



Potency of composted Siam Weed to control the population of herbivore insects in Chinese cabbage

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Presented at ISHS Symposium Sustainable Vegetable Production in S.E. Asia, UKSW
Salatiga 14-17 Maret 2011 (<http://www.ishs.org>)



Siam weed (*Chromolaena odorata*) is the worst weed in tropical areas due to:

- **Strong competitor to main crops (via *allelopathic* effect)**
- **Easy to spread**
- **Toxic to cattles (contain carcinogenic **pyrrolizidine alkaloids**)**

However, in other view

- **Useful as a soil amendment & provide nitrogen**
- **Useful as pesticides**
- **Useful as a medicine**

Soil amendment.....

- It contains C, Ca, Mg, K dan N > than of cow-dung
- It increases the total dry-weight of crop
- It increases the soil nitrogen 3 times higher



Pesticides.....

- It's extract inhibits the growth of microorganisms
- It's volatile compounds act as feeding and oviposition deterrent on insects
- It's toxic compounds has insecticidal effect on insects

Two things will be incorporated in this experiment.....

- **Mechanical control on *C. odorata*, and**
- **Utilization of the biomass of *C. odorata* as organic fertilizer**

Objectives.....

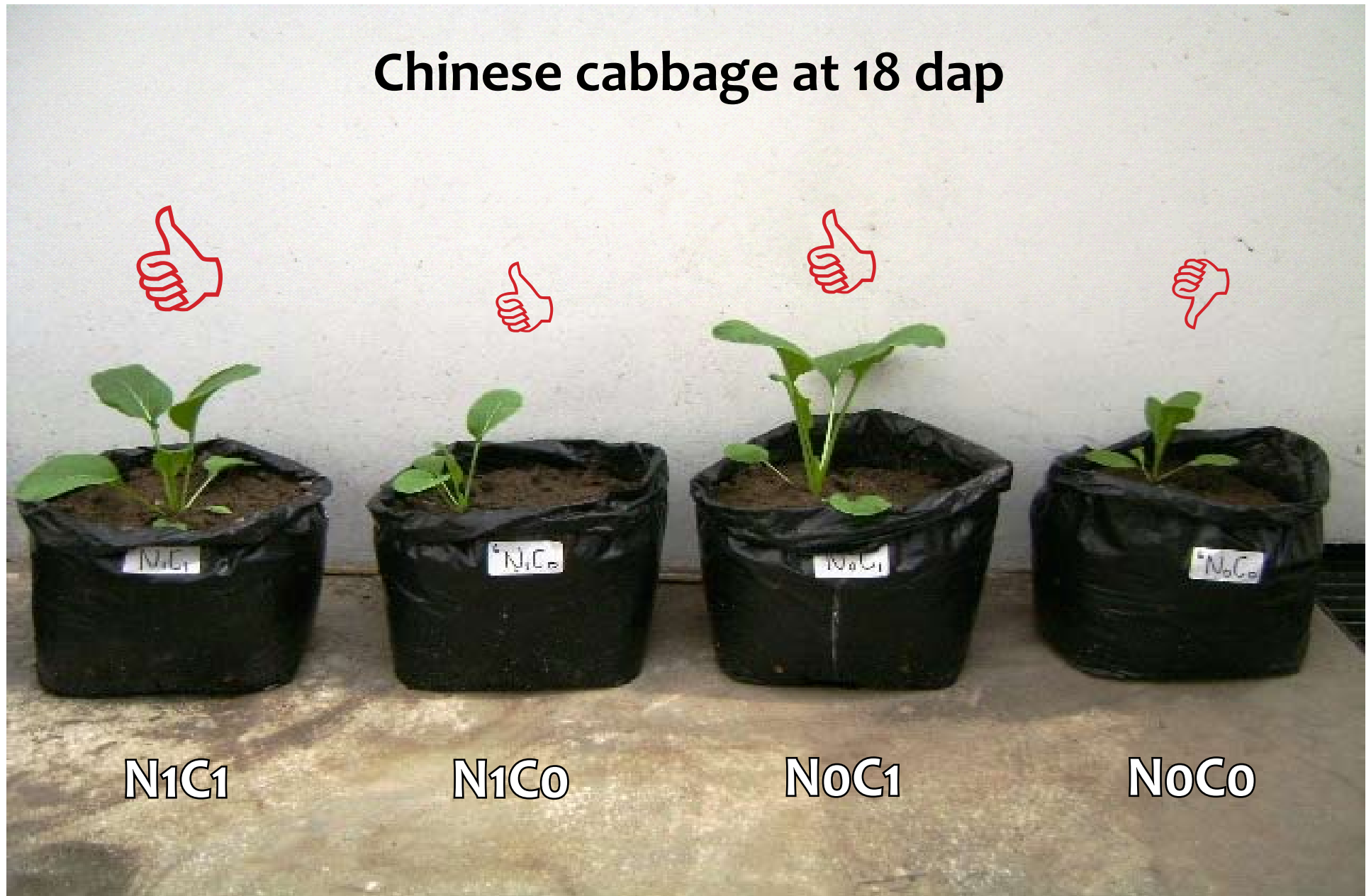
- To understand the bottom-up effects of composted Siam weed on Chinese cabbage and arthropods (herbivore and carnivore)
- To understand the complex relationship among those three tropics.

