


Plant-Pest Interactions

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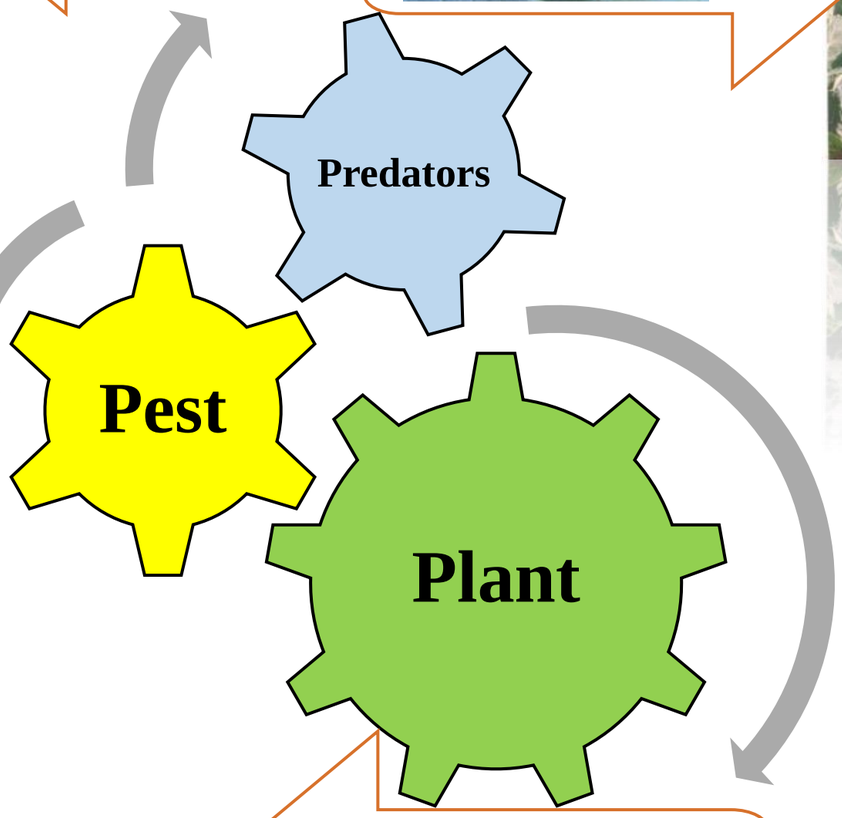
Pieris brassicae L. is a serious pest of Crucifer crops. Widespread use of pesticides by farmers is the only known method to control this pest. In order to sustainably manage outbreaks and develop insect-resistant transgenic crops, larval digestive proteases present an attractive target. Development of novel techniques to study gut physiology, and host plant preferences has been initiated. Ongoing research focuses on mechanisms and genetics of alternative host plant utilization.

Host Plant Utilization in Lepidoptera

Study: 1



Study: 2

***Millettia pinnata* (L.) Panigrahi is a biodiesel plant**

with medicinal, drought & salinity tolerance properties.

Biochemical and molecular markers are being explored to study genetic variation in a local stand of *Millettia pinnata* L. and associated biota, in order to examine biotic interactions important for herbivory and seed/oil production.

Publications:

- Bhardwaj, U., Bhardwaj, A., Kumar, R., Leelavathi, S., Reddy, V. S., & Mazumdar-Leighton, S. (2014). Revisiting Rubisco as a protein substrate for insect midgut proteases. *Archives of insect biochemistry and physiology*, *85*(1), 13-35.
- Kumar, R., Bhardwaj, U., Kumar, P., & Mazumdar-Leighton, S. (2015). Midgut serine proteases and alternative host plant utilization in *Pieris brassicae* L. *Frontiers in physiology*, *6*, 95.

Poster Presentations in International Conferences:

- "Towards developing Rubisco as a physiologically relevant substrate for measuring herbivory" in International Symposium on Plant Signaling and Behavior, New Delhi, 2014.
- "Genetic variation and its implications for a local population of Pongam oil tree *Derris indica* (Lam.) Bennet (syn. *Millettia pinnata* (L.) Panigrahi; *Pongamia pinnata* (L.) Pierre) in 27th Conference of the Indian Association for Angiosperm Taxonomy & International Symposium on Plant Systematics: Priorities and Challenges, New Delhi, 2017.