CONTRIBUTION TO THE STUDY OF THE BIODIVERSITY OF EARTHWORMS IN AGRICULTURAL FARMS IN WESTERN ALGERIA

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Earthworms, or lombrics, are integral to sustainable agriculture and environmental well-being. Their burrowing activities enhance soil structure, promoting aeration and water infiltration, vital for plant health. By consuming organic matter, earthworms contribute to nutrient cycling, producing casts that enrich soil fertility and reduce reliance on synthetic fertilizers. Acting as biological controllers, they foster beneficial microorganisms, supporting a balanced soil ecosystem and aiding in pest control. Earthworms also play a role in biodiversity, water management, erosion prevention, and pH regulation, contributing to overall environmental resilience. Furthermore, they assist in carbon sequestration, mitigating climate change effects, and their activities contribute to soil adaptation to climate variability. As educational tools, earthworms raise awareness about soil health and sustainable agricultural practices, emphasizing their crucial role in fostering resilient and environmentally friendly farming systems.

Research objective :

This study aims to determine the earthworm species present in agricultural farms in western Algeria.

Research Problem:

Earthworms in northwestern Algeria are still poorly understood. Indeed, this biogeographically diverse area in terms of climate, soil, and vegetation could reveal a high earthworm diversity; however, research on this topic remains insufficient. On one hand, the identification and classification of these organisms remain challenging due to a lack of qualified taxonomists (Rougerie et al., 2009), and on the other hand, studying earthworms is not straightforward due to several constraints related to soil nature and the complexity of these organisms (Decaëns, 2010).

Sampling Plan :

Sampling was conducted in March 2023 in 8 agricultural farms in western Algeria. The protocol involved extracting 6 soil blocks measuring 20x20x25 cm and spaced approximately 1 meter apart. These blocks were then manually sorted to recover the earthworms.

Analysis of Results:

The results are expressed as percentages of presence (PP), abundance (PI), and biomass (PB), indicating three different aspects of dominance. To define the dominant species, we used the combined dominance percentage, expressed as: PDC = [(PPA + PIA + PBA)]/3 (Jesús et al., 1981).

PP: Percentage of Presence: Ratio between the number of stations containing a given species and the total number of stations %;

PI: Percentage of Abundance: Ratio between the number of individuals of a given species and the total number of individuals in all surveys %;

PB: Percentage of Biomass: Ratio between the weight of all individuals of a given species and the total weight of individuals in all surveys %.

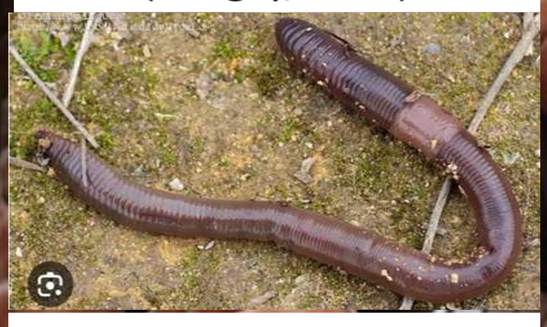
Results :

The study identified nine species, classified in order of dominance : *Aporrectodea caliginosa, Aporrectodea rosea, Allolobophora chlorotica, Amynthas, Microscolex dubuis, Octodrilus complanatus, Helodrilus, Pontodrilus, Microscolex phosphoreus.*

Aporrectodea caliginosa (Savigny, 1826)

Aporrectodea rosea (Savigny, 1826)

Amynthas (Kinberg, 1867)



Octodrilus complanatus (Dugès, 1828)

Microscolex phosphoreus (Dugès, 1837)

Helodrilus (Hoffmeister, 1845)