM0469&c=UK&lang=EN), 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 Plate  | Total Aerobic Bacteria | Yeast and mould | *Salmonella* | *Shigella* | Other enterics |
| 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)**

1. Refer to [Public Health Ontario](https://www.publichealthontario.ca/en/Laboratory-Services/Test-Information-Index/Food-Testing) 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)**
2. 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)**