

Diet effect on sexualization of planarians

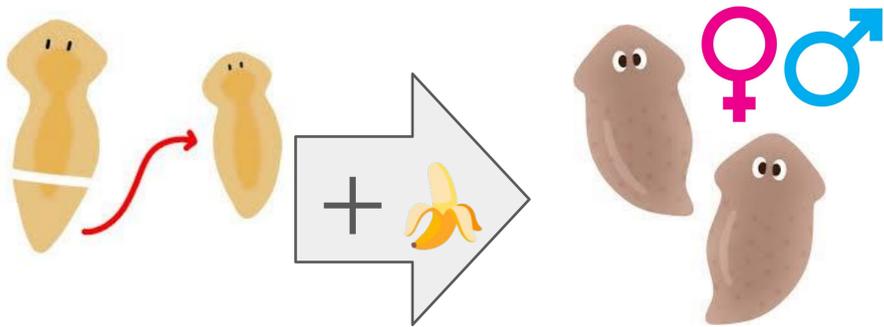
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Research Motivation

Planarians are tiny creatures that reproduce through division. However, it is generally believed that feeding bananas induces sexual reproduction.

I was interested in its strange biology.



What are planarians?

They are one of the flatworms.
They are usually genderless.
But they can also develop reproductive organs from stem cells. It is called totipotency.

I hope that their ecology will be useful in medical treatment in the future.

Hypothesis

When you feed bananas to planarians, they acquire sexual characteristics.

It has been proven that serotonin, which is a product of tryptophan functions as a sexualizing inducer.

Bananas contain tryptophan which is the main serotonin material and an essential amino acid.

Research method



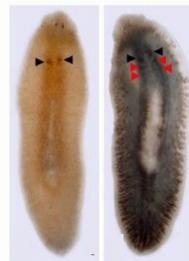
- ① We feed liver as a staple food and bananas. We observe whether they become sexualized.
- ③ We feed tofu and cheese. It is said that they contain serotonin.

If planarians acquire sexuals, we will find commonalities between bananas and tofu or cheese.

Supposition

By feeding Tofu or cheese, planarians acquire sexuals because of serotonin.

How to distinguish sexual from asexual



There are black dots near to eyes. These are ovaries, and these show us it acquired sexuals.

Research Result

The number of planarians increased from 10 to 23.

One planarian, fed banana-liver mix, was sexualized.



Conclusion

We confirmed that feeding bananas induces sexual reproduction.

But we have not been able to confirm the case for other food.

We need to patiently observe at planarians feeding tofu and cheese.