

Changes in *Drosophila melanogaster* microbiota by nanoplastics

- Objectives
- Background

- Determine the potential effects on the gut microbiota by environmental contaminants such as nanoplastics (Polystyrene and Polylactic Acid-NPLs) using *Drosophila melanogaster* as a new approach methodology.
- Compare the microbiota between the *Drosophila* larvae and the adult form.

Drosophila melanogaster has been used for over 100 years in many different fields like genetics as a model organism with high similarity to humans in genes and diseases. Also, is a rapid and cost-effective experimentation.

The microbiota of invertebrates are a solution to study the interaction between species, as in higher mammals it becomes a complex and arduous task.

We previously conducted studies with *Drosophila* larvae to both develop a reliable protocol for DNA extraction and sample collection procedure, and to analyze the core microbiota of the larvae.

Methodology

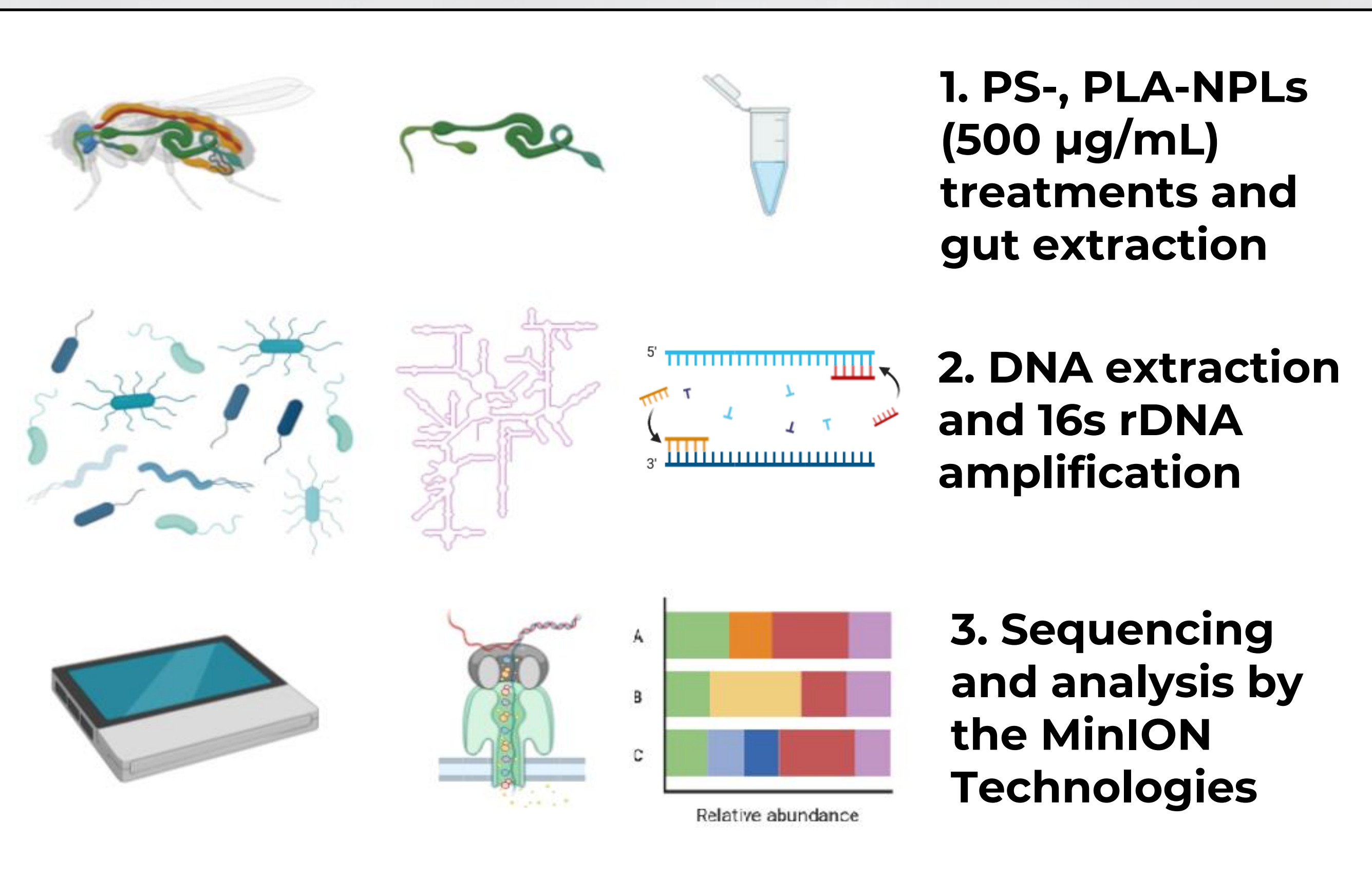


Figure 1. Experimental design.

