Relationship between plant-to-plant communication with methyl salicylate and the growth of spodoptera litura

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Introduction

Plants usually emit a variety of smells. Also they release specific smells that play a role in various utilities when they are injured or they get sick. Some plants receive them and produce a lot of protective substances and decrease damage. Methyl salicylate is one of the tobacco mosaic viruses. However, it has not been confirmed to be effective against harmful insects.

Hypothesis

We hypothesized that it is effective for plants by tallying plants by methyl salicylate against insects.

Objective

Researching if there are any effects against Spodoptera litura in plant-to-plant communication with methyl salicylate

Method

1. Grow four sunny lettuces because they can live in cold temperature.
2. Make methyl salicylate
3. Put a Petri dish of melted salicylate near the strain and volatilize them. Make two strains talking plants pseudo. Do nothing with other two strains.
4. Put a juvenile spodoptera litura into each strains and let them grow.
5. Measure their weight every other day and observe the change of their growth.

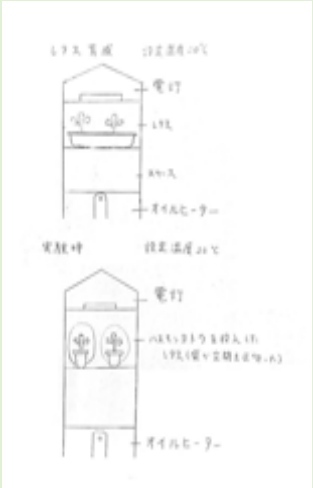


Figure1 growing enviromment

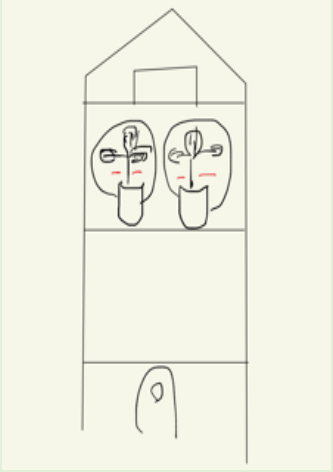
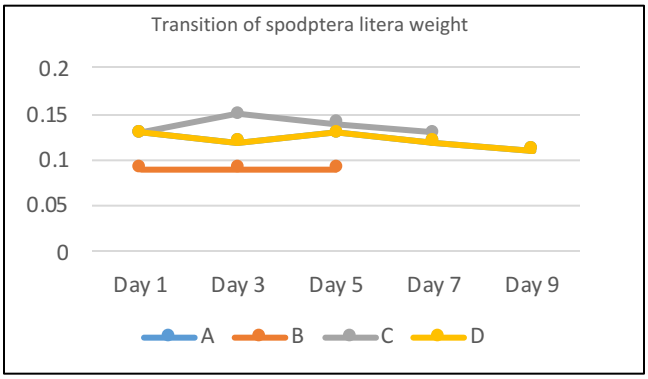


Figure2 Putting Methyl salicylate in it

Result

Figure 3 Transition of spodptera litera weight



※A and D are overlapping each other because A and D are same value.

※We stopped taking datas of B and C because they escaped from greenhouse.

Consideration

We found out that plants communicating with methyl salicylate don't have much effect to insects because there few difference A and D and in average of weight gain.

Outlook

Because there is a difference between experiments condition and normal spodoptera literals condition, we can say there is possibility of failure with the experiment. We can't make sure with this result because of lack of amount of date, the lack of time, and the total amounts. Therefore, we should collect data from more insects than this experiment numbers for the next time. We are going to do experiments under conditions where we can take more particular data.

References

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Shulaev, V., Silverman, P. and Raskin, I. : Airborne sig- nalling by methyl salicylate in plant pathogen resistance, Nature, 385, 718-721, (1997).