

Soil Food Web Assessment

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Client: Joshua Finch

Company: Novia

Sample name: Sample 2

Sample received: 20.9.2022

Sample type: Soil

Sample observed: 21.9.2022

Fungal-to-bacterial (F:B): **0,012**

Very low.

Organism group	Est. total / g	Std. Dev. (% of mean)	Notes
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Beneficial organisms:

Decomposers

Fungi	88 µg	196 (224%)	Low biomass with high uncertainty due to few observations. Increase recommended.
Bacteria	7249 µg	2019 (28%)	Very high biomass.
Actinobacteria	0.7 µg	1.5 (224%)	Low biomass. High uncertainty due to few observations.

Predators

Protozoa

Flagellates	0	0 (0%)	None observed. Increase recommended.
Amoebae	32608	72914 (224%)	One observed. High uncertainty.

Nematodes

Bacterial-feeding	0		None observed. Increase recommended.
Fungal-feeding	0		None observed. Increase recommended.
Predatory	0		None observed. Increase recommended.

Detrimental organisms:

Oomycetes	0	0 (0%)	None observed
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Anaerobic protozoa

Ciliates	0	0 (0%)	None observed.
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Nematodes

Root-feeding	0		None observed.
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Comments

The sample was dense with both mineral particles and bacteria (photo 1), which is a sign of a lack of structure in the soil. This lack of structure and low organic matter mean there is a lack of habitat for a diverse food web to establish.

Bacterial biomass is very high at over 7000 $\mu\text{g} / \text{g}$. Fungal biomass is low. However, the uncertainty of fungal biomass is high due to few observations. The long hypha (photo 2) was observed during the first scanning of the sample, not the main assessment, so some fungi clearly are present. Still, the fungal-to-bacterial ratio (F:B) of 0.01 is very low for anything except growing weeds.

One amoeba was observed (photo 3). Though uncertainty is high due to few observations, it indicates that some nutrient cycling is happening. No flagellates or nematodes were observed, which indicates low diversity in predators and suboptimal nutrient cycling. Then again, detrimental organisms were not observed either.

In order to further improve nutrient cycling, more aggregation and more diversity in predators (protozoa and nematodes) are required.

Photos

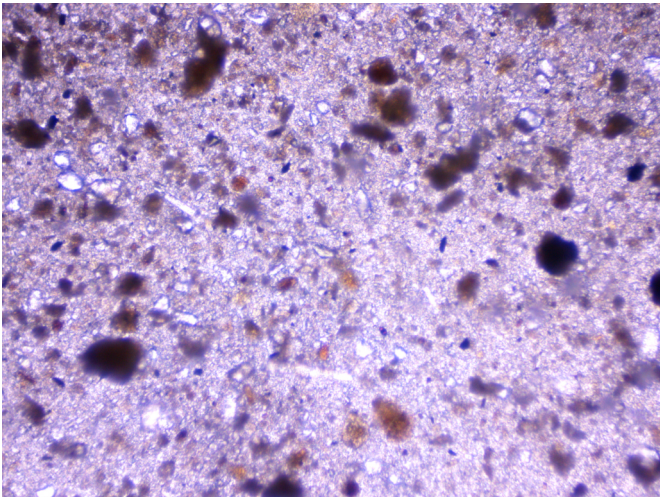


Photo 1: General view, 100x. Sample dense with small particles and bacteria. Some organic matter present.

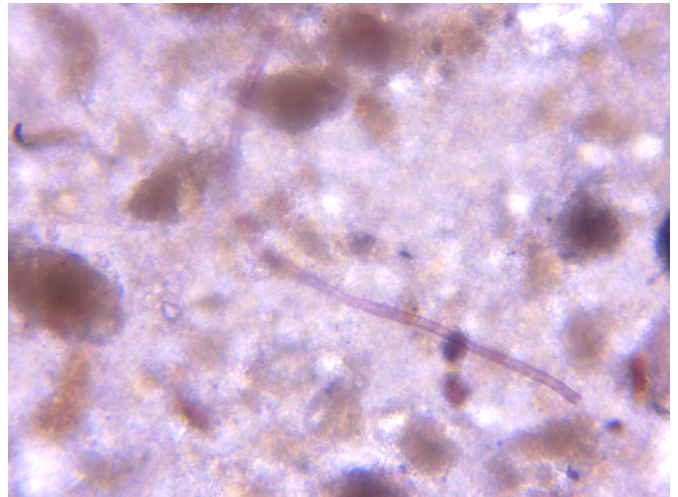


Photo 2: Fungi, 400x. Though fungal biomass is low, a few fungi, like this long hypha, were observed.

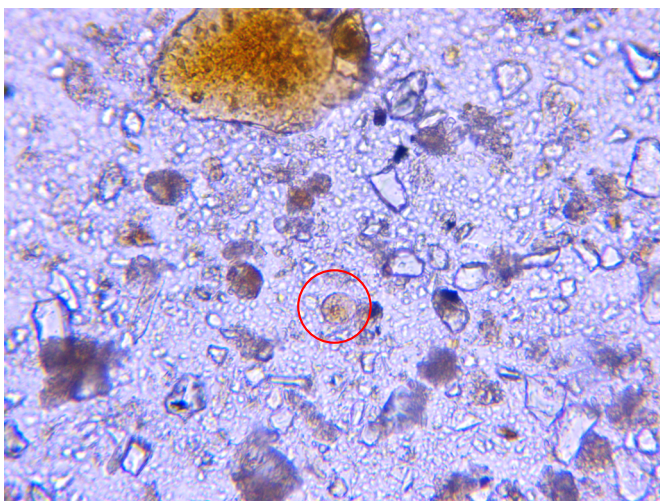


Photo 3: amoeba, 400x. Amoebae prey mainly on bacteria and make nutrients gathered by them plant available.