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TOPIC FIFTEEN – FOOD WEBS, SOIL ECOLOGY AND BIODIVERSITY

Effect of Soil Factors on Nematode Faunal Profile

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Soil ecosystem has high biodiversity interacting in complex relationships between food web organisms and abiotic factors. Soil nematodes is one of the most abundant and diverse group with several trophic levels that play an important role in soil functioning. They control the cycling of nutrients, influence microorganisms dispersion, are food source for other organisms, with some species acting as parasites or pathogens. Moreover, their high diversity and ecological importance make them interesting bioindicators for soil health, quality and ecosystem resilence. The aim of this work is evaluate the effect of different physicochemical soil variables on nematode community and food web status and select those variables which are most likely to influence variation in the basal, enrichment and structure indicator guilds. The response was studied in 89 soil samples from 3 natural areas and 15 agricultural fields, where 18 physicochemical soil variables and 12 chemical pollutants (heavy metals and organochlorine pesticide residues) were also evaluated. Thus, soils factors are conjunctly interacting in ecosystem, hearchical partitioning model (HP), as statistical approach, was used to avoid spurious results due to multicollinearity between soils factors. After HP was performed, spearman correlation analysis was used to determine significant association between soil factor and nematode faunal profile. The disturbance level assessed for experimental plots was low-moderate (56%), high (17%), stressed (5%) and undisturbed (22%), corresponding with a food web condition of maturing, disturbed, degraded and structured, respectively. The enrichment index (EI) in all disturbed plots was ≥50, indicating that food web status is due to anthropogenic disturbances rather than effect of limiting natural resources. However, a clearly association between food web condition status and agricultural management could not be established because some conventional horticultural and organic orchard crops showed structured condition as natural areas ones, and the most crop fields showed maturing condition. We consider that this fact is indicating high stability and resilience of nematode community despite of the agricultural practices impact.