



Comparison of Container Type (Plastic vs. Glass) on Water Quality During Storage (Indoors vs Outdoors)



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Introduction

- **Drinking water quality is essential for human health.**
- **Water quality may change during storage.**
- **Container type and sunlight exposure play an important role.**

Objectives

Compare plastic and glass containers

Study indoor vs outdoor (sunlight) storage

Evaluate water quality changes over 60 days



Research Questions

- **Does container type affect water quality?**
- **Does storage location affect water quality?**
- **Is there an interaction between container type and storage location?**

Methodology

- **Water source: Falaj Al-Zuwaid, North Al Sharqiyah, Oman.**
- **Four groups:**
 - **Plastic (indoor)**
 - **Plastic (outdoor)**
 - **Glass (indoor)**
 - **Glass (outdoor)**
- **Study period: 60 days (winter).**

Parameters Measured

- **pH**
- **Electrical Conductivity (EC)**
- **Total Dissolved Solids (TDS)**
- **Turbidity**
- **Temperature**

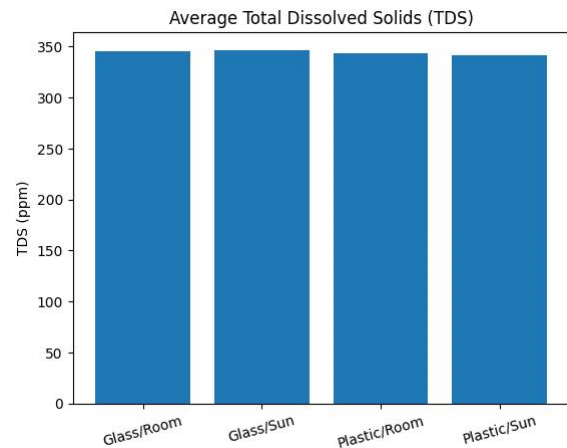
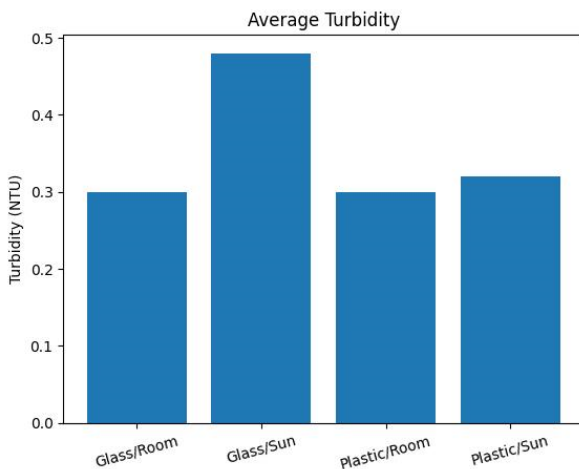
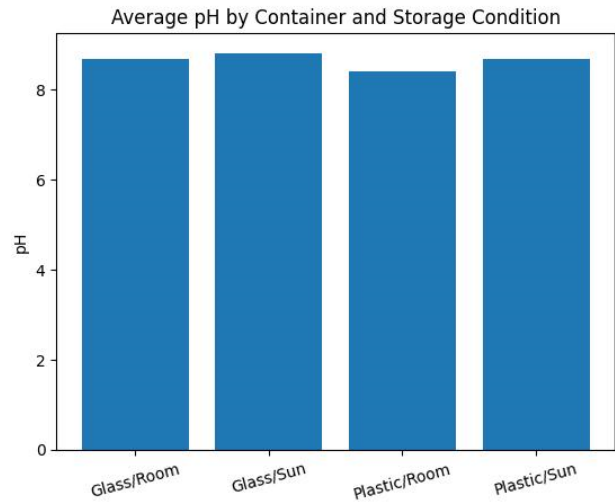
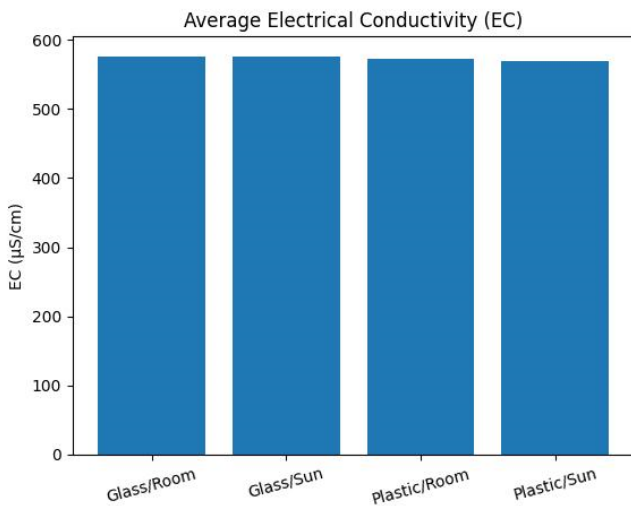
Temperature Results

No.	Location / Condition	Temperature (°C)	Notes
1	Inside the room	23.82	
2	Bottles outside the room	21.92	
3	Water in plastic bottles inside the room	22.80	
4	Water in plastic bottles outside the room	24.60	
5	Water in glass bottles inside the room	22.60	
6	Water in glass bottles outside the room	25.18	

Based on these results (average temperature), they can be analyzed through general comparison, taking into account that this period represents the winter season according to the following table”:

- Indoor storage showed stable temperatures.**
- Outdoor storage was affected by sunlight.**
- Glass containers retained heat longer than plastic.**

Water Quality Results



Based on the analysis results, the graphs show the average (pH, EC, TDS and Turbidity) values. The results can be summarized as follows:

- **Slight increase in pH and turbidity under sunlight.**
- **EC and TDS slightly decreased after storage.**
- **All values remained within safe drinking water limits.**

Key Findings

- **Storage location had a greater effect than container type.**
- **Glass containers were more stable indoors.**
- **Plastic containers heated faster but cooled more quickly.**

Conclusions

- **Water quality remained safe during winter storage.**
- **Sunlight caused minor but noticeable changes.**
- **Effects are expected to be stronger in summer.**

Recommendations

- **Store water indoors or in shaded places.**
- **Use glass containers for long-term indoor storage.**
- **Avoid direct sunlight exposure.**
- **Monitor water quality regularly.**

Thank you for your attention