Experimental scheme....

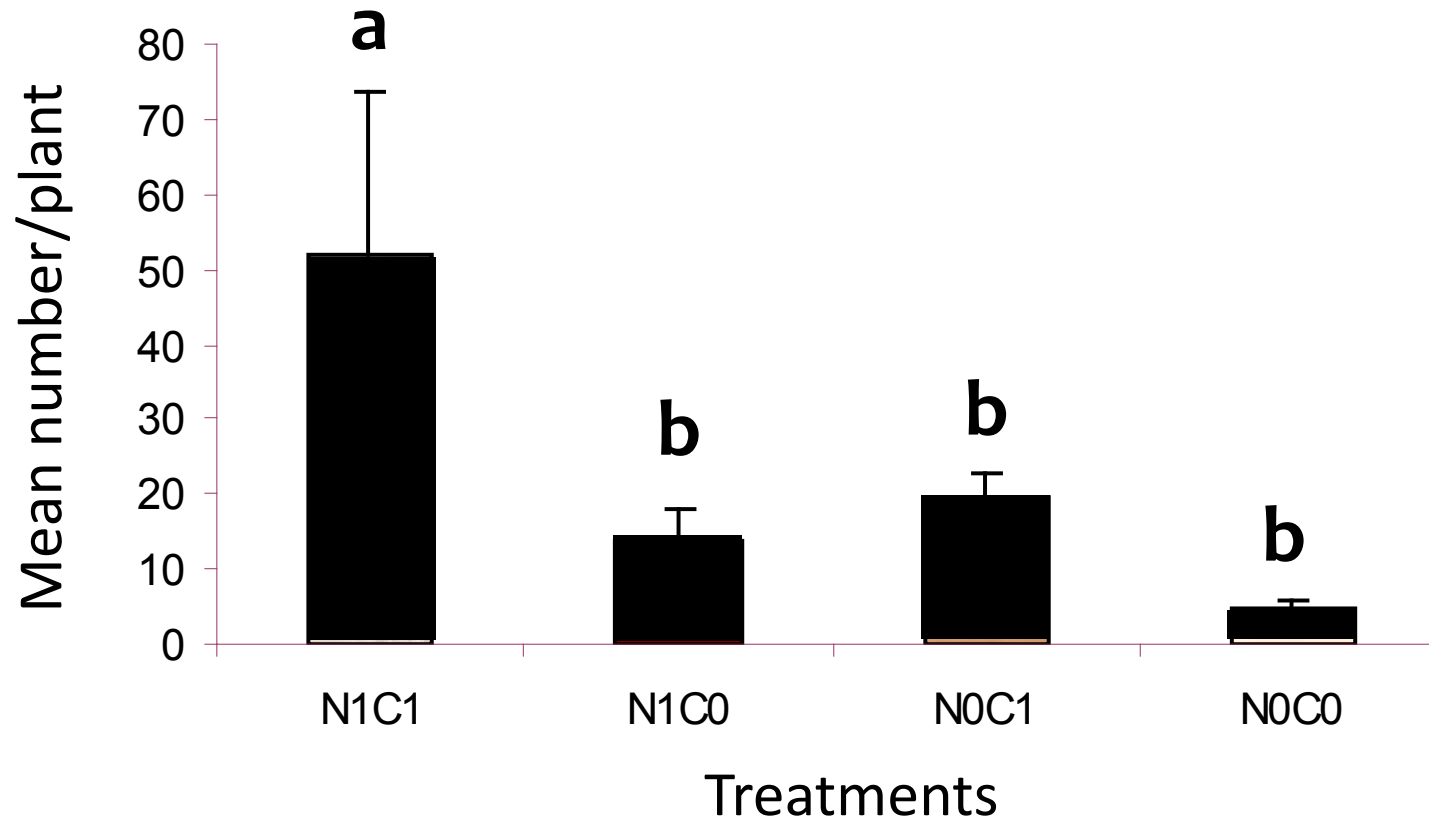
- **Outdoor experiment**
- **Four treatments:**
 - a. **Nitrogen only (N1C0)**
 - b. **Compost only (NoC1)**
 - c. **Nitrogen and compost (N1C1)**
 - d. **No nitrogen and compost (NoCo)**

