

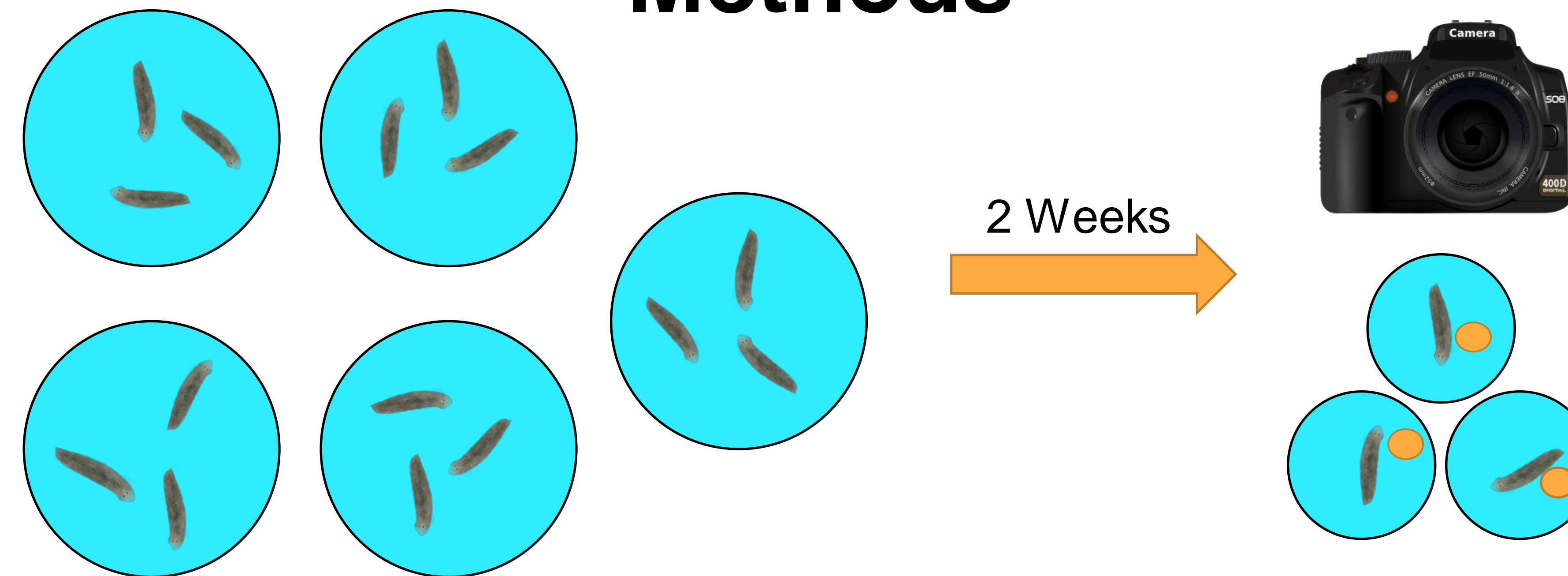
## Introduction

- Planarians, belonging to the class Platyhelminthes, represent a readily manipulable model organism in experimental research, owing to their distinctive characteristics as free-living flatworms.
- Previous literature indicates that planaria can thrive in various water types, including Montjuic water, artificial seawater, specialized salt mixtures, and a 0.5 g/L Instant Ocean Salt (IOS) water solution (Makayla et al., 2020).
- Calcium micronutrient is important for axonal growth, essential for proper neuronal messaging (Marchant et al, 2019).
- Lack of calcium inhibits planarian movement, as it is crucial for receiving signals that trigger contraction (Marchant et al, 2019).
- This study aims to understand the influence of calcium ions on *G. dorocephala* function and overall well-being.