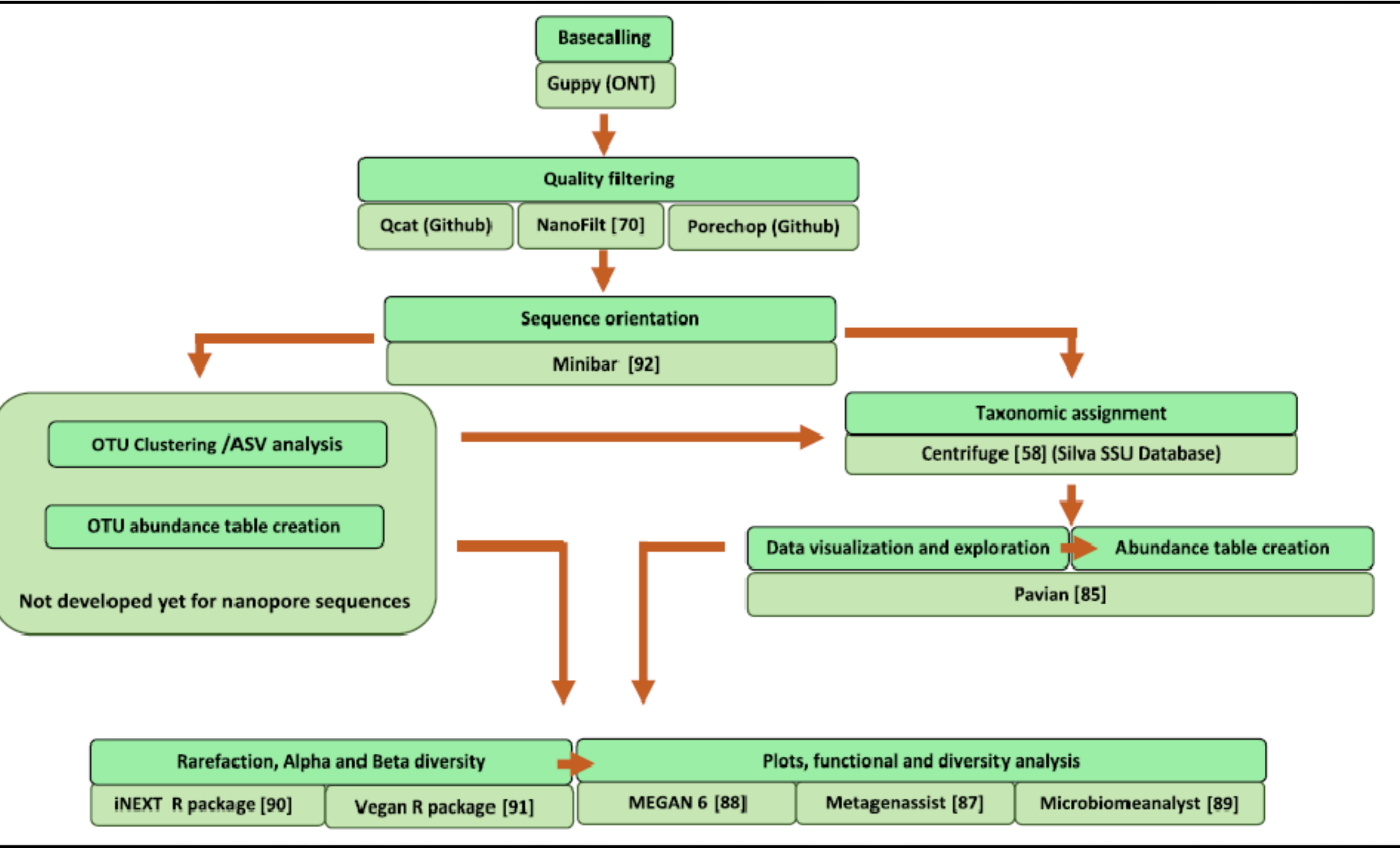


Figure 2. Pipeline followed from raw Minlon data to acquisition of representative graphs.