Effect of treatments on plant

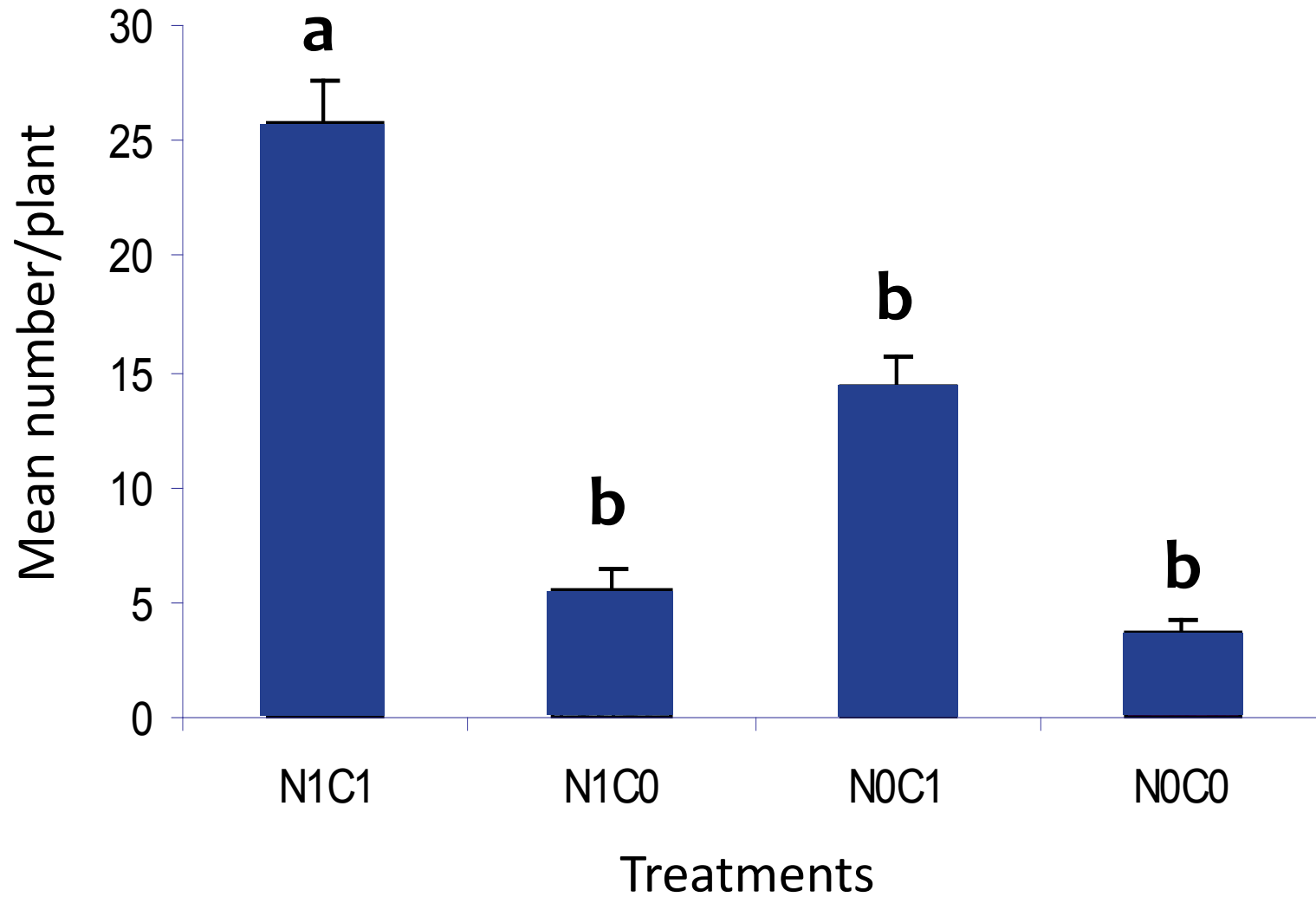
Chinese cabbage at 18 dap



