

# Extermination of Argentine Ants, the Specific Alien Organism, in an Environmentally Friendly Way

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## Backgrounds

Twelve years have passed that Argentine ants (*Linepithema humile*) are designated as a specific alien organism settled in the neighboring city of our school. Once they settle in one place, they attack and exterminate other local ants, so that the place is likely to be occupied only by them.

Now it is common to use the method to control Argentine ants with pesticide. They carry the pesticide as food into their colonies. But in this way, the pesticide might also get rid of small animals other than Argentine ants. In contrast, pheromones affect only certain kinds of insects. And environmental risk is low because they are ineffective against other living things.

## Object

- 1 To guide Argentine ants and with a synthetic trail pheromone (sTP).
- 2 To make an apparatus to capture Argentine ants.

## Conclusion

- 1 We could induce Argentine ants by disturbing the lines in which they walk.
- 2 We could catch 538 Argentine ants in an hour.

## Experiments / Results / Discussion

### 1, To guide Argentine ants by disturbing the line

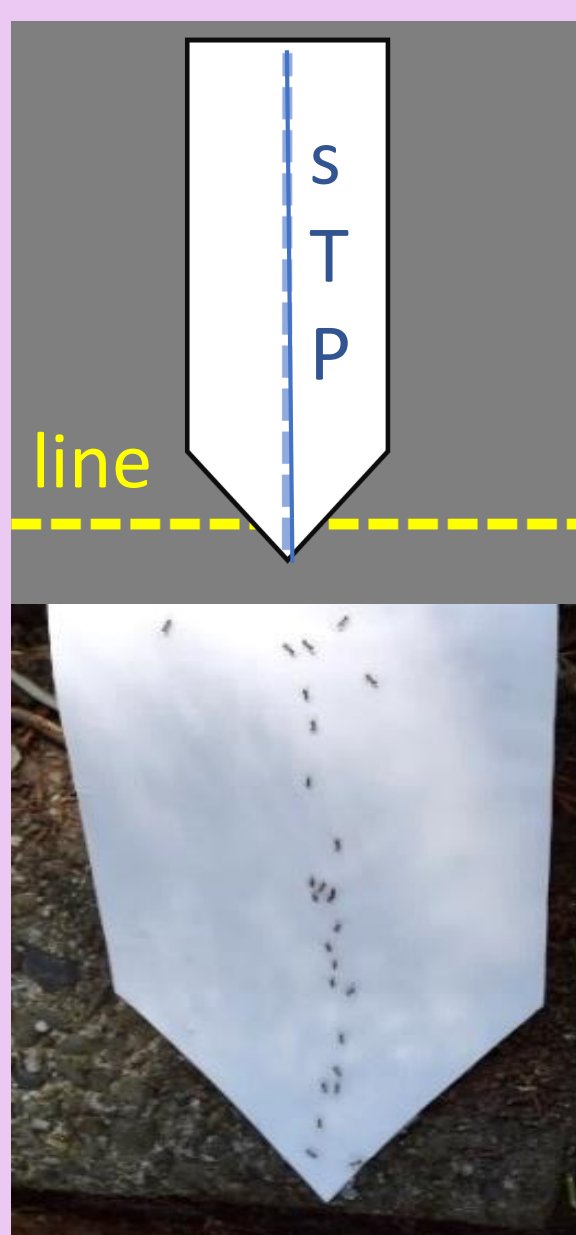


Figure 1 How Argentine ants are guided

#### Method

We can guide Argentine ants when the walking line is disturbed. So, we inserted the trapping apparatus into the ants line.

#### Results / Discussion

We could guide Argentine ants by disturbing the ants line, probably because they lost the way. As a result, we found that sTP could guide them.

### 2, The direction of sTP

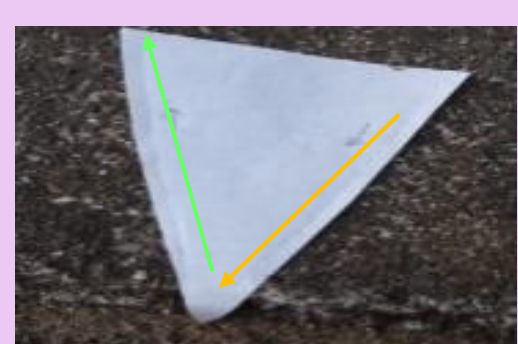


Figure 2 The direction of walking lines

#### Method

We inserted sTP into the line as shown in figure 2, We observed which way could guide more Argentine ants.

#### Results/Discussion

The green arrow shows that we could guide Argentine ants stably. As shown in Figure 3, they are walking from the place of baits to their colony drawing pheromones and form a cycle of waling.

