**Entomopathogenic nematodes as soil inhabitants: interactions that modulate their biocontrol potential**

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**Abstract**

Entomopathogenic nematodes (EPNs) are widely recognized as valuable assets in agricultural soil ecosystems due to their role as effective biological control agents (BCAs). To optimize their impact as BCAs, we must understand the factors influencing their distribution within agroecosystems, particularly how extrinsic factors like environmental conditions, competition, and host availability affect their population dynamics and ability to control insect pests. This discussion will emphasize the conservation biological control approach. Overall, we will focus on the results of regional and field studies that delineate EPN occurrence patterns based on factors such as habitat (natural or agricultural), crop type (annual and perennial), and crop management practices within agroecosystems. We will summarize the main findings that modulate the natural occurrence of EPNs in agricultural soils, which can also affect the fate of augmented nematode application. Additionally, we will illustrate how EPN co-occurrence with other biocontrol agents, such as entomopathogenic fungi and nematophagous fungi, can alter their competition for the host in various ways (synergistic, additive, or antagonistic). Lastly, we will describe the impact of EPN outcomes when these act as scavengers in the presence of other opportunistic organisms, such as free-living nematodes. These interactions will shed light on the environmental and biotic factors that shape the role of EPNs as BCAs in soil ecosystems.

**Keywords**: soil food web, biotic interactions, population dynamics.