Biopesticides Registration Improvement Course

Biochemical Pesticide Classification, Types, & Modes of Action 5.1

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Disclaimer

For Conference Purposes Only. The views in this presentation are not intended to be used to formulate or support any EPA decision or position. Discussion of pesticide products in this presentation does not constitute EPA endorsement of these products.

- What are Biochemical Pesticides – U.S. Perspective & Bioclassification
- Types of Biochemical Pesticides
- Biochemical Modes of Action
- Resources for Biochemical Classification
- Commonly Seen Problems / Issues

Biochemicals (40 CFR 158.2000(a)(1)(i –iii)

- Non-toxic mode of action against target pest
- Naturally occurring
- History of exposure to humans & environment demonstrating minimal toxicity

-semiochemicals (e.g. pheromones)

-plant/insect hormones and regulators

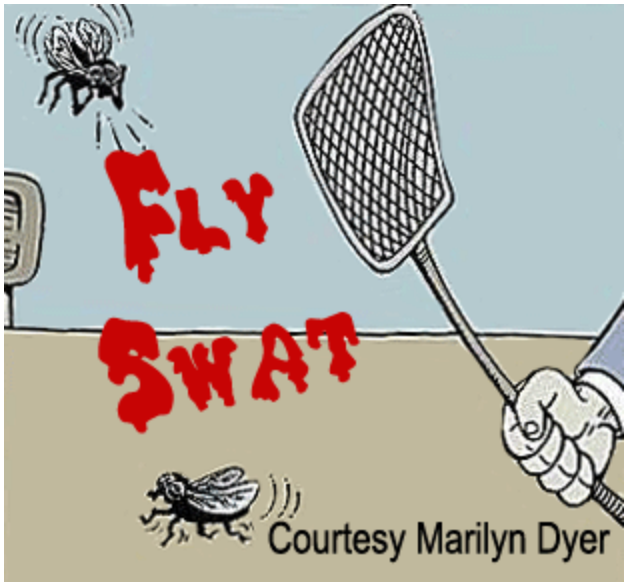
-attractants & repellents (non-semiochemical)

-enzymes

The term "Non-toxic" implies:

- No chemical or biological interaction of the biopesticide molecule occurs with the physiology of the target pest organism such that direct lethality to that pest organism results.

Non-toxic substances can be *lethal*



"***Naturally occurring***" does not presume a non-toxic mode of action

Non-Toxic Modes of Action

- Growth/developmental changes (PGRs, IGRs)
- Lures/Attractants/Repellents (Semiochemicals)
- Suffocation
- Desiccation
- Coatings (Irritants & Barriers)
- Induced Resistance (SAR/ISR)-Induction

Approximately 200 biochemical pesticide active ingredients registered by EPA

Resources for Biochemical Classification

- **What are Biopesticides**

http://www.epa.gov/pesticides/biopesticides/whatarebiopesticides.htm

- **Biopesticide Active Ingredient Fact Sheets**

http://www.epa.gov/oppbppd1/biopesticides/ingredients/index.htm

- **New Pesticide Active Ingredients**

http://www.epa.gov/pesticides/biopesticides/product_lists/new_ai_2010.html

- **Hazardous Substances Data Base (HSDB)**

http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB

Commonly Seen Problems / Issues

- Mode of Action
  not Adequately Described

- Too Much Information Submitted

- Useful Supporting Information
  Not Submitted

Useful (but not required) Supporting Information

- CAS Numbers (if available)
- Chemical Structures
- Human Health or Ecotoxicity Information
- Draft Label
- Efficacy Data
- **DO NOT** submit testimonials!!!!!

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