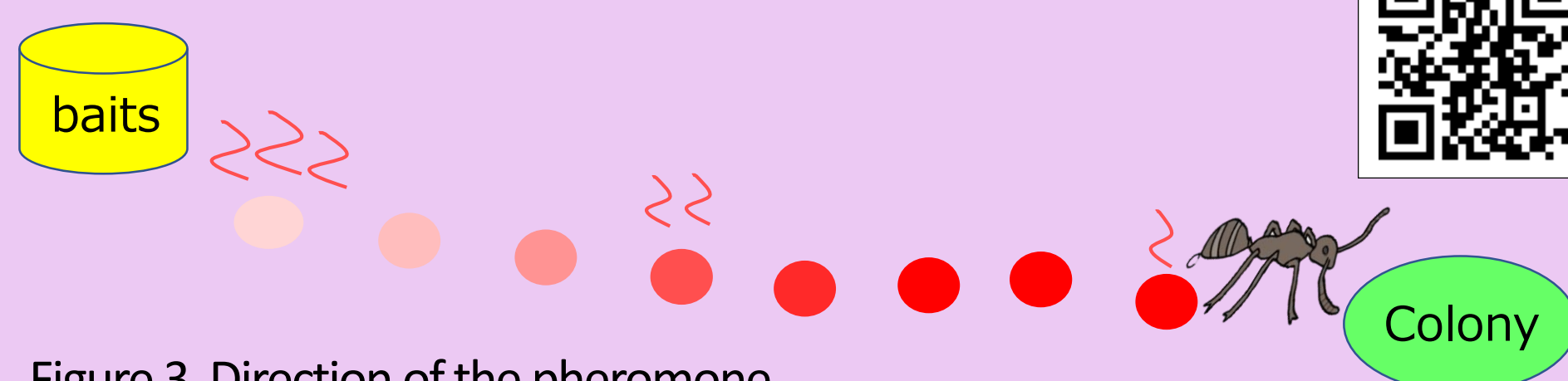


Figure 3 Direction of the pheromone



### 3, Making the induction trapping apparatus



#### Method

We made various shapes of apparatus and put them near Argentine ants on the ground.

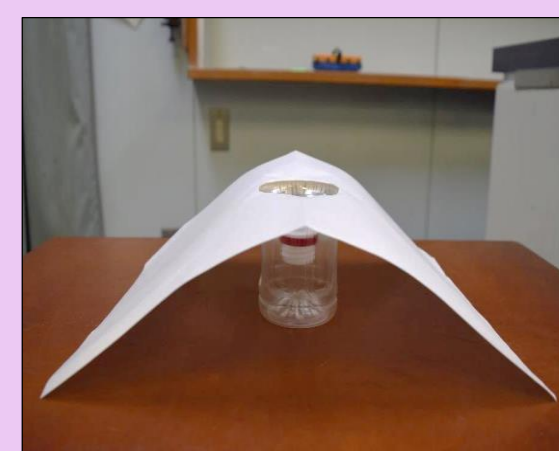


Figure 4 Mountain-like device



Figure 5 Narrow-edge device



Figure 6 Mt. Fuji-like device

#### Results/Discussion

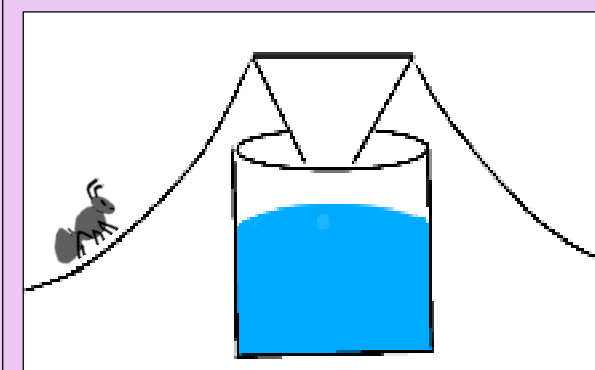


Figure 7 Structure of the device

The most popular apparatus was Mt. Fuji-like device. We thought that we could capture them when we made the slope declining little by little, so Argentine ants could not notice the catching part and was caught well.

### 4, Improvement of Inducing trapping apparatus



#### Method

We wanted to downsize the device to be used easily. We made the inducing part 7 centimeters long and put it near the walking lines on the ground. We used a slipping resin to prevent the ants from climbing up.



Figure 8 Inducing part



Figure 9 Dropping part

#### Results/Discussion

We can made an apparatus which environmental risk is low and we can have only Argentine ants.

## Outlook

- We are planning to do educational activities about Argentine ants for local children.
- By applying this apparatus, we would like to exterminate other specific alien organisms such as red imported fire ants.