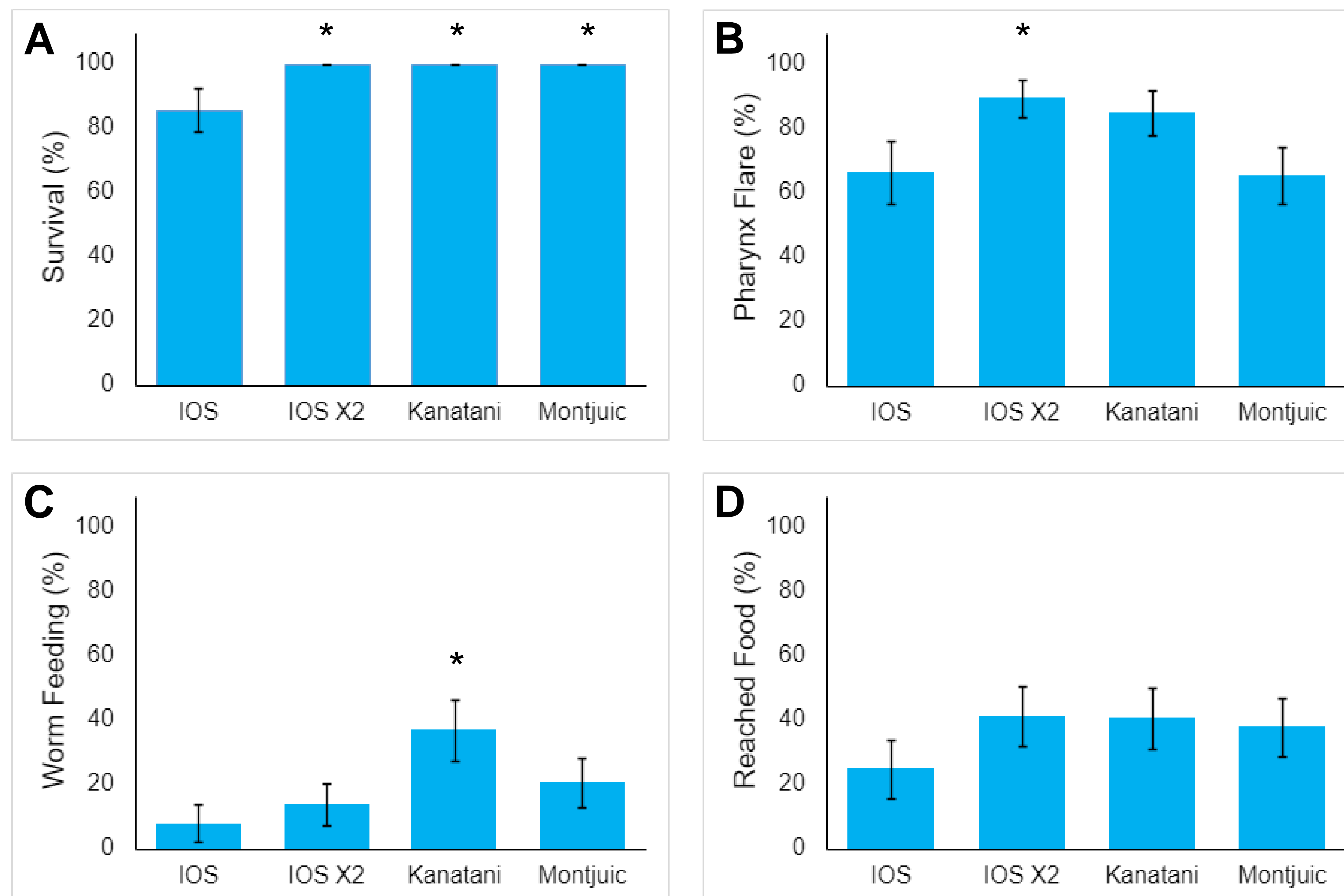
**Figure 1.** Planaria Flaring its Pharynx.

## Methods



**Figure 2.** Five 10 cm Petri dishes containing three planaria each were subjected to different water types (pure water, Montjuic, Kanatani, IOS, IOS X2). Following a two-week period, we observed and recorded individual worm survival, food allocation, and feeding behavior. Each treatment group underwent three trials.

## Results



**Figure 3.** (A) Survival rate comparison after incubation for two weeks. (B) Percentage of pharynx flares, (C) percentage of worms that fed, and (D) percentage of worms that reached food during a 10 minute feeding. \*, significant ( $p < 0.05$ ) compared with IOS control by chi-square analysis.

## Discussion

- Findings reveal a significant difference in planarian survival rates.
- This suggests varying concentration requirements among different planarian species in different aquatic environments.
- The commonly used 0.5 g/L IOS water solution for planarian maintenance may not be universally suitable and warrants further exploration.
- Figures 3 B and C suggest IOS water treatment decreased feeding behavior compared with IOS X2 and Kanatani water. Further research into motility effects with water formulation is also justified.

## Future Work

- In the future, metal chelators will be used to restrict the micronutrients calcium availability to see the effects it has on the planaria.
- We also suggest to repeat this experiment with more animals and with additional planarian species to assess the suitability of water source culture conditions.

## References

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