Dalel ASKRI, PhD
Platform BioPark Archamps (Archamps, France)

Pan-european assessment, monitoring, and mitigation of stressors on the health of bees

Omics as a tool for bee health monitoring, an innovative approach within the H2020 PoshBee project

This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 773921
PoshBee: a five-year project 2018-2023

Leader & Coordinator: Pr. Mark Brown

- 43 Partners from across Europe
- 14 European countries
- 7 Beekeeping associations
- 8 Farming organisations
- 4 Companies
- 24 Academic and government research organisations
Effects of pesticides, pathogens, nutrition and their interactions on bee health

New tools for risk assessment of bee health

Apis
Bombus
Osmia
Effects of pesticides, pathogens, nutrition and their interactions on bee health
PoshBee: WorkPackages (WPs)

Arafah K et al., Proteomics 2019
DOI: 10.1002/pmic.201900268
WP9_OMICS of agrochemical responses in bees

Spotting of haemolymph samples with matrix onto the MALDI target

Mass Fingerprints & Statistical Models (30 /exp.condition)
Objectives: Selection & Identification
- Reference mass fingerprints
- Statistical models to classify stressors

Characterization & Marker Selection (pools, 3 replicates)
Objectives: Identification and characterization of stress markers
- Protein identification and quantification
- Gene ontology and biological pathway analysis
WP9_OMICS of agrochemical responses in bees

Data integration

Data compilation and integration to:
✓ ANSES findings on agrochemicals, principal pathogens, and pollen diet
✓ CREA transcriptomic findings

An integrated and dynamic European database of omic changes in response to agrochemical and/or pathogen exposure and nutritional stress

A multi-scale monitoring tool for sanitary policy and beekeeper best practice
WP9_OMICS of agrochemical responses in bees

Data integration

Beekeeper

Collect

Bees and hive products

Post

Analytical laboratory

Bee Health Card

Inform

Bee health report

Analyse

PoshBee

Prof. S. Potts, WP 10: Impact Strategy and Knowledge Exchange, PoshBee AGM2, Marseille, France
Acknowledgments

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Thank you for your attention

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