Use of Plant-Based Bio-Insecticides in the Control of Olive Tree Pests in Ksar Chellal, Northwestern Algeria

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Abstract:

This study, conducted in 2023 in the Tiaret region, investigates the use of two local plants, Rosmarinus officinalis L. (rosemary) and Peganum harmala L. (harmel), as natural bioinsecticides for controlling olive tree pests. These plants were selected for their recognized insecticidal properties and their abundance in the Tiaret steppe. Extracts of rosemary and harmel were prepared and applied to olive orchards infested with pests. The tests revealed that these extracts had significant repellent and toxic effects on the pests, effectively reducing their population without harming the crops or the environment. Compared to traditional chemical treatments, the use of these plants yielded positive results, including a significant reduction in insect damage, while being more environmentally friendly and less harmful to local biodiversity. This study highlights the potential of plant-based bioinsecticides as a sustainable and eco-friendly alternative to chemical pesticides. It provides farmers in Tiaret with a more cost-effective and safer solution to combat olive tree pests. This approach paves the way for the adoption of more environmentally responsible agricultural practices in the region, while contributing to the preservation of traditional olive farming. Furthermore, it aligns with a broader strategy for the sustainable management of local ecosystems, particularly the steppe ecosystems, by minimizing chemical use and promoting the integration of natural solutions to maintain the ecological balance of agricultural lands.

Keywords:

bio-insecticides, rosemary, harmel, olive tree, pests.