

Encadrement :

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Titre du stage :

The role of cyanogenic glucosides on the performance and behavior of the bean beetle, *Zabrotes subfasciatus*, and its parasitoid, *Stenocorse bruchivora*.

Mots clés :

Tritrophic interactions, performance, behavior, beans, parasitoids, cyanogenic compounds

Résumé (150 mots maximum) :

Previous studies have shown that variation in seed quality affects the performance and behavior of bruchids and their parasitoids (Benrey et al. 1998). The lima bean, *Phaseolus lunatus*, contains cyanogenic compounds in both the leaves and the seeds, and these compounds have been shown to be toxic to leaf herbivores (Balhorn et al. 2005). However, little is known about the role of these compounds on the performance of the insects associated with the seeds, and on the variation in their content in natural populations. We will conduct performance and behavior experiments with bruchids and parasitoids on seeds originating from different Lima bean populations. Cyanogenic glucosides in the bean will be analyzed using an extraction and separation technique, liquid chromatography, and mass spectroscopy.

Objectifs :

1. Analyze the variation of cyanogenic glucosides in lima beans from different populations in Mexico.
2. Determine the influence of variation on cyanogenic compounds on the performance and behavior of bruchids and parasitoids.

Deux références bibliographiques:

Balhorn, D.J., R. Lieberei and J.U. Ganzhorn (2005). Plant cyanogenesis of *Phaseolus lunatus* and its relevance for herbivore plant interaction: the importance of quantitative data. *Journal of Ecology* 31:1445-

Techniques mises en Œuvre:

- General ecology : performance experiments
- Chemical compound analysis : liquid chromatography, mass spectroscopy

Compétences particulières exigées:

An interest in research involving plant-insect and tri-trophic interactions.

Strong organization skills and ability to follow detailed directions.

Neuchâtel is located in French-speaking Switzerland, however the lab includes a diverse array of researchers from different countries. The common language for communication is English, therefore we expect the applicant to have strong English skills.