Biodiversity of Butterfly Chrysalises from Riverhead Aquarium

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Abstract

First butterfly specimens were received, then numbered and had photos taken of them. Next they were organized on the DNA barcode Long Island Database with the images. Then DNA was extracted through the primers.

Introduction

Butterfly specimens were acquired from the LI Aquarium and began to organize them into the DNA barcode Database. It is anticipated that this project will identify multiple species using the DNA barcoding system and possibly lead to the discovery of new species. Additionally, some of the species may have been misidentified using traditional taxonomy methods, so this research will assist in confirming true identification of specimens. This project would be in the public's best interest because this will increase the strength of biodiversity, which will also strengthen the environment by less climate change, more clean air, water, and medicine. This project will be of scientific interest because we will be able to hopefully find some new or unidentified species of butterflies.

Materials and Methods

Specimens were recieved from the Long Island Aquarium

Photos were taken of the organisms and prepared for the DNA extraction

Withdraw small tissue samples from the organisms

Conduct PCR testing on the tissue samples that were extracted

Extract the DNA samples and then constructed barcodes of DNA

Examine and compare DNA barcodes on DNA subway to pin down organisms

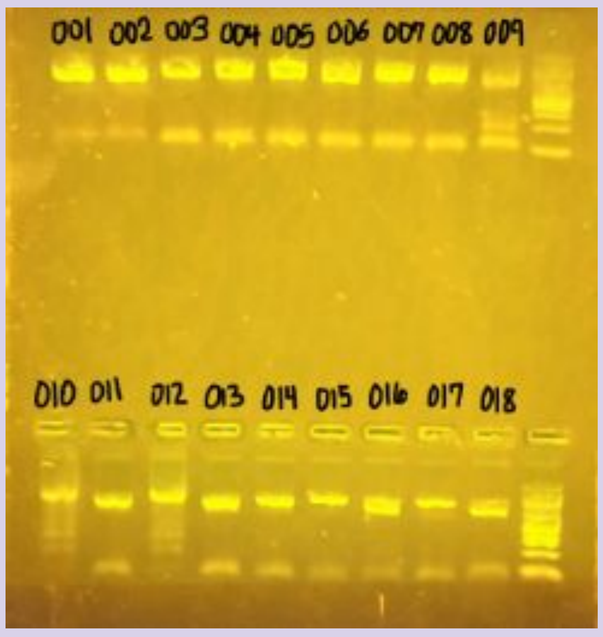
Sample #	Scientific Name	Common Name	Sample #	Scientific Name	Common Name
DBA-001	*Cetosia cyane*	Leopard Lacewig	DBA-011	*Morpho peleides*	Blue Morpho
DBA-002	*Cetosia cyane*	Leopard Lacewig	DBA-012	*Morpho peleides*	Blue Morpho
DBA-003	Charaxes cithaeron	Blue-spotted Emperor	DBA-013	*Hypolimnas bolina*	Great Eggfly
DBA-004	*Graphium antheus*	Large-Striped Swordtail	DBA-014	*Hypolimnas bolina*	Great Eggfly
DBA-005	*Papillon dardanus*	Mocker Swallowtail	DBA-015	*Papilio polytes*	Common Mormon
DBA-006	*Charades castor*	Blue spotted Emperor	DBA-016	*Mechanitis polymnia*	Disturbed Tigerwing
DBA-007	*Charades castor*	Giant Emperor	DBA-017	*Mechanitis polymnia*	Disturbed Tigerwing
DBA-008	*Papillon memnon*	Great Mormon	DBA-018	*Mechanitis polymnia*	Disturbed Mormon
DBA-009	*Papilo memnon*	Great Mormon	DBA-019	*Hypna clytemnestra*	Jazzy Leafwing
DBA-010	*Papilio memnon*	Great Mormon	DBA-020	*Hamadryas amphinome*	Red Cracker butterfly

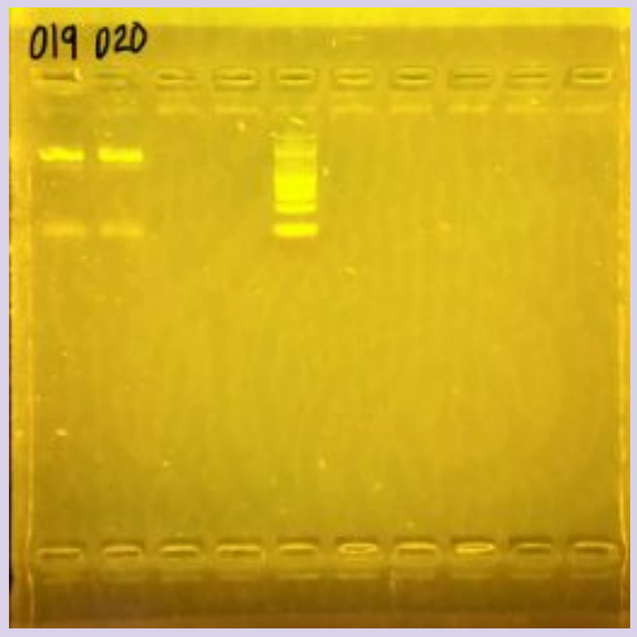
Results

DBA-001

DBA-002

DBA-003





Based on the gel electrophoresis results, the PCR of the samples worked correctly. DNA barcode analysis is yet to be acquired from the Cold Spring Harbor Lab. These results will provide the correct identification of each species.

Discussion

There is anticipation that the results will have great biodiversity with the butterfly samples. This will be confirmed or refuted once DNA barcode results are received.

Future Directions

In the future, an increase in the sample size of the butterflies would be more efficient in identifying more butterfly types and classifying them. It gives more DNA information which allows scientists to collect samples and identify the quicker which could help advance the DNA research instead of spending time figuring out species.

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References

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