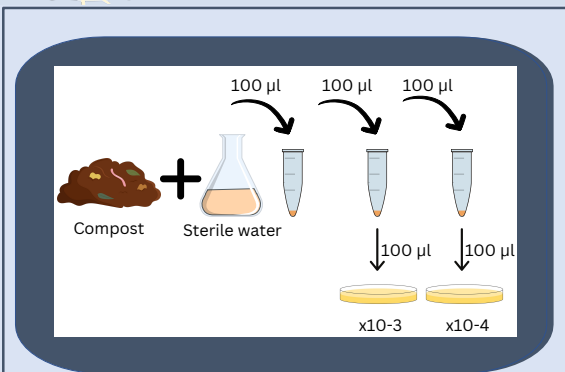


Composting is a proactive approach to reusing cardboard. This alternative method, uses less energy and water and emits far less greenhouse gasses.

Additionally, vermicompost has many agricultural benefits. Within the diverse array of microbes present in compost, they share a symbiotic relationship with plants that aid in plant growth, yield, nutrient uptake and nutrient cycling.



METHODS:

To isolate that bacteria, a serial dilution of each compost sample was made and spread plated onto nutrient agar and potato dextrose agar.

Gram staining was preformed for isolated colonies from the NA plates to determine the microscopic morphology

ACKNOWLEDGMENTS:

Thanks to Lisa Forth for making the compost and Dr. Cheeptham for her work. As well as the City of Kamloops for their financial support through the Climate Action Grant.

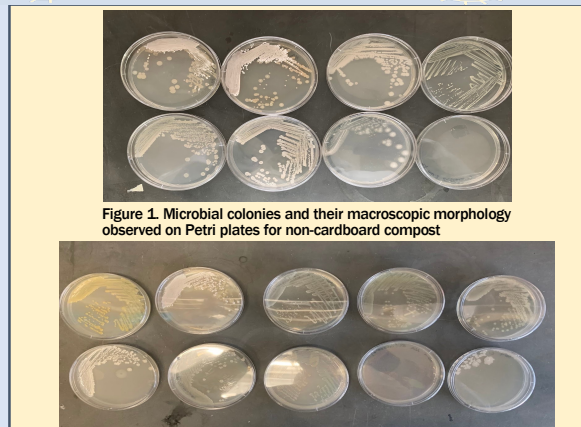
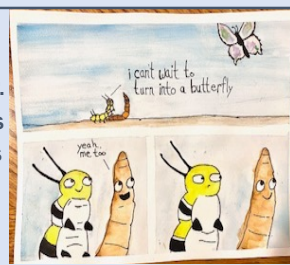


Figure 1. Microbial colonies and their macroscopic morphology observed on Petri plates for non-cardboard compost

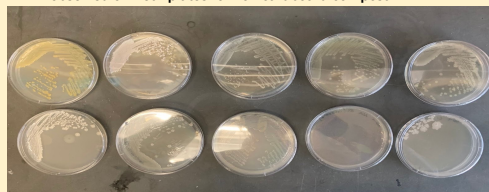


Figure 2. Microbial colonies and their macroscopic morphology observed on Petri plates for cardboard compost.

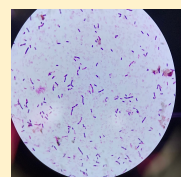


Figure 3. Gram+ rod-shaped bacteria with endospores (non-cardboard).

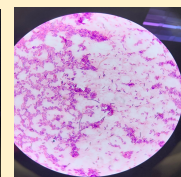


Figure 4. Mix of G- cocci and G+ rod-shaped bacteria (cardboard).

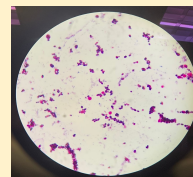


Figure 5. Gram stain reveals not bacteria but potentially yeast.



Figure 6. Macroscopic morphology of microbial colonies grown on PD media after 72 hours at 20C (non-cardboard).

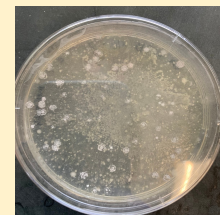


Figure 7. Macroscopic morphology of microbial colonies grown on NA media after 24 hours at 30C (cardboard).

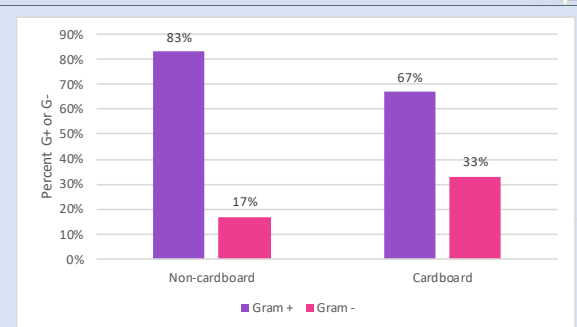


Figure 8. Percent abundance of Gram positive and negative bacteria in cardboard and non-cardboard samples.

	Simpson's Diversity Index (D)	Shannon's Diversity Index (H')	Richness
Non-cardboard	0.59	1.2	7
Cardboard	0.68	33.6	10

Bray Curtis's Dissimilarity (BCd)
0.76

DISCUSSION:

In conclusion, both vermicompost conditions contained a diverse mixture of bacteria. Although, it is found that the bacterial community composition does differ between the two conditions.

Future Work:

To further confirm the results of this project, metagenomics of both the cardboard and non-cardboard samples will be done. This will allow for a more accurate interpretation of the microbial community composition.



References