

# The effects of caterpillar chewing sounds on plant growth

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## Motive and Purpose

By reading a thesis of an earlier research, we were interested in the effects on plants by chewing sounds. This thesis says that the Arabidopsis leaf secretes pungent ingredients when we expose them to vibrations of caterpillar of cabbage butterflies' chewing sounds. Then, we started research in order to find the possibilities of the effects of sounds, without vibrations, on plant growth and the effects on germination when we expose plant seeds to chewing sounds and whether that affects of growth.

## Hypothesis

We expected that germination and the growth of plants will be hindered when plants secrete pungent ingredients in order to protect themselves.

## Method

- ◆ We used oats and caterpillar chewing sounds in this experiment
- ◆ We recorded the caterpillar chewing sounds with a microphone exclusively for recording the chewing sounds
- ◆ We researched the two patterns. Exposing oats to the sound and not exposing them
- ◆ We put the 25 oat seeds on the petri dish then made them wet

### Condition

- Set the temperature to 25°C
- Research for 6 days
- Measure the growth of oats at 15:00



Figure1



Figure2

## Result

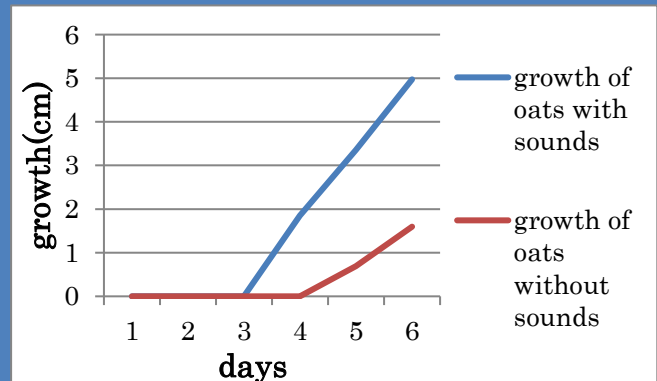


Figure3 Relationship between days and length of oats

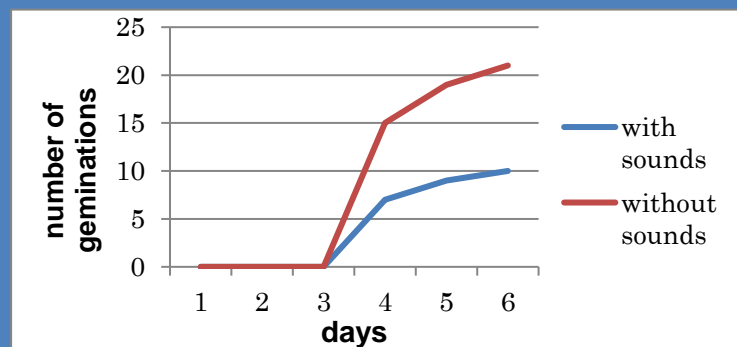


Figure4 Relationship between days and germination

## Consideration and view of the future

As a result, we could observe the promotion of growth according to figure 3 and we can say that the chewing sounds prevent the sprouting of the plants according to figure 4.

We considered that the amount of water that plants can get increases when we expose plants to the chewing sounds because the sounds prevent sprouting. However it is not clear from this result alone whether or not it reacts not only to the chewing sounds but also to every sound.

Therefore we should change the condition of the experiment from giving sounds to exposing them to vibrations. In this way, we want to find the reason why the degree of the growth of plants can change.

## References

Richard Becker/plants respond to leaf vibrations caused by insect herbivore chewing ([natgeo.nikkeibp.co.jp](http://natgeo.nikkeibp.co.jp))