Isolating nematodes as soil health bioindicators

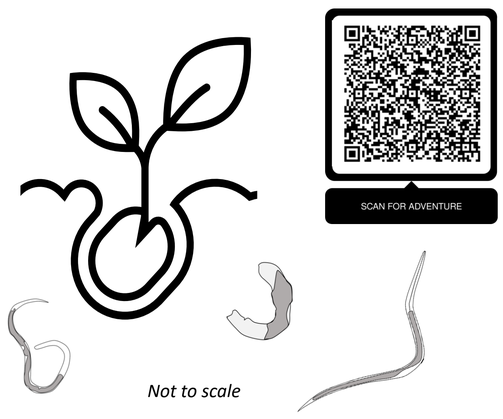
Rebekah J. White [1], Lara Oliveria Clemente [2,3]

1 University of Exeter, UK; 2 University of Viçosa, BR; 3 Iracambi Research Center , BR

1

Soil health

- A major part of soil and sediment ecosystems are nematodes worms.
- Nematode abundance is related to ecosystem productivity, soil fertility, and soil functioning [2].



2

Iracambi & reforestation

- The team have been reforesting the area for decades [1], and are exploring ways to assess soil health of these spaces.
- However, it is a remote area and common methods can be cumbersome, or require specialist equipment or consumables.

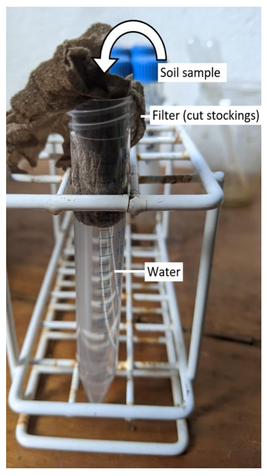
3

Isolating worms

- Using whatever materials we had on hand, we adapted established methods to isolate worms from soils around the research centre.
- These involved **filtering** soil samples into water, and using a **microscope** to examine the filtrate [3].

4

Making a minitrap



- Eventually, we found a method that worked, using tubes and stockings!
- Thus, the minitrap was born.

- We collected soil samples from three sites:
  - **Native forest,**
  - **eucalyptus-reforested,**
  - and **deforested grassland**…

5

- … and were able to extract nematodes from **multiple trophic groups**.
- Here, we present **a simple, low-cost, and reusable** system for extracting soil nematodes.
- On a larger scale, this method can be used to reflect **overall ecosystem function…**
- **…**indicating current **soil status**, **and future success and proliferation of reforested sites**.

SCAN FOR PAPER

White, RJ; Oliveira Clemente, L (2023). Minitraps: A simple, compact, low-cost, and reusable method for collecting soil nematodes. *microPublication Biology*.

The lab structure used in this work was partially supported by Capes (Brazilian Coordination for the Improvement of Higher Education Personnel; fellowship no.307990/2017-6), CNPq (National Council for Scientific & Technological Development), and Fapemig (Minas Gerais State Foundation for Research Support). Lara Oliveira Clemente holds a PhD grant (no. 88882.437417/2019-01) from Capes.

[1] Iracambi Annual Report 2021. [2] Neher et al. 2001 *Nematology* 33(4): 161–168. [3] Tintori et al. 2022 *J. Vis. Exp.* (179): 10.3791/63287.

Contact: Rebekah J. White

rw617@exeter.ac.uk @bio_bex

@rebekah_jwhite GP, Streatham Campus, UoE