PP-051 [Bee Health]
Indirect Effects of Pesticide Exposure on the Honeybees Gut Microbiota: Disruption through Altered Pollen Consumption

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Increasing evidence indicates that pesticide exposure can disrupt the gut microbiota of social bees. The gut microbiota plays a crucial role in host health and performance, making it essential to understand how it is affected by pesticide exposure. However, it remains unclear why certain gut bacteria, particularly Bifidobacteriales and Lactobacillus species, are sensitive to various pesticides. In this study, we propose a potential explanation for this phenomenon. We demonstrate that pesticides may not directly disrupt the gut microbiota; instead, they interfere with pollen consumption, which subsequently alters the gut's nutritional environment. These changes may promote shifts in competition and cooperation among microbial communities, leading to the observed disturbance in the gut microbiota composition. Our research challenges the traditional assumption that pesticides directly inhibit the growth of resident microbes. Instead, we highlight the indirect effects mediated through alterations in bee diet. This novel perspective provides new insights into how environmental stressors influence microbial dynamics in honeybees and could inform more targeted approaches to mitigating the negative effects of pesticides on pollinator health.