Polynema enchenopa parasitism rate determination via isolation of the CO1 gene

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Introduction

- *Polynema enchenopa* samples were obtained from wild at Lehman part, Potsdam, NY
- Collected using wild samples of *Enchenopa binotata* egg masses from Viburnum trees
- Wasps harvested using a siphon after observation
- Process was quite timely, unrealistic on a large scale
- Short window of eclosion and eggs dry soon after the eclosion period
- Thus, development of a molecular method
  1. Collect egg mass
  2. Grind and extract DNA
  3. qPCR to analyze
  4. Obtain parasitism rate

Materials and Methods

- Extract DNA from Treehopper and Wasp (Qiagen DNeasy Kit)
  - Very small/little DNA, hard to visually confirm
- Polymerase Chain Reaction (PCR)
  - HCO/LCO primer pair
  - Amplifies 710 bp region of the Cytochrome C Oxidase gene
  - Relatively conserved region, used for barcoding
- Experimentally adjusted PCR program
  - 35 cycles at 94°, 50°, 70°
- Checked with agarose gel electrophoresis
- Sent for out of house sequencing

Results

- BLAST Search of sequence
  - Identified as *Polynema* wasp
- Ready for qPCR
  - Both sequences amplified by same PCR
- Ran PCR on various insects to test efficacy of thermocycling program using HCO/LCO primer pair
  - All insect samples successfully amplified

Implications

- Allows for population monitoring
- Gives insight on when to enhance biocontrol populations
  - Pesticides un-ideal
  - Bio-controls are expensive
- Broader implications beyond parasitoid interactions
  - Range of potential uses
  - Predator/prey interactions

Acknowledgements

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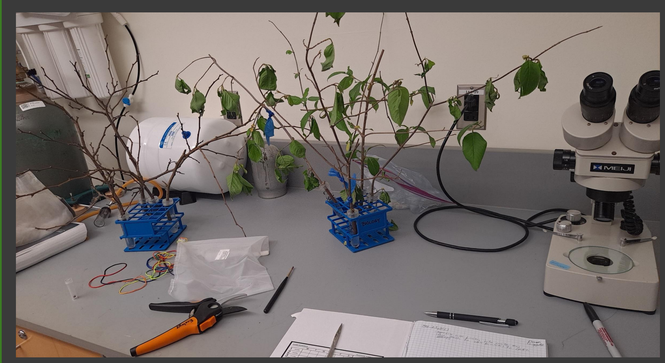
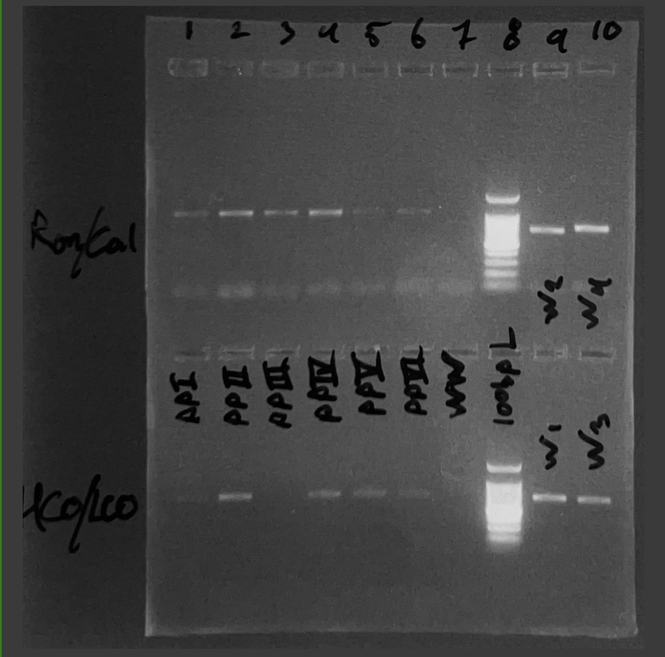
Local micro-wasp's implications as a biological control agent





Organism	Blast Name	Score	Number of Hits
Mymaridae	wasps, ants & bees		102
. unclassified Polynema (in: wasps, ants & bees)	wasps, ants & bees		78

References

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