

Inhibition of Emergence

Field Validation of encapsulated methoprene

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Overview

Insect Growth Regulation

Modes of Action

Inhibition of Emergence

Field Validation

Overview

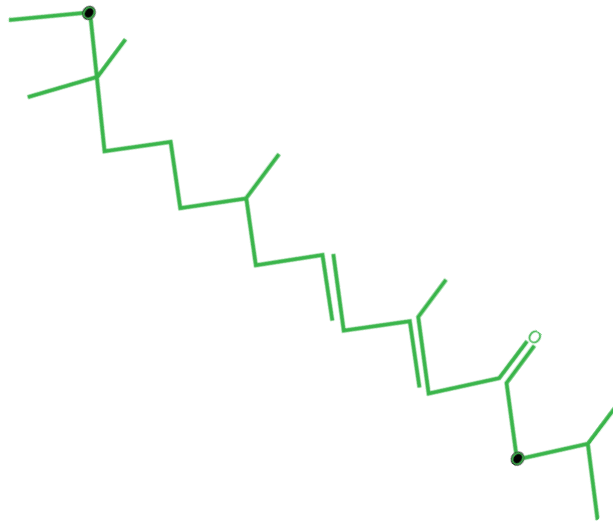


Overview

JH Analog

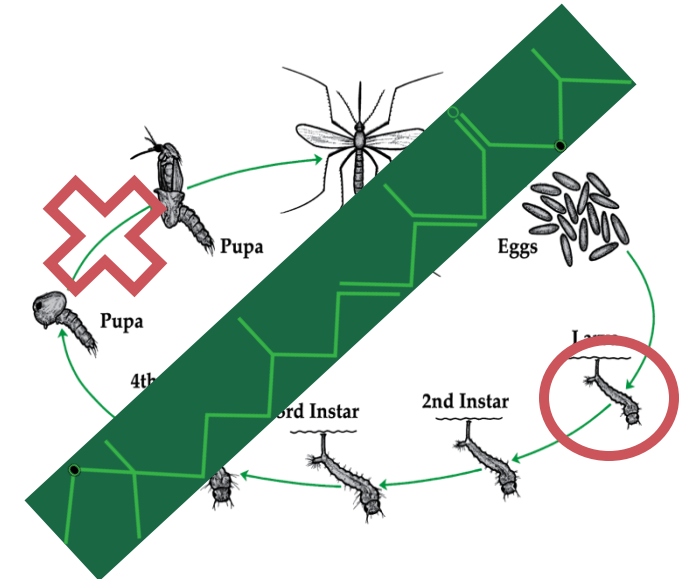
Active in PPB range concentrations: 0.2 ppb to 4 ppb

Affects aquatic life cycle: molting to pupae or adults



Method of (S)-Methoprene entry:

