

## Changes in *Drosophila* microbiome caused by nanoplastics

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There is a growing interest in studying the human gut microbiome with the objective of comprehending the relations between microorganism, the host and exogenous stressors like environmental pollutants. However, the study of the human microbiome is a big step to overcome due to the vast amount of different organism found (e.g., bacteria, viruses, fungi, etc.) and the difficulties/disparities found when sampling (biopsy vs stool samples). For this reason, experiments with animals of lower complexity have been proposed as a working step towards preliminary understanding of the gastrointestinal microbiome and its modulatory interaction with exogenous contaminants. One of the animals is *Drosophila melanogaster*, the fruit fly, a model organism used in different fields due to many characteristics that makes working with it very easy.

In this work, the objective is to study the effect that different micro and nanoplastics have on the gut microbiome of *D. melanogaster* larvae, as well as adult flies. For this reason, larvae as well as flies were treated with MNPLs, PET, polystyrene and PLA were used at 200 µg/mL for 1 week as well as zinc as a control, then the microbiome was extracted using ZymoBIOMICS extraction kits and sequenced using MinION Nanopore technology.

Results show differences between larvae and adult fly samples as well as effects on the alpha and beta diversity of the microbiome, even though the high variability of *Drosophila* microbiome presents a challenge. Further investigations will be conducted in order to overcome this problem as well as using some other organisms for testing the effects, such as mice.

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