Tiny Plastics, Big Consequences - Do Microplastics Affect Insect Survival?

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Project Description: Plastic is everywhere—even in places you wouldn't expect. Tiny fragments called microplastics are now found across both marine and terrestrial ecosystems, making their way into food webs at all levels. For animals, these particles can be mistaken for food. But unlike real food, plastic is indigestible—it can fill the stomach without providing any nutrition, block digestive organs, and ultimately lead to starvation.

On land, insects are one of the first entry points of microplastics into the food chain. Because insects are a major food source for many animals, any plastics they consume can move up the food web—potentially affecting entire ecosystems.

In this project, you will investigate:
Do crickets eat microplastics—and if so, how does it affect their growth, health, and survival?

Recent pilot studies show that microplastics can accumulate in key parts of the cricket digestive system. Building on this, you will:

- Conduct controlled laboratory experiments exposing live crickets to different types of microplastics
- Measure growth rates, survival, and feeding behaviour
- Quantify microplastic accumulation within the digestive system
- Learn dissection techniques and use microscopy to visualise plastic particles inside the insects
- Generate high-quality scientific images similar to those used in research publications (Figure 1).

What you will gain:

- Hands-on experience in experimental design and data analysis
- Practical lab skills in dissection, microscopy, and imaging
- Insights into a rapidly growing environmental issue with real-world impact
- Experience contributing to cutting-edge research in ecotoxicology and environmental science

This project is ideal for students interested in ecology, environmental science, or laboratory-based research—and offers the opportunity to explore how something as small as a plastic particle can have surprisingly large effects on life.

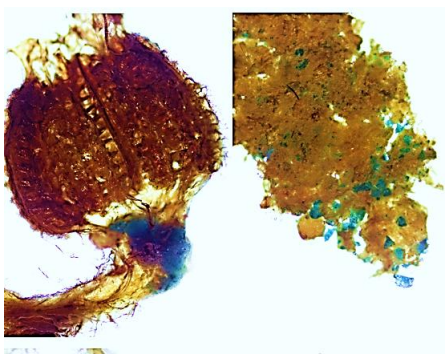


Figure 1. Preliminary experiments have shown that polyethylene microspheres accumulate in the crop and proventriculus (left) while some microspheres are excreted in scats (right).