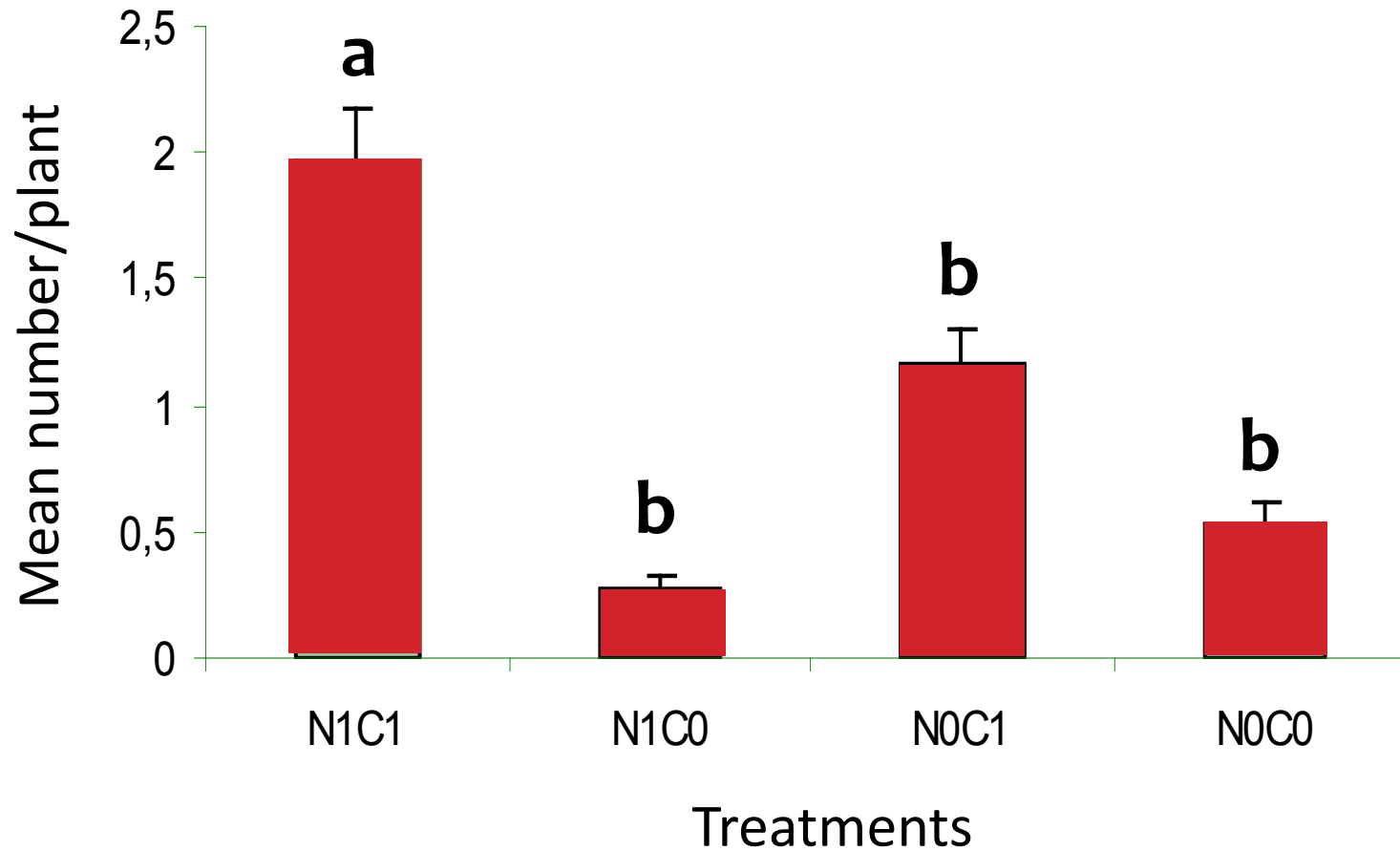
Effect of treatments on sucking herbivores



