Project Title

Hemolymph Biomarkers as Indicators of Anthropogenic Impact on Bumblebee Populations

Project Data

Duration	**Funding**	**Project location/ Region**
2 February 2026 – 1 January 2027.	DBU fellowship: EUR 800 per month; additional project funding: EUR 9,850.	Kyiv and Kyiv Region, Ukraine

Project Partners

Who are the project partners?

- National Scientific Center “P. I. Prokopovych Beekeeping Institute”

What does each partner specifically contribute to the project?

- Provided the initial institutional setting, the pollinator-friendly reference plot, access to apicultural expertise and methodological support for bumblebee sampling and health assessment

About the Project

What is the problem – and what do you want to change about it?

What are you doing specifically to achieve this goal?

Bumblebees are exposed to pesticides, potentially toxic elements, habitat degradation and pathogens, but conventional environmental monitoring often detects damage only after pollinator populations have declined. The project aims to identify hemolymph biomarkers that reveal physiological stress at an earlier stage.

Bumblebees and flowering plants are sampled at contrasting sites in the Kyiv Region, including a pollinator-friendly plot, roadside habitat, agricultural fields and a forest site. Chemical exposure data are combined with biochemical measurements of bumblebee hemolymph and statistical analysis.

What is special or new about your approach?	The approach directly links environmental exposure with internal physiological responses in wild pollinators. By combining elemental and pesticide screening with hemolymph biomarkers, the project tests an early-warning system that may detect sublethal stress before visible population losses occur.
The figure: What does the project actually do?	Eleven pooled hemolymph samples of *Bombus terrestris* and corresponding flowering plant samples were collected from five contrasting locations in the Kyiv Region for biochemical, elemental and pesticide residue analyses
What remains? What concrete results are achieved, and who can use them in the future?	Initial findings indicate clear site-related differences in elemental burden and hemolymph biochemistry. The project will deliver an integrated dataset, a standardized field-to-laboratory workflow and candidate biomarkers for the early detection of pollinator stress. These outputs can be used by researchers, environmental authorities, agricultural advisers, conservation organizations and land managers to assess habitat quality and plan targeted environmental monitoring

See the project images
on the following pages
↓

Project images

Image 1 of 1

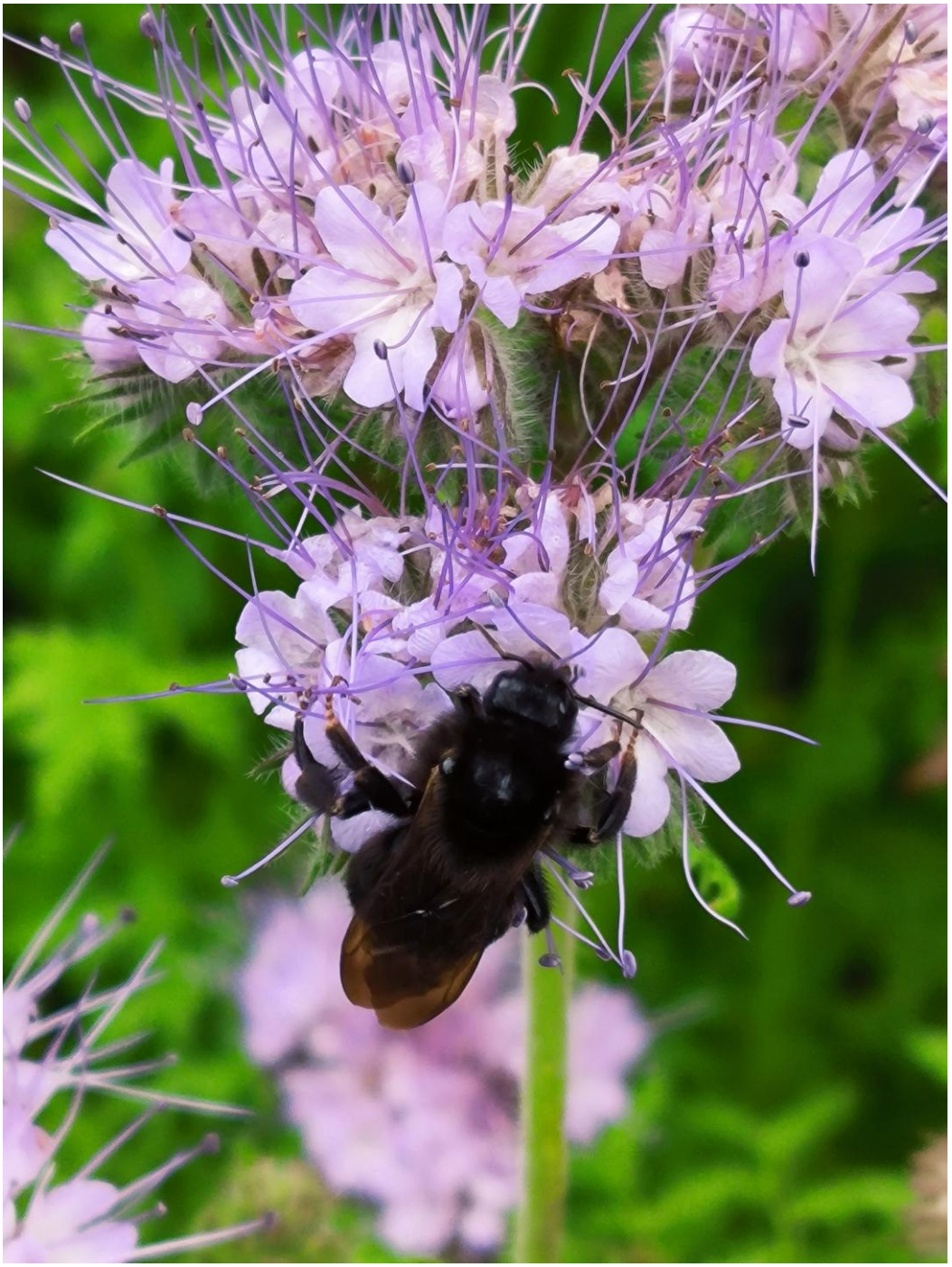


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