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Abstract book



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Welcome

It is our sincere pleasure to welcome you on the EurBee 10 Congress in Tallinn, Estonia! The Congress is organized by the Estonian University of Life Sciences with assistance by Publicon OÜ.

EurBee is the event, where old and new friends get together to exchange the knowledge of novel scientific findings, associated with honeybees and other pollinators.

We encourage young researchers to meet the leading scientists on their field. Establishing networking and creating new connections is extremely important for sustainable bee research.

The City of Tallinn is the capital of Estonia. Tallinn's Hanseatic old town and nowadays modern architecture is a great mixture for every taste. We recommend you to discover the great Estonian flavors and the interesting culture that Tallinn offers you in abundance on every corner.

Looking further, Estonian nature with its forests, bogs and swamps is unique in the world – all the EurBee guests have the opportunity to experience its magic!

Experience magic – experience Estonia!

Sincerely Yours,

Risto Raimets

President of EurBee 10



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HONEYBEE GUT MICROBIOTA AS AN EMERGING ENDPOINT FOR PESTICIDE RISK ASSESSMENTS

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Abstract

A recent roadmap for the integration of environmental microbiotas in risk assessments under the European Food Safety Authority (EFSA) remit has been published. Healthy honeybee gut microbiota has emerged as a promising avenue to protect bees against stressors. Honeybees exhibit a consistent core microbiota, and dysbiosis, as part of a multiple stressor system, may be an indicator of adverse scenarios. We therefore investigated the honeybee gut microbiota of *Apis mellifera carnica* workers exposed to a single concentration of the insecticide flupyradifurone (FPF, 36ppm). The laboratory trials were carried out in accordance with official protocols (OECD N° 245). The abdomen of each bee was separated from the thorax, and DNA extraction was performed individually. Full-length 16s rRNA amplicon metagenomic was sequenced through PacBio sequel II (HiFi/CCS mode). The absolute abundance of four bacterial genera constituting the core honeybee microbiota unveiled a *Lactobacillus*-dominated gut in both treated and non-treated bees. Treated bees exhibited a twofold increase in the bacterial load of *Snodgrassella*, contrasting with a 50% reduction in the *Bifidobacterium* load and the complete absence of *Gilliamella* as compared to the untreated bees. Our findings revealed that FPF disrupted the honeybee gut microbiota. We have developed a new approach, overlooked in risk assessments studies so far, to assess the impact of pesticides bee health until now. Thus, we propose its use as a novel endpoint in pesticide risk assessments. Current risk assessments are performed in a tiered approach, *i. e.*, moving from laboratory assays (first screening) to semi field and field studies, and require no sublethal effect assessments. We therefore advocate for the inclusion of honeybee gut microbiota dysbiosis as a sublethal effect in the first screening step of risk assessments, and as a key parameter to assess pollinator's health.