Conclusions

- Differences exist in the microbiota composition of *Drosophila* between the larval and adult stages.
- A significant decrease in species richness is observed when flies are exposed to all three different nanoplastics –like the positive control, ZnO-NPLs, a well know antimicrobial–, with notable differences between the individual treatments.
- The main species found in the control samples are still present in the treated samples, but they exhibit significant changes in abundance.

Acknowledgements

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Results

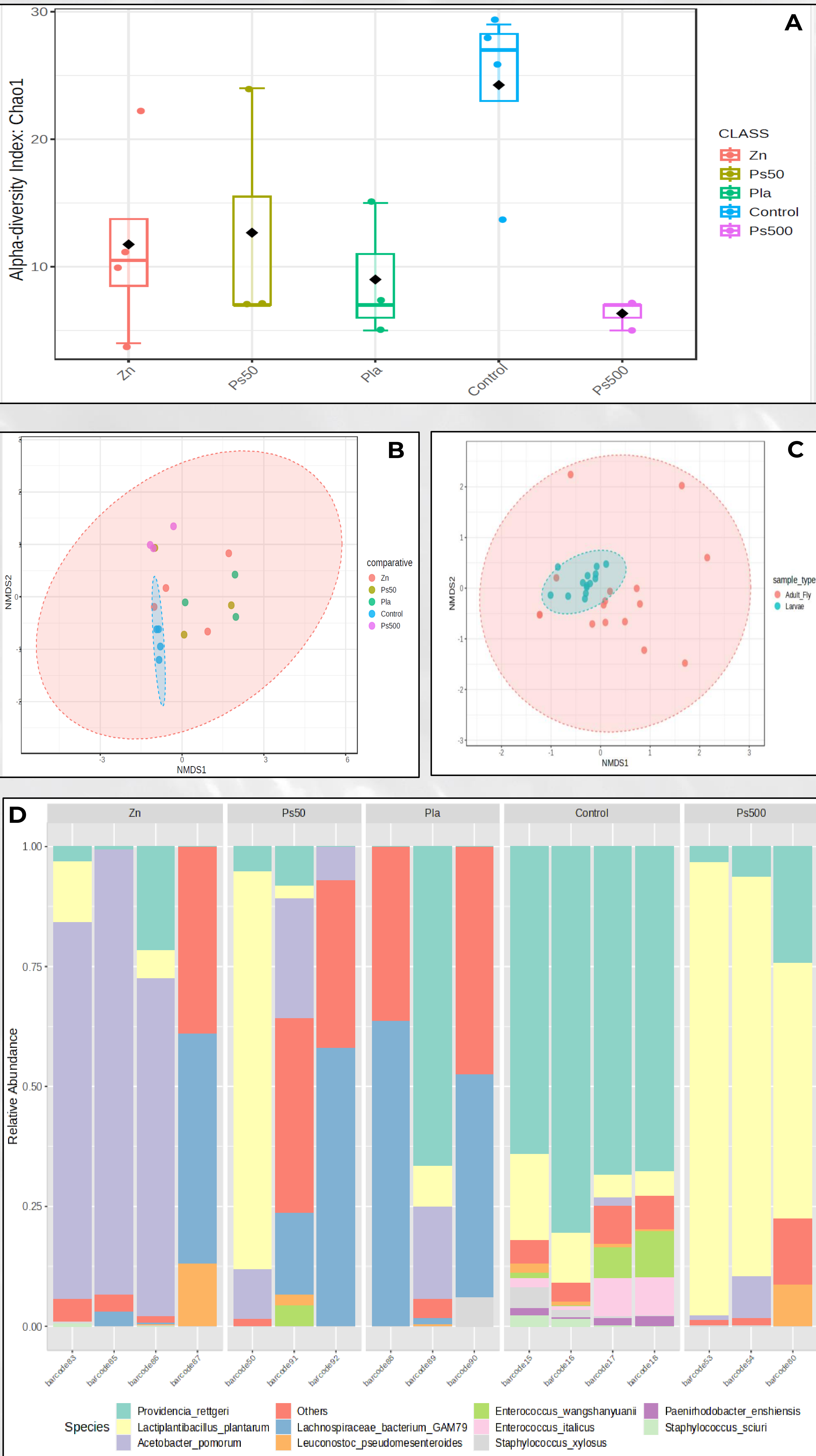


Figure 3. Alpha (A), beta (B and C) diversity and 10 most abundant taxa (D) found in samples and classified by treatment.