

Quick Look Report of the Student PF Experiment

- Title

Parabolic flight-induced alteration of the behavior in mimosa.

- Members

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- Objective

To resolve the mechanism of the behavior in mimosa, we observe the behavior in mimosa during parabolic flight.

- Procedure and set-up

The mimosa grow in summer in Japan. So we grew them from seed at the biotron.

- Experimental instructions

Mimosa has a characteristic that its leaf is closed by contact with finger and then tilt down like a bow. This mechanism is that the contact-induced electrical signal stimulate the pulvinus, water moves, and then turgor pressure is decreased. In this experiment, we observe how gravity concern with this water movement by parabolic flight.

- Method and Analysis

1. Set video camera to mimosa.
2. Touch the leaf and branch of mimosa in μG or hypergravity.
3. Compare the movement of mimosa in μG or hypergravity with in 1G by angle, angular velocity and etc.

- Experiment Setup

In low temperature, the sensitivity of mimosa to touch is decreased. So, we warm the rack in advance. And to prevent dirt floating, we covered pot by plastic cap.

- Result and Discussion

In μG and hypergravity, the mimosa moved. But there are differences on angle, angular velocity and etc of movement compered with 1G. In concrete, the movement angle is smaller and angular velocity is slower in μG than 1G. From this result, we can interpret that we could observe the pure movement of mimosa without one's own weight.

From now on, we will quantitatively compare these difference with 1G. And we want to resolve the mechanism of the behavior in mimosa.

- Conclusion

Mimosa can move in μG and hypergravity. But there are differences on some points compered with movement of mimosa in 1G.

- Acknowledgement

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