

Comparative studies regarding the sensitivity of the honey bee and wild bee species to plant protection products – laboratory studies

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The registration processes and risk assessment of plant protection products (PPPs) on bees resulted in an increasing need for experiments with non-*Apis* pollinators to assess potential side effects of PPPs on this relatively new group of test organisms. At present, it is still unclear whether and to what extent the sensitivity of honey bees, especially to PPPs and other factors in our agricultural landscape, is comparable to wild bee species.

Currently, active substances have been tested mainly on honey bees and occasionally on other commercially used bee species (e.g. *Osmia bicornis* and *Bombus terrestris*). For the majority of wild bee species toxicity data are lacking.

Therefore, we investigated the effects of a pyrethroid insecticide, containing lambda-cyhalothrin, on the honey bee (*Apis mellifera* L.) and different wild bee species (*Andrena vaga*, *Bombus terrestris*, *Colletes cunicularius*, *Osmia bicornis*, *Osmia cornuta* and *Megachile rotundata*) with various life history characteristics in a series of studies under controlled laboratory conditions. The chosen insecticide is classified as harmless to bees but known for transient effects.

A spray chamber was used to evaluate effects following contact exposure by typical field application rates with standard nozzle types.

After the application mortality and behaviour of bees were monitored for at least 48 h following the OECD acute contact toxicity test (guideline No. 214) and were prolonged up to 6 days (control mortality: ≤10% honey bees; ≤15-20% wild bees).

The aim of the experiments was a comparative analysis of the potential effects of applied PPPs on the mortality of the honey bee and wild bee species. Furthermore, it should be clarified to what extent the extrapolation from data of the honey bee, as representative organism, to other wild bees is possible and which differences in sensitivity exist at the laboratory level.

The evaluation of the results is still in progress, but interim results let assume that the tested bee species show different reactions. The final results will be presented as part of the poster presentation.