The Impact of Variability in Surface Soil Temperature on the Density of Microorganisms in Farms of Al-Dreez Village in Ibri.

Al-Dreez Village, Ibri, Sultanate of Oman

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Abstract

This study aims to examine the impact of variations in surface soil temperature on the density of microorganisms in farms of Al-Dreez Village, Ibri Wilayat. Soil samples were collected from different sites under varying temperature conditions and analyzed in the laboratory. The results showed that higher temperatures reduce the density of microorganisms, while moderate temperatures support their activity.

Introduction

Soil is considered a rich habitat for microorganisms that contribute to its fertility. Temperature is regarded as one of the most important factors influencing the activity of these organisms in Al-Dreez Village. Agricultural production depends on soil health, making the study of this factor essential.

Research Question

How does variability in surface soil temperatures affect the density of microorganisms in the farms of Al-Dreez Village in Ibri?

Research Methodology

1. Selecting three areas with different levels of sun exposure.
2. Measuring soil temperature at a depth of 5 cm.
3. Collecting soil samples in sterile bags.
4. Analyzing the samples using the Plate Count Method.
5. Recording data and comparing the results.

Data

Sample Location	Soil Temperature (c)	Number of Bacterial Colonies	Number of Fungal Colonies
Shaded Area	24	1500	800
Partially Shaded Area	30	1100	500
Fully Exposed Area	37	600	200

Results

The results showed a decrease in the density of microorganisms with increasing temperatures. The shaded area recorded the highest density, while the exposed area showed the lowest.

Conclusion

Soil temperature is an important factor affecting microorganisms. Therefore, it is recommended to use organic mulching and reduce soil exposure to heat in order to improve soil fertility.

Tags

I work with satellite data

We use NASA satellite data in addition to secondary protocol data

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I am steam provisional

Applied science, mathematics, engineering, and technology

I am collaborating

I collaborated with officials, scientists, and farmers

References

1. Biology textbooks for grades 9–12 - Ministry of Education.
2. Soil Science Research – Sultan Qaboos University.
3. Articles in Arab scientific journals on the effects of heat on soil.