

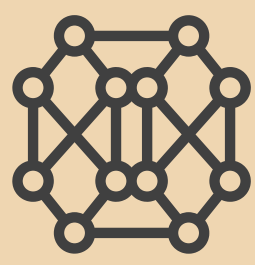
CAN HONEY-BEES ACT AS PROACTIVE MICRO-PLASTIC SAMPLERS?

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INTRODUCTION



MICROPLASTICS

Microplastics (MPs, 1 µm–5 mm) contaminate air, soil, water and biota.



POLLINATORS

Pollinators interact with all environmental compartments, making them potential bio-indicators.



FORAGING

Apis mellifera carnica forages within a 3 km radius and could accumulate MPs while collecting nectar, pollen and water.

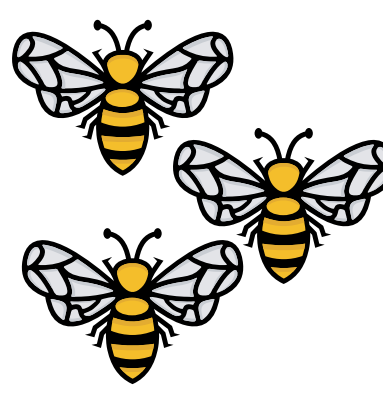
OBJECTIVE

Test whether free-ranging urban honey-bees in Croatia carry MPs on or inside their bodies.

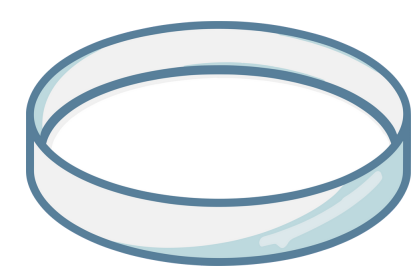
MATERIALS & METHODS



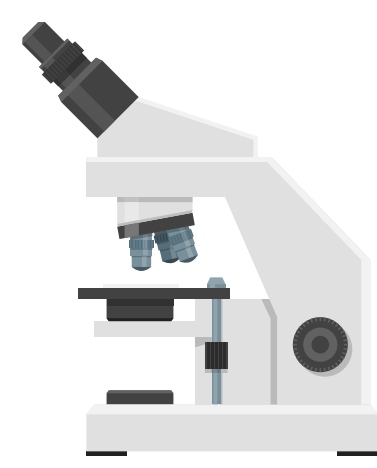
Urban apiaries
N=9



Worker bees
N=1215

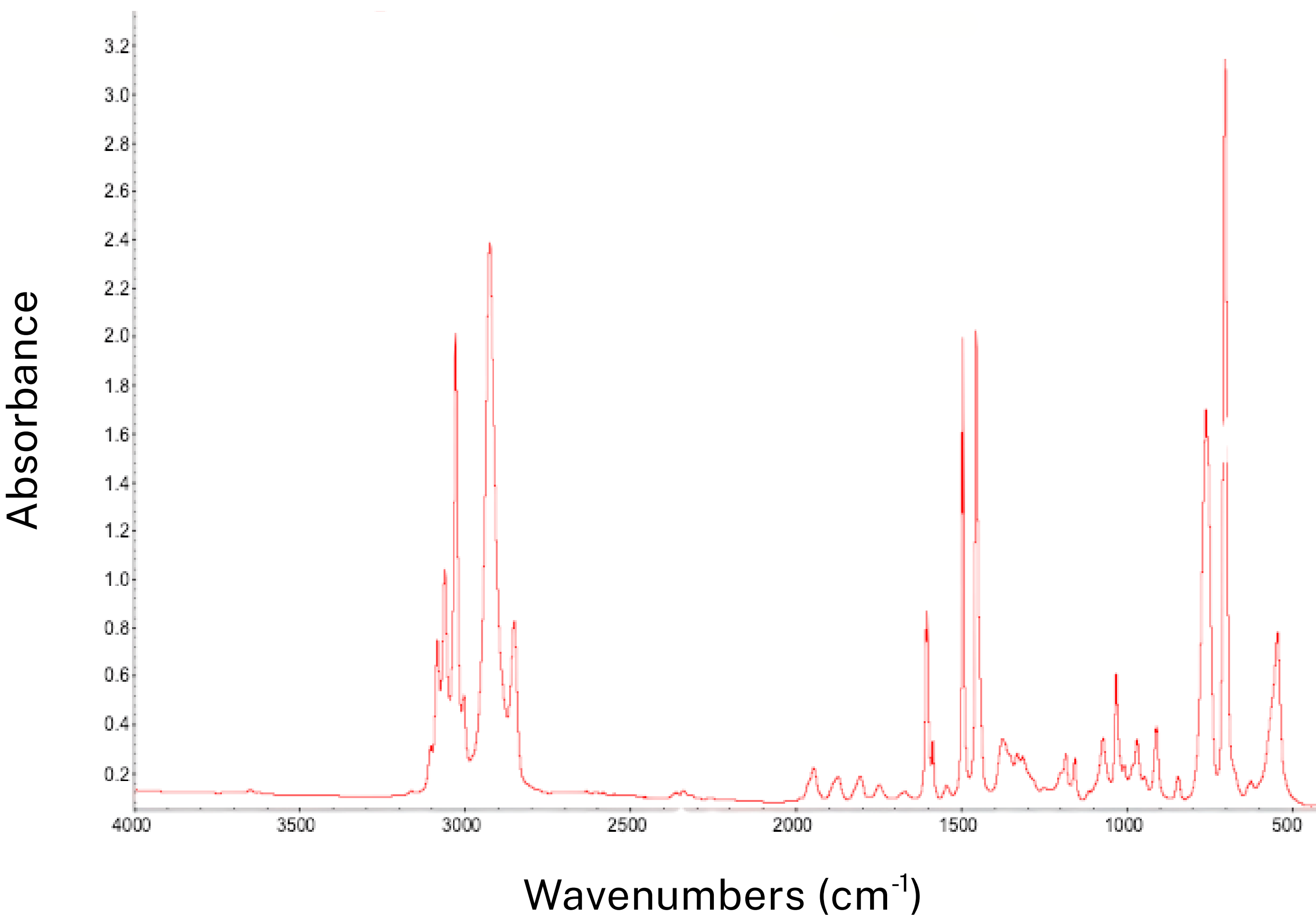


Laboratory procedures



Determination and measurement of MPs

RESULTS



CONCLUSION & OUTLOOK

NO
MICROPLASTIC
PARTICLES WERE
DETECTED ON OR
WITHIN THE BEE
SPECIMENS.

The absence of MPs may reflect the relatively low environmental contamination at the selected sampling sites, which were intentionally chosen to avoid heavy industrial or traffic-related sources. Additionally, reduced human activity during the COVID-19 pandemic may have further contributed to lower microplastic presence.

These findings **emphasize the need for broader and more diverse sampling efforts** across different environmental contexts and beekeeping practices to validate the initial results. Future studies involving private apiaries and expanded geographical coverage could offer deeper insights into the feasibility of using honeybees as sentinel organisms for microplastic monitoring.