

# **FREE LIVING NEMATODE DIVERSITY IN POLLUTED SOILS: A META ANALYSIS**

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## **ABSTRACT**

Soil disturbances affects the community structures of soil organisms and the deterioration of the soil environment can be evaluated by studying these changes. Many experimental results have been published on the effects of heavy metals on the diversity of soil free living nematodes. We used a meta-analysis to obtain comprehensive and multi-disciplinary information on the use of soil free living nematodes as tools for assessing soil quality. Our aim was to determine the effects of heavy metal pollution on the diversity of soil free living nematodes and evaluate their suitability in soil health assessment. Free living nematodes are found to respond quickly to environmental stress compared to higher organisms, as they have intimate relations with their surroundings due to their high surface to volume ratio. In effect the knowledge gained in relation to the effects of pollution on soil free living nematode diversity, showed that species more sensitive to the toxic substances contained in the polluted sites, can disappear while others which are more tolerant can dramatically increase. In fact, many trace elements contained in the organic waste were reported to reduce the abundance and diversity of soil free living nematode communities and influence the survival potential and the rate of growth of more sensitive species. These were the results of comparatively small number of field studies that tested the short term effects of low level contamination by heavy metals on the soil health examined by analyzing soil nematode communities. However, our analyses on the impacts of heavy metal contamination on soil free living nematode abundance have led to inconsistent results and maturity index showed no relationship with heavy metal pollution. This impacted our results and altered the expected outcome.

**Key words:** Free Living Nematodes, Species diversity, Metal pollution