Assignment 4 :Summer 2023 Formal laboratory report outline:
Effect of Disinfectants and catalase test

Assignment# 4 - (9%) formal research paper on the effect of antiseptics/disinfectants on growth and catalase production on test bacteria.
Due July 24th 10:00 pm on-line to Quercus
VI-1: Effect of Chemical Germicides – Disinfectants and Antiseptics
VI-4: Catalase Test

- **You are in essence writing a primary paper on the results collected in lab**
- make sure you read the comments from your first lab report and incorporate the necessary changes to format and presentation for this report

Formal report:

- **Requires a minimum of 4 primary source peer reviewed journal articles**
- **No more than 4 pages double spaced, 1-inch margins, 12 pt font. The page limit does not include the cover page, abstract, reference page and the tables/figures**

Format of the research paper

Title: Needs to be informative, do **not** use the title of the lab exercises

Abstract: under 70 words describe what your research shows; be specific

Introduction: (for organization purposes should be maximum one page long)

- Introduce relevant background on your study
  - Introduce your major areas of research:
  - what and why of your paper.
  - You must cite at least **one relevant primary source peer reviewed primary journal articles** in the introduction.

No materials and methods required

Results:

- Present all data in either a table/graph/picture form (use only **one** type of presentation for each set of data; choose the best way to present the data).
  - figure captions for graphs/figures or foot notes for tables must be included (look at figures in journal articles)
  -Make sure you define the symbols/labels used within the footnote and legend
- **Fully describe the results presented in the tables or figures in paragraph form**. Do you see differences in effect of concentration, do you see evidence of more enhanced effects on growth with the different germicides
- Data presented in table/graph/picture form without the written observations is **not** acceptable.
- Look at Journal articles in journals such as Journal of Bacteriology, Microbiology,

for how to present the material in the results section.

Discussion:

- Interpret the data fully; what does your data suggest about the organisms tested with the various germicides, differences between organisms, what are the effective concentrations and does this match the literature.
- Do *E.coli* and S. *Epidermidis* produce catalase- do your results agree with the literature, if not suggestions why.
- Related the results of the catalase test to the growth or lack of growth with hydrogen peroxide. What is catalase?
- Relate your findings to the mechanism of action of the Germicides: do the three germicides affect the growth of Gram negative and Gram positive organisms equally well or are there differences and is it expected

    - Do your results agree with previous studies or what is known about these organisms You will need to demonstrate an understanding of how these germicides work..
- What is the relevance of understanding how Germicides affect bacterial growth and their use as bacterial control agents. Can bacteria develop resistance to the three germicides used
- **End the discussion with a conclusion** based on your data

You need **to cite at least three additional primary source peer reviewed papers** in the Discussion to support your findings. Remember you need a minimum of one primary source citation in your introduction and a total of four different primary source peer reviewed papers cited. You should strive for more than the four required.

Plagiarism will not be tolerated. You will be submitting to Quercus plagiarism software.

Academic integrity/plagiarism

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (http://www.governingcouncil.utoronto.ca/policies/behaveac.htm) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:
In papers and assignments: Using someone else's ideas or words without appropriate acknowledgement. Submitting your own work in more than one course without the permission of the instructor. Making up sources or facts. Obtaining or providing unauthorized assistance on any assignment.

You must use full citation (CSE format)-warning if you look this up there are some variations so use https://writing.wisc.edu/handbook/documentation/doccse/nameyear/

    - See information below for a quick list
- You may cite information from a review, but you must indicate it was obtained from a review- for example stating (reviewed in Brunt 2020). Otherwise, you must find the original source. You may not cite a primary paper as the source for information taken

from another primary source.

- What is Peer reviewed:

  Published article in which a community of experts in a given field impartially evaluate the paper and decide if it can be published, Wikipedia entries are not peer reviewed, some entries may be written and updated by experts others are not well curated. But none have gone through rigorous peer review.

  What is a primary source:

  A primary source is an original document, i.e. first-hand information. A paper that reflects the individual researcher or group or researchers work. It will have an abstract, introduction, materials and methods and discussion. These can be obtained from searches of PubMed or Web of Science- use the Gerstein library and log in.

  What is a secondary source:

  A document that talks about or reviews primary sources. A classic example in biology is the review article or chapter in a book. There are no materials and methods or defined results sections in reviews. When citing you must include the information in the intext citation that this is a review. For example you can say: As reviewed Brunt (2021)……. Or in brackets (reviewed in Brunt 2021). These can be obtained from searches of PubMed or Web of Science.

  What is a tertiary source:

  An overview or brief summary of a topic. Repackaging with less detail such as, articles in encyclopedias, and chapters in textbooks, Wikipedia entries, and material on other websites these should not be used as the sole source of information.

  Quick List:

  When you obtain the electronic version of the research article you cite the Author, year, Journal and page numbers in the reference section not the URL only. Remember different journals use different formats so do not cut and paste from a journal. Also, some papers may have been cited by peered reviewed papers ahead of print but these papers have subsequently been published and you need to find the relevant journal date, volume and page number.

Format within the text:

- For in-text citation use author and year, for multiple authors (more than 2) use the first author's name and then et al.
- If the same author has publications in the same year a, b c onto the year i.e. 2020a.

List references alphabetically by author in your reference list

- Only cite those that were cited in-text
- Include author, year, title of article, journal volume and page numbers.
- Make sure you are using the correct abbreviation for the journal name (if unsure go to the journal site to determine the appropriate abbreviation).
- Italics, bold, underlining and quotation marks are not used (exception: italicize scientific names)

Chapters in books require author of the chapter, title of the chapter and the book title, the editor of the entire book, and page numbers of the chapter.

- e.g. Nover, L., Scharf, K.-D. 1991. Heat shock proteins. In: Nover, L. (Ed.), Heat Shock Response CRC Press, Florida, pp. 41-227