# **PRE-LAB 11: UNKNOWN LAB**

You are performing a series of new exoenzyme and biochemical tests this week. Please fill out the table below to help you interpret the test results. Use the links in the lab protocol to guide you.

| **Test** | **Purpose** | **Appearance of positive result** | **Appearance of negative result** |
| --- | --- | --- | --- |
| **Gelatin** |  |  |  |
| **SIM: sulphide** |  |  |  |
| **SIM: indole** |  |  |  |
| **SIM: motility** |  |  |  |
| **Oxidase** |  |  |  |
| **Methyl red** |  |  |  |
| **Voges Proskauer** |  |  |  |
| **Catalase** |  |  |  |

Please fill out the following chart using the information about the tests we will be performing today posted on FOL and from the links. Show your professor this table at the beginning of lab.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **pH indicator** | **Media** | **Acidic colour** | **Neutral colour** | **Alkaline colour** |
| Phenol red |  |  |  |  |
| Bromothymol blue |  |  |  |  |
| Bromocresol purple |  |  |  | N/A |

**35 marks**

# **Lab 11 Worksheet**

**UNKNOWN NUMBER or STRAIN NAME (if your environmental isolate or food/water lab isolate) (1 mark):**

**INTRODUCTION**

Introduce your strain: where was it isolated from, using which media, what is it presumed to be

State objectives for this lab or state your hypothesis

* Hypothesis: If this (independent, controlled variable), then that (dependent, measured variable).

**RESULTS**

Make a figure of the test tube-based tests or insert the images into the table below. These images are data required to confirm your test results. The results must be clear in the image for the reader to see. (5 marks)

* **You will lose a full mark for incorrect interpretation of a test (e.g. you say the blue citrate tube is negative).**

Complete the two tables below.

**Table 1:** Biochemical test results for your strain **20 marks**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test** | **Reactions** | | | | | | |
|  | **Glucose** | **Lactose/Sucrose** | | **Gas** | | **H2S** | |
| TSIA colour |  |  | | Observations: | |  | |
| +/- |  |  | |  | |  | |
|  | **H2S** | **Indole** | | **Motility** | | | |
| SIM colour |  |  | |  | | | |
| +/- |  |  | |  | | | |
|  | **glucose** | | | **lactose** | | | **sucrose** |
| Carbohydrate fermentation  Colour  Gas |  | | |  | | |  |
| +/- |  | | |  | | |  |
| Decarboxylase broth  Colour |  | | | | | | |
| +/- |  | | | | | | |
|  | **After Nitrate A+B** | | | **Zinc dust (if added)** | | **Gas production?** | |
| Nitrate reduction  Colour |  | | |  | |  | |
| Metabolite produced |  | | | | | | |
|  | **Indole** | **Methyl-red** | | **Vogues-Proskauer** | | **Citrate** | |
| IMViC  Colour |  |  | |  | |  | |
| +/- |  |  | |  | |  | |
| Gelatin hydrolysis  Observations |  | | | | | | |
| +/- |  | | | | | | |
| Enzyme test | Oxidase test | | Urease Test | | Catalase test | | |
| Reaction |  | |  | |  | | |
| +/- |  | |  | |  | | |

Table 2: Cell morphology results for your strain **3 marks**

|  |  |
| --- | --- |
| Test | Result |
| Gram stain | Gram reaction: |
| Wet mount | Motility: |

Summarize the results in a few sentences. Remember to not interpret the results, just summarize what was observed. (3 marks)

**DISCUSSION**

Discuss your results related to the species you think you have identified: **6 marks**

* Compare your results to the probable species (based on isolation media in previous labs) to discuss if this is correct.
* Compare to results posted for species in the respective [FDA chapter](https://www.fda.gov/food/laboratory-methods-food/bacteriological-analytical-manual-bam) and results spreadsheets posted on FOL.
* Discuss if your results are reliable: Do they have internal validity (do they agree with themselves)? Give specific examples of different tests or media testing the same property.