

DNA BARCODING INVESTIGATION OF EEL SUSHI

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ABSTRACT:

The purpose of this experiment is to find out whether the Japanese eel sushi are sold illegally in restaurants. Endangered species are species that play a crucial part in the world and should therefore be protected from extinction. The Japanese eel sushi takes part in this extinction.

PROBLEM:

What eel is being used to make eel sushi in NYC? Where are these eels being bought from? How can we prevent the selling of endangered species in the black market?



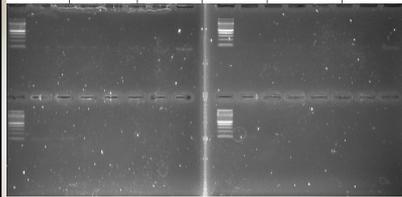
METHODS & MATERIALS:

Distilled water, lysis solution, silica resin, specimen tissue samples, scalpel, wash buffer, ice, transport icebox, microcentrifuge, tube rack, microcentrifuge tubes, micropipettes and tips, permanent markers, plastic pestles, vortexer, water bath, thermometer, thermal cycler, PCR beads, primers, load dye, PCR tubes, latex gloves, masking tape, camera, UV transilluminator, eGels and powerbox kit, and computer with internet access. Eel sushi from four different eel sushi restaurants. Samples were donated by the WCC team

DNA was extracted and purified from the samples.
Polymerase Chain Reaction to amplify the DNA
Confirm the presence of DNA through gel electrophoresis and send positive samples to lab for sequencing.
Analyze sequence data using DNA Subway

RESULTS:

Species	Location Sample Collected	Date Sample Collected	Organismal DNA Identified	Gel Electrophoresis	# of Mismatches in Genetic Sequence
Eel 1 Sample A	40.832269° N, -73.822878° W	04/24/2018	N/A	Negative	N/A
Eel 1 Sample B	40.832269° N, -73.822878° W	04/24/2018	N/A	Negative	N/A
Eel 2 Sample A	40.826790° N, -73.922610° W	04/24/2018	N/A	Negative	N/A
Eel 2 Sample B	40.826790° N, -73.922610° W	04/24/2018	N/A	Negative	N/A
Eel 3 Sample A	40.819151° N, -73.816894° W	04/24/2018	N/A	Negative	N/A
Eel 3 Sample B	40.819151° N, -73.816894° W	04/24/2018	N/A	Negative	N/A
Eel 4 Sample A	40.844458° N, -73.80279° W	04/24/2018	N/A	Negative	N/A
Eel 4 Sample B	40.844458° N, -73.80279° W	04/24/2018	N/A	Negative	N/A



LOCATIONS OF SUSHI RESTAURANTS



CONCLUSION:

In conclusion, the eel sushi was not identified because the eel had been cooked prior to the DNA extraction. Therefore, our hypothesis was incorrect. However, we would attempt the experiment again in the future, using raw eel the second time to see if we would actually get results.

REFERENCES:

- McGinniss, Paul. "Cultural Diversity in New York City." *GAC*, Great American Country, 12 May 2015, www.greatamericancountry.com/places/local-life/cultural-diversity-in-new-york-city.
- Hunt, Joshua. "Japan Copes with the Disappearing Eel." *The New Yorker*, The New Yorker, 19 June 2017, www.newyorker.com/business/currency/japan-cope-with-the-disappearing-eel.
- Campbell, Dana. "Japanese Eel - Anguilla Japonica - Details." *Encyclopedia of Life*, eol.org/pages/206835/details.
- Picardo, CFA Elvis. "Black Market." *Investopedia*, Investopedia, LLC, 10 Feb. 2014, www.investopedia.com/terms/b/blackmarket.asp.

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