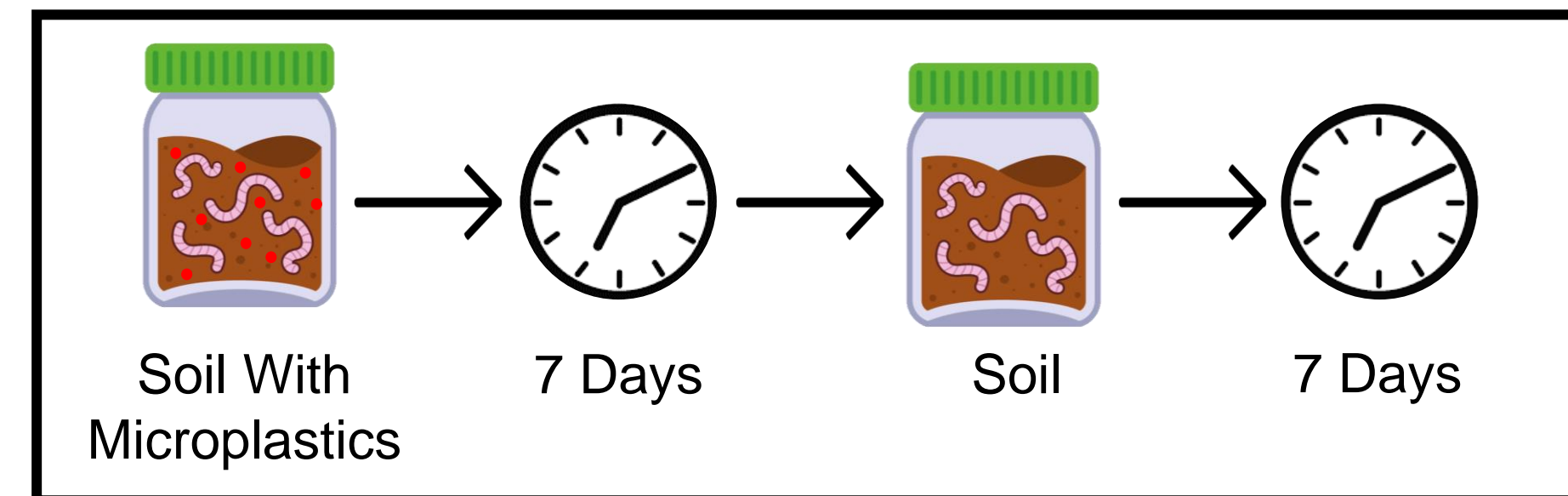


Introduction

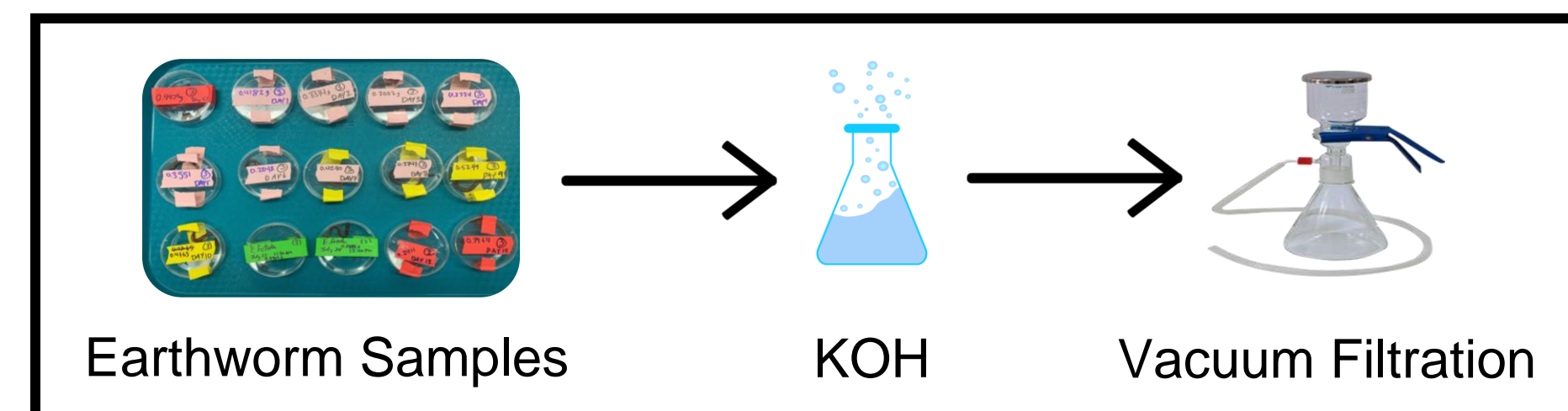
- Earthworms are an important component of the soil ecosystems, their presence is often an indicator of healthy soil.
- Microplastics are introduced into agricultural soils through biosolids applications. However, little is known on the ability of earthworms to accumulate microplastics that are present in agricultural soils.
- We performed a controlled study to assess the rate of uptake and depuration of microplastics into earthworms from soil.

Methods

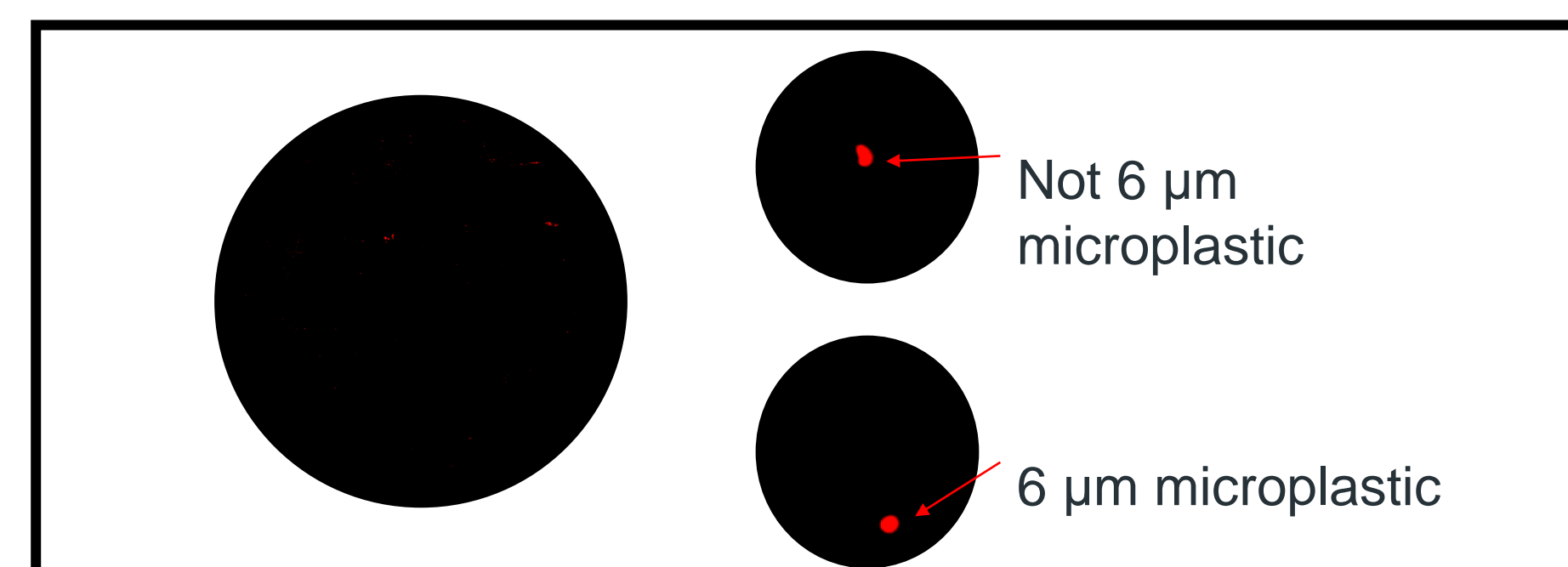
- The bioaccumulation test consisted of an uptake and a depuration phase.
- **Uptake phase:** 30 earthworms were exposed to soil amended with 6-micron spherical fluorescent microplastics (10,000 particles per kg of soil).
- **Depuration phase:** Following exposure, earthworms were transferred to clean soil to measure the depuration rate.
- Two worms were removed each day to count ingested microplastics



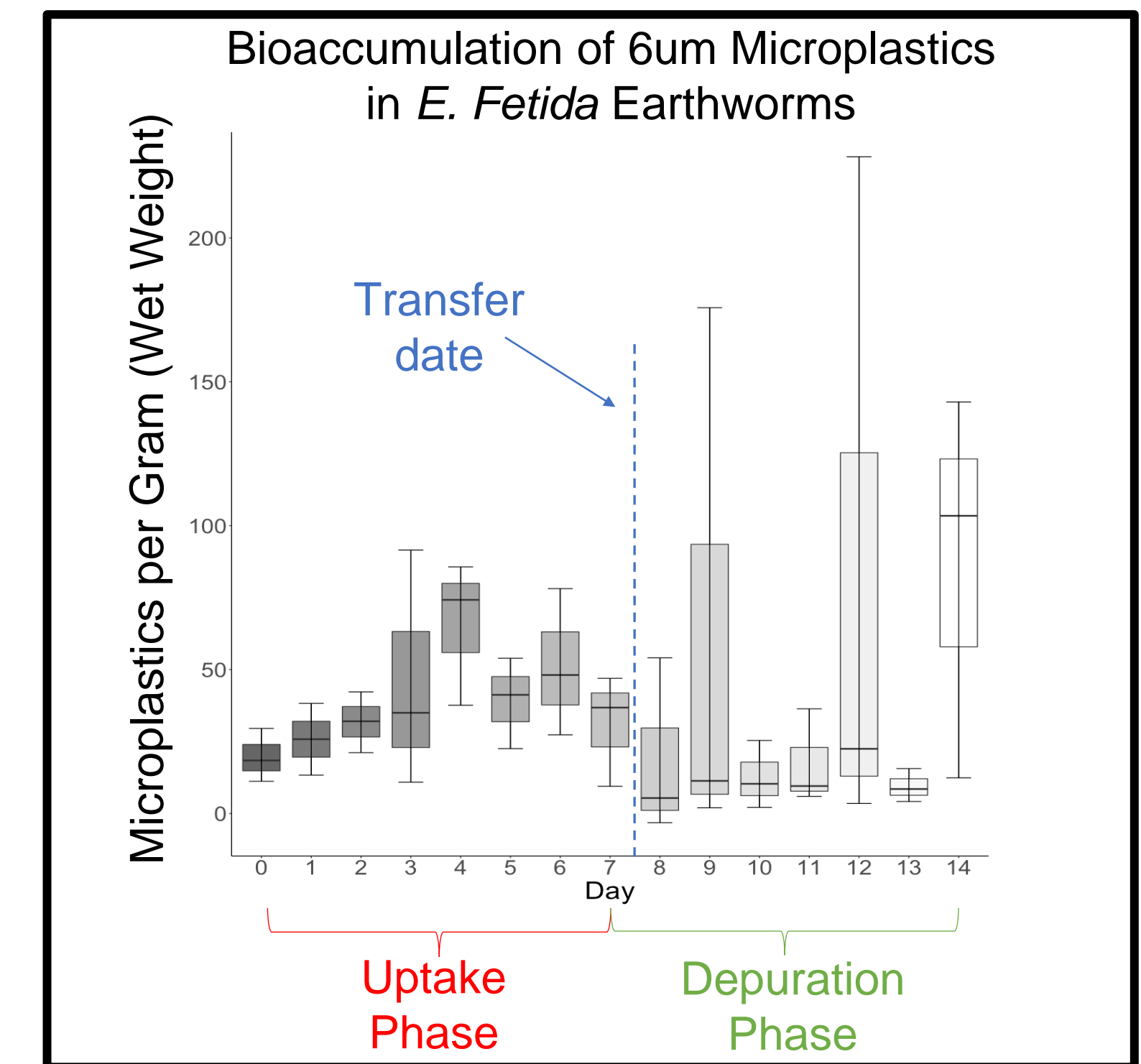
- Earthworms were digested with 30% KOH and vacuum filtered with 0.45-micron glass microfibre papers.



- Filters were observed under a fluorescent microscope to count microplastics in each worm



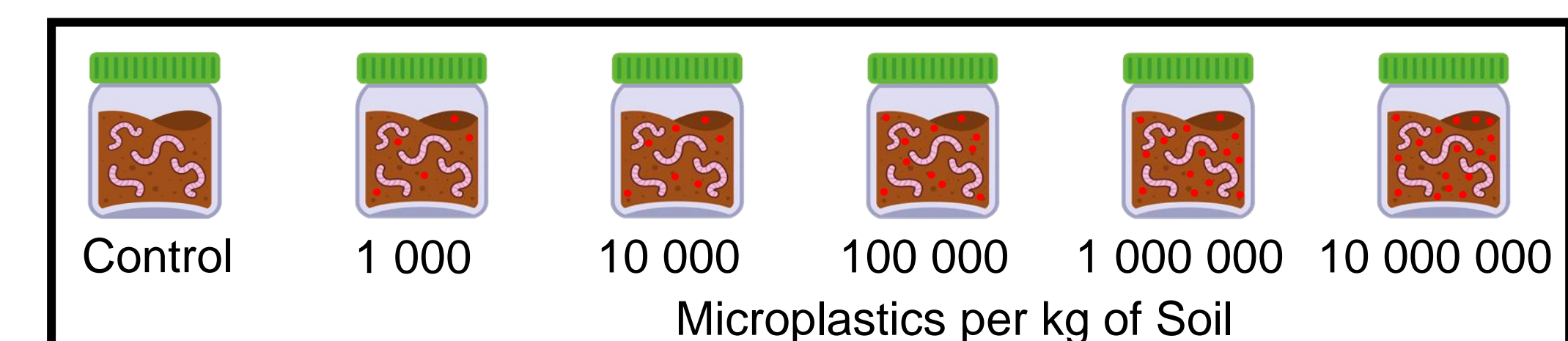
Results



- The number of microplastics in earthworms increased over the uptake phase.
- The depuration of microplastics was considerably variable among worms.

Future Actions

- Revise the bioaccumulation test to allow a longer depuration phase
- Increase the number of worms sampled each day
- Determine the amount of microplastics present in earthworms collected from biosolids-amended fields.
- Toxicity tests with earthworms to determine whether microplastics affect adult survival and/or reproduction



Microplastics Pathway