- Absorption
- Ingestion

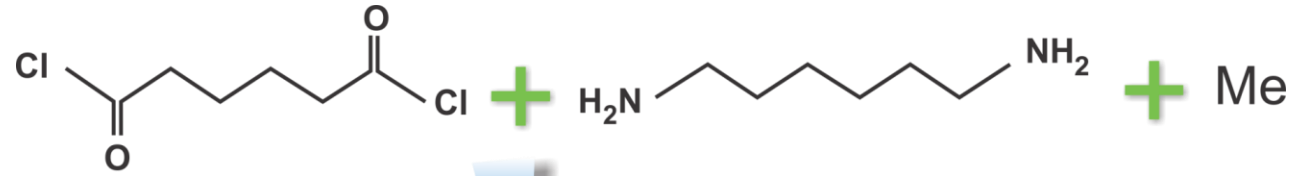


Insect Growth Regulation

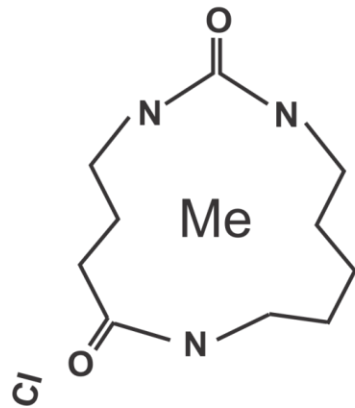
JH Analogs: Methoprene



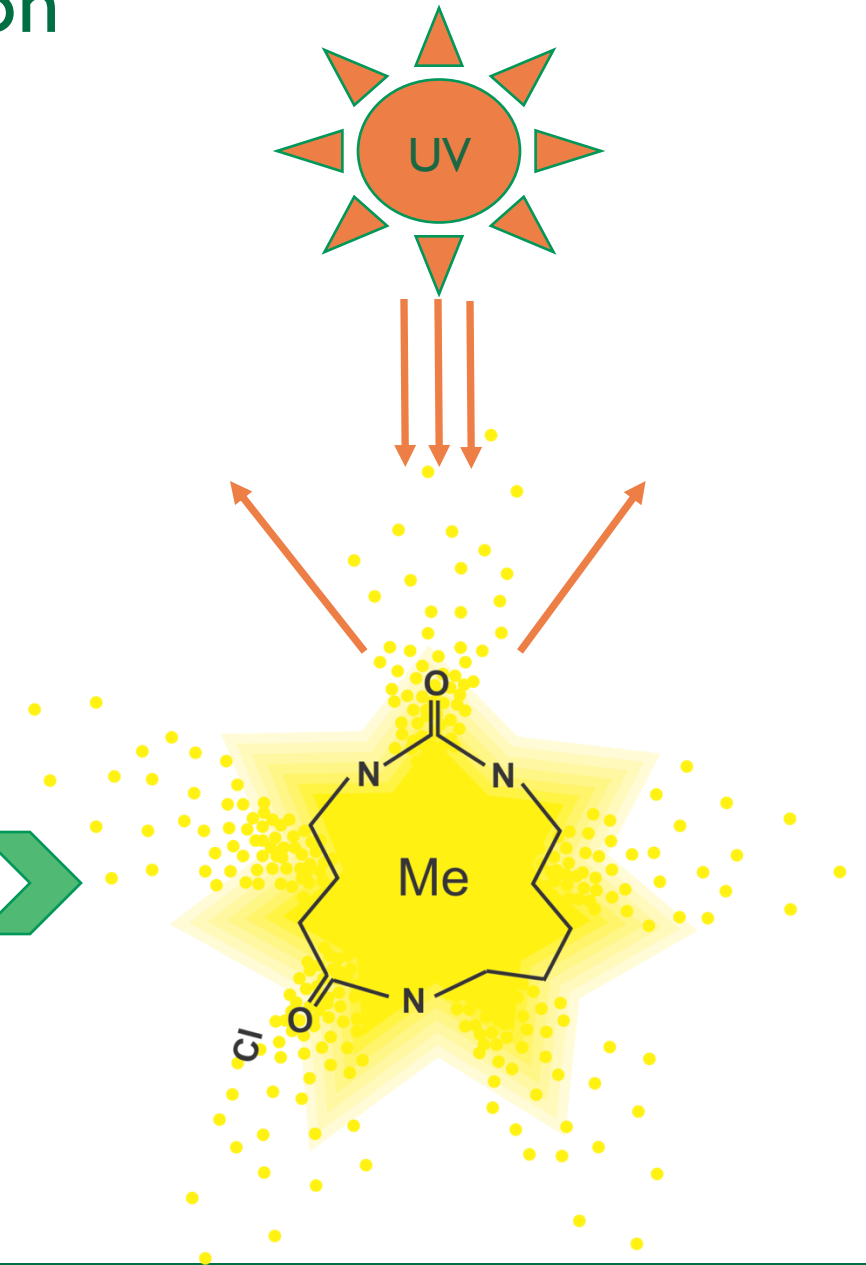
Microencapsulation



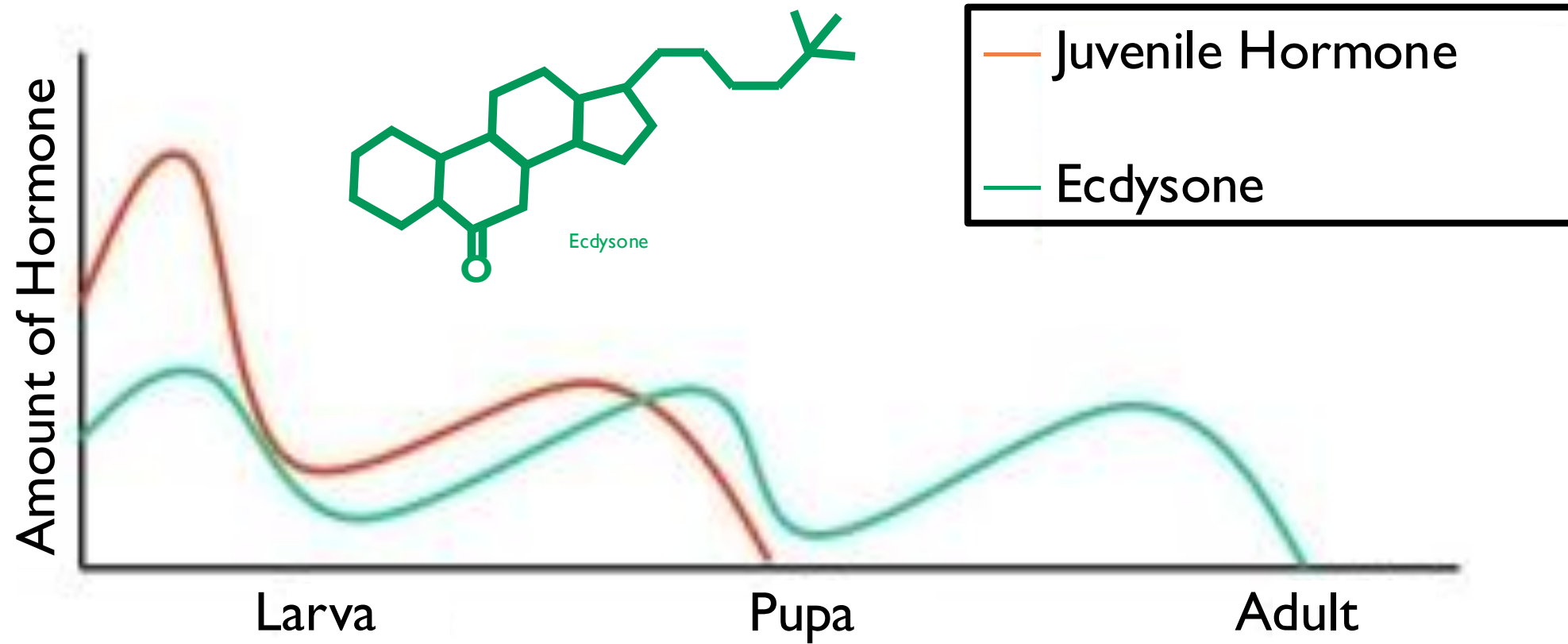
Polimerización



SLOW RELEASE



Regulation of Hormones



Analog



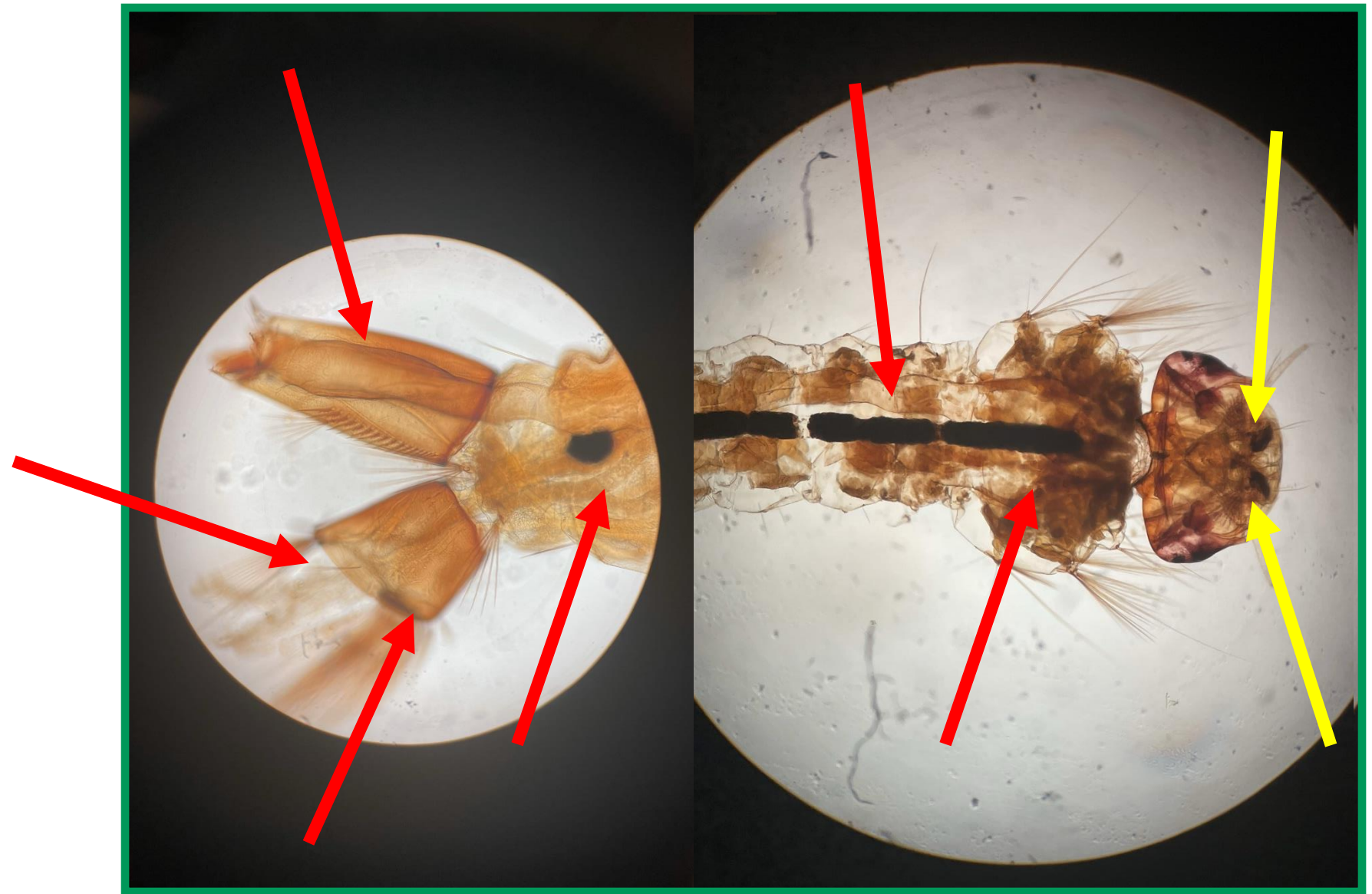
Modes of Action



Modes of Action

Absorption

Ingestion



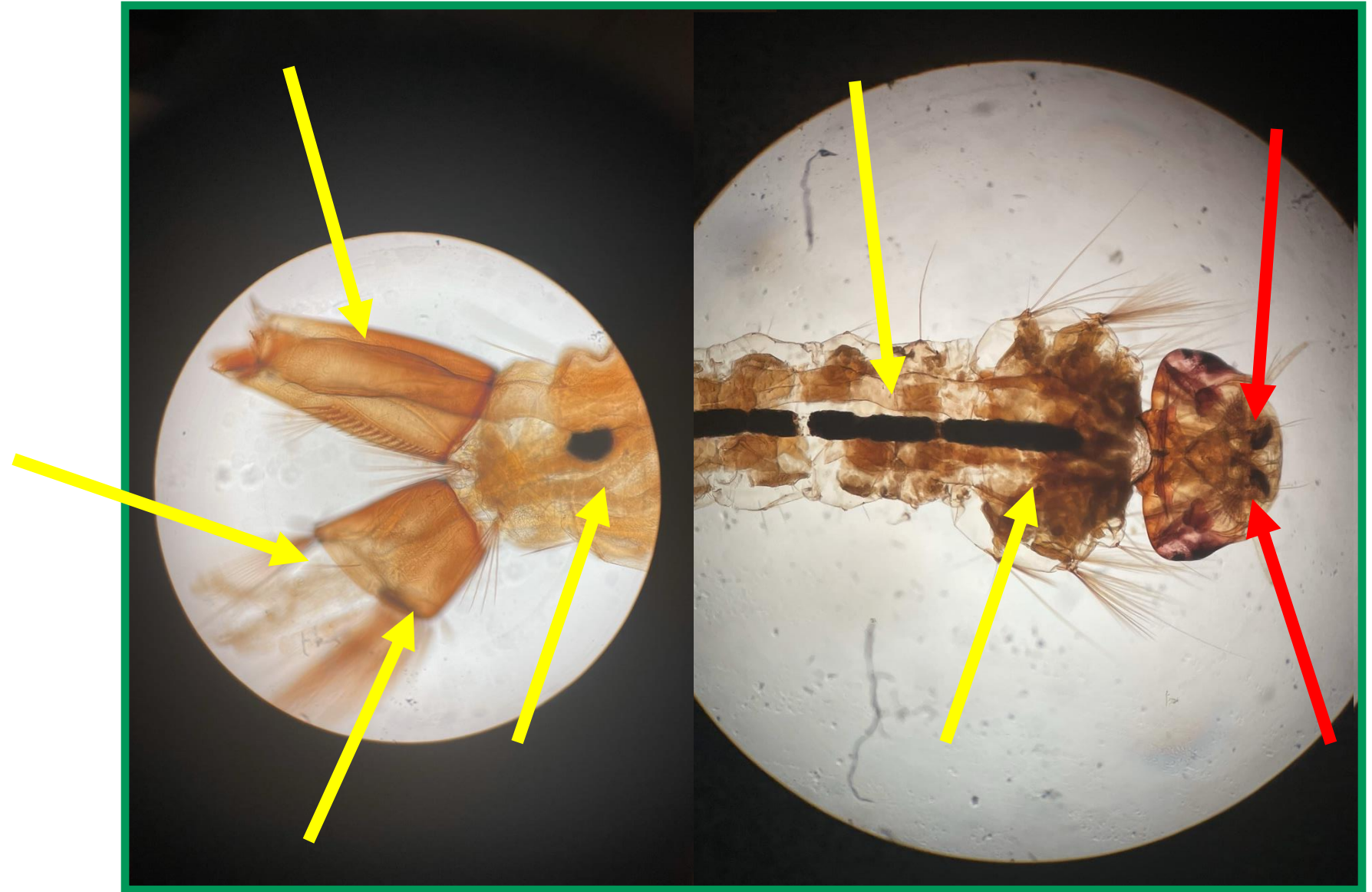
Aedes pertinax



Modes of Action

Absorption

Ingestion



Aedes pertinax



Inhibition of Emergence: Validation



Inhibition of Emergence

$$IE(\%) = \left(\frac{C-T}{C} \right) \times 100$$

Where C = percentage emerging or living in control habitats and T = percentage emerging or living in treated habitats.

C = % of emerging from control
T = % of emerging from treated
Subtract T from C divide by C
Multiply by 100
Indicates Inhibition Emergence (%)

Operational Target

$$IE(\%) = \left(\frac{C-T}{C} \right) \times 100$$

Where C = percentage emerging or living in control habitats and T = percentage emerging or living in treated habitats.

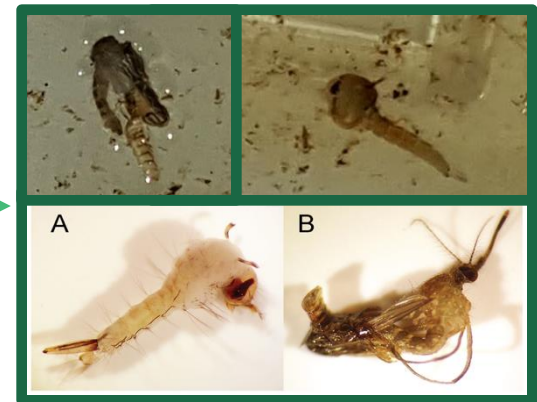


C = % of emerging from control
T = % of emerging from treated
Subtract T from C divide by C
Multiply by 100
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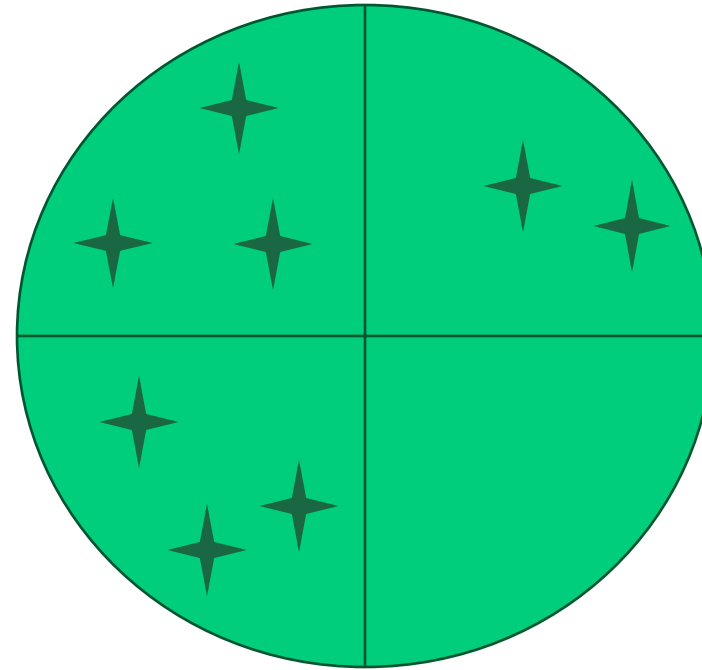
Assessing Success: Qualitative

- Immature surveillance: Pupae
 - Sample from random multiple source sites
 - Sample from random multiple points per source
- Process samples through emergence from pupae
 - Use controls!
- Morphological characteristics
 - Extended integument
 - Partial adult emergence
 - Disfigured adults



Factors: Troubleshooting

- Do not blame the product
- Assess the application
- Factors that can influence operational target:
 - Application rate



Operational question: What is impeding success in my application?



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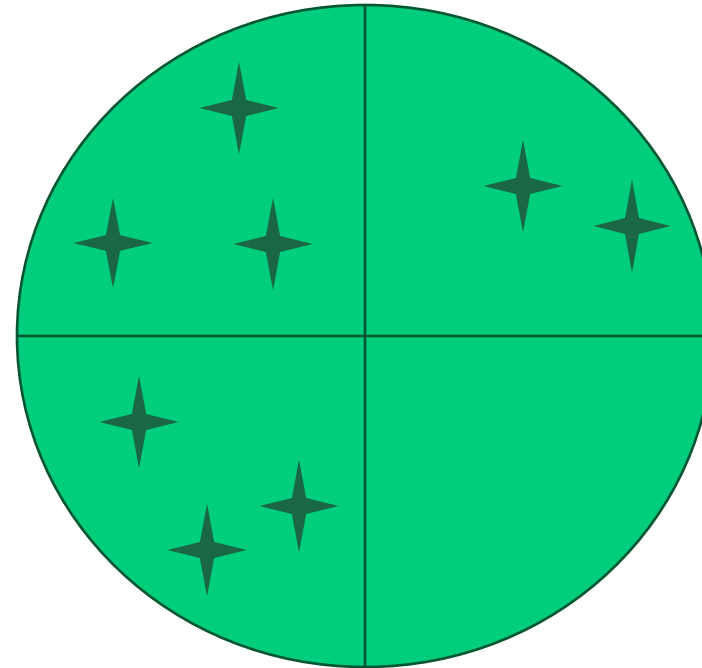


Operational question: What is impeding success in my application?



Factors: Troubleshooting

- Do not blame the product
- Assess the application
- Factors that can influence operational target:
 - Application rate
 - Source environmental & biologicals



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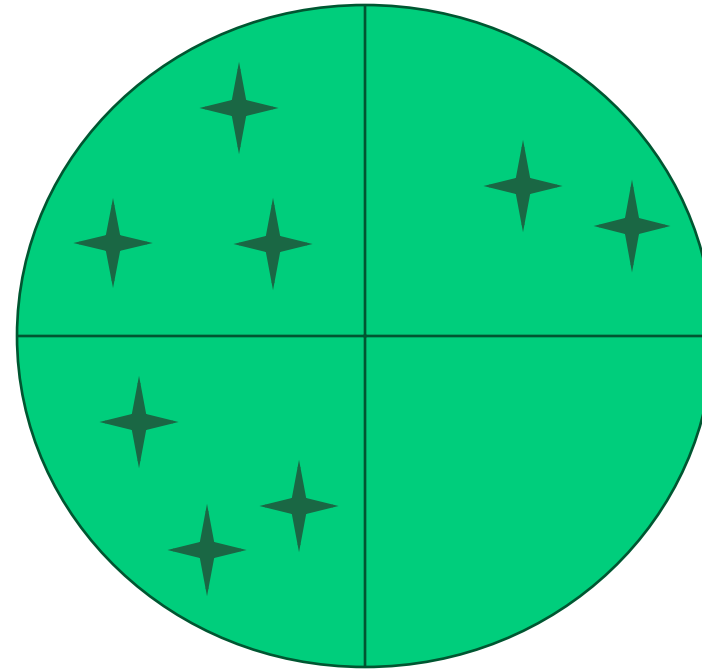


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Factors: Troubleshooting

- Do not blame the product
- Assess the application
- Factors that can influence operational target:
 - Application rate
 - Source environmental & biologicals
 - Mechanics



Operational question: What is impeding success in my application?



Factors: Troubleshooting

- Do not blame the product
- Assess the application
- Factors that can influence operational target:
 - Application rate
 - Source environmental & biologicals
 - Mechanics
 - Calibrate often!

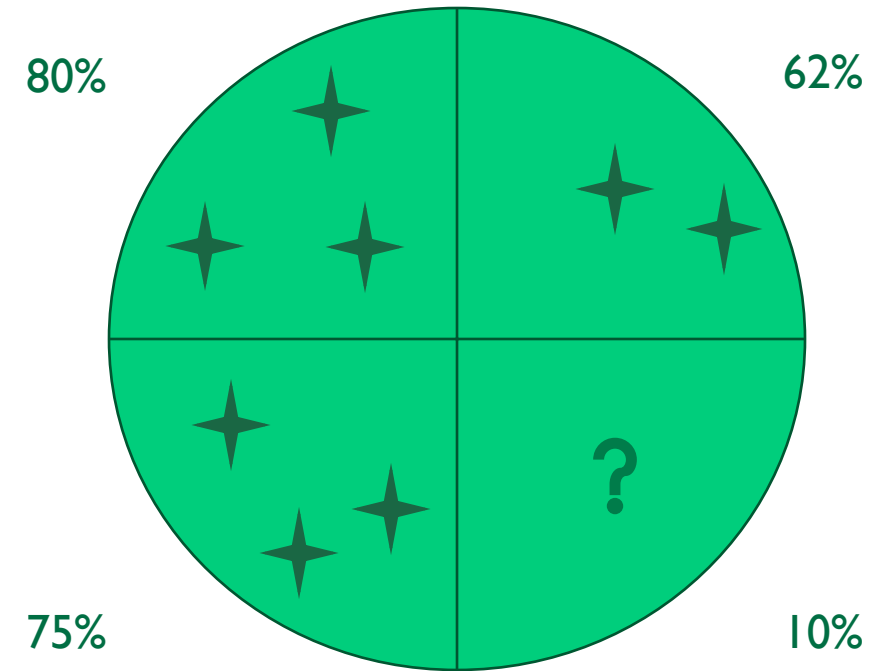


Operational question: What is impeding success in my application?



Factors: Troubleshooting

- Do not blame the product
- Assess the application
- Factors that can influence operational target:
 - Application rate
 - Source environmental & biologicals
 - Mechanics
 - Application Symmetry
 - OT not matching up by site
 - IE can assist
 - Human error

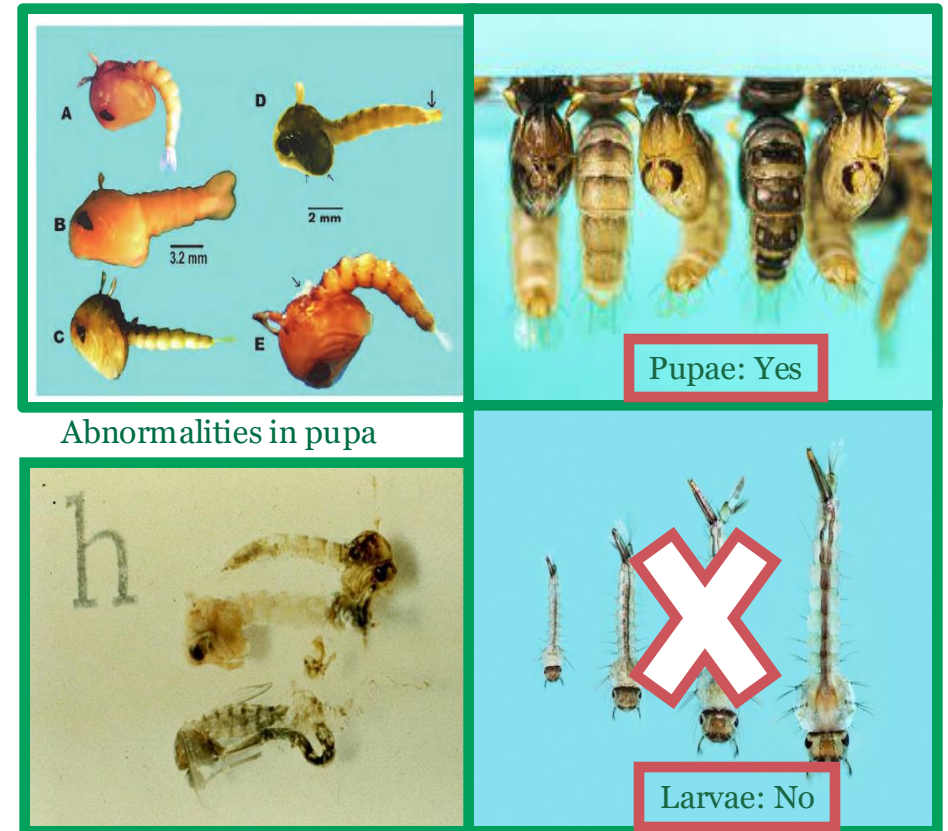


Operational question: What is impeding success in my application?



Reflections

- Collect pupae
 - JH is at low levels
 - S-Methoprene is at high levels
 - Remember hormone signal pathways!
- **Do Not** pull larvae for testing!
- Presence/Absence: IE!
- Symmetry in Applications
- Factors: Operational questioning!



Larvae removed from a methoprene treated area may develop normally





Thank you!

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