

#### Abstract:

This research aims to study the quality and suitability of the water from Lake Al-Kroum in the village of Maqzah for agricultural use. We observed a belief among the local residents that this lake may negatively affect their crops. The research question is:

How suitable is the water from Lake Al-Kroum for agriculture?

Does this water affect the quality of agricultural production in the village of Muqzah?

The work was divided between students Omar and Mudrik. The water protocol was applied, and measurements of conductivity, transparency, temperature, and dissolved oxygen levels were taken from both Lake Al-Kroum and the school water. Omar took the measurements from Lake Al-Kroum, and Mudrik took the measurements from the school water. The following results were obtained: After analysis, we found that the pH values were good in both waters, approximately 8.5. We also observed that the conductivity and dissolved salt values in the lake water were 524  $\mu\text{S}/\text{cm}$ , while they were higher in the school water, reaching 947  $\mu\text{S}/\text{cm}$ . The transparency values were above 120, indicating that the water is very clear. As for the dissolved oxygen levels, they were suitable for both waters, ranging from 8-10 mg/L in Lake Al-Kroum to 8-10 mg/L in Lake Al-Kroum.

2. Does this water affect the quality of agricultural production in the village of Maqzah?

3. How suitable is the water from Lake Al-Kroum for agriculture?

#### Discussion of Results:

After completing the investigation and comparison, and based on the results, we concluded that the water of Lake Al-Kroum in the village of Muqzah is suitable for agricultural use. We observed that the stem length and thickness, and leaf density, were greater in the seedlings irrigated with the school water than in those irrigated with the water from the lake. The conductivity and dissolved salts were relatively high in both waters, and the transparency value was 120, indicating very clear water. We also observed that the pH value was 8.4 in Lake Al-Kroum and 8 in the school water.

#### Conclusions

By applying the water protocol to the samples, we obtained accurate information about the properties of the school water and the lake water. We concluded that the pH values were good in both, and we observed high conductivity in the lake water, making it suitable for agriculture. The transparency values in both waters were 120, and the dissolved oxygen concentration was 10 mg/L in the lake water and 6-8 mg/L in the school water.

#### References and Sources:

1. Water Quality Analysis and Evaluation - Maher George Nassim - January
2. Irrigation Water Quality and Methods of Analysis - Abdel Rasoul Omran - January
3. Evaluating Water Quality and Suitability for Agriculture - Hassan El-Shimi - January
4. Google Search



# A Study of the Impact of Lake Al-Krum Water in Muqzah Village on its Suitability for Agricultural Use and a Comparison with the School's Water

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## Introduction:

A lake is defined as a body of land containing water and surrounded by land on all sides. Lake Al-Kroum is a geological lake, formed by the collapse and hollowing of rock layers, allowing water to collect within it through these fissures. Therefore, studying its water quality and its use in agriculture is crucial, especially in areas that rely on natural water sources for crop irrigation. This research aims to evaluate the effect of Lake Al-Kroum water in the Maqzah area on pepper plant growth compared to water from the school, through a scientific experiment measuring growth rate, leaf density and color, and stem thickness. The results will help determine the suitability of the lake water for agricultural use, which could have a positive impact on farmers in the region.



## Research Procedures:

Research Location (Sultanate of Oman - Al Dakhiliyah Region)

Izki Province - Muqzah Village

Climatic Conditions: Hot in the morning, mild at night

After 14 days of analysis, the research results are as follows:

Water Type	Conductivity (μS/cm)	Transparency	PH	Temperature (°C)	Dissolved Oxygen Percentage
Chrome Lake Water	524	<120	8.4	22.9	9
School Water	947	<120	8	22.9	7



## Results:

By planting ten seedlings of the same type and in the same soil, placing them in the same location, and watering them with the same amount of water— five seedlings watered with lake water and the other five with school water— and observing them daily and recording observations over four days for a full month, we arrived at the results shown in the following tables.

Date	Lake Water					School Water				
	1.A.	2.A.	3.A.	4.A.	5.A.	1.B.	2.B.	3.B.	4.B.	5.B.
10/10/2019	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
10/11/2019	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
10/12/2019	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
10/13/2019	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5	13.5
10/14/2019	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
10/15/2019	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
10/16/2019	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5
10/17/2019	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5	17.5
10/18/2019	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5
10/19/2019	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5
10/20/2019	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
10/21/2019	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
10/22/2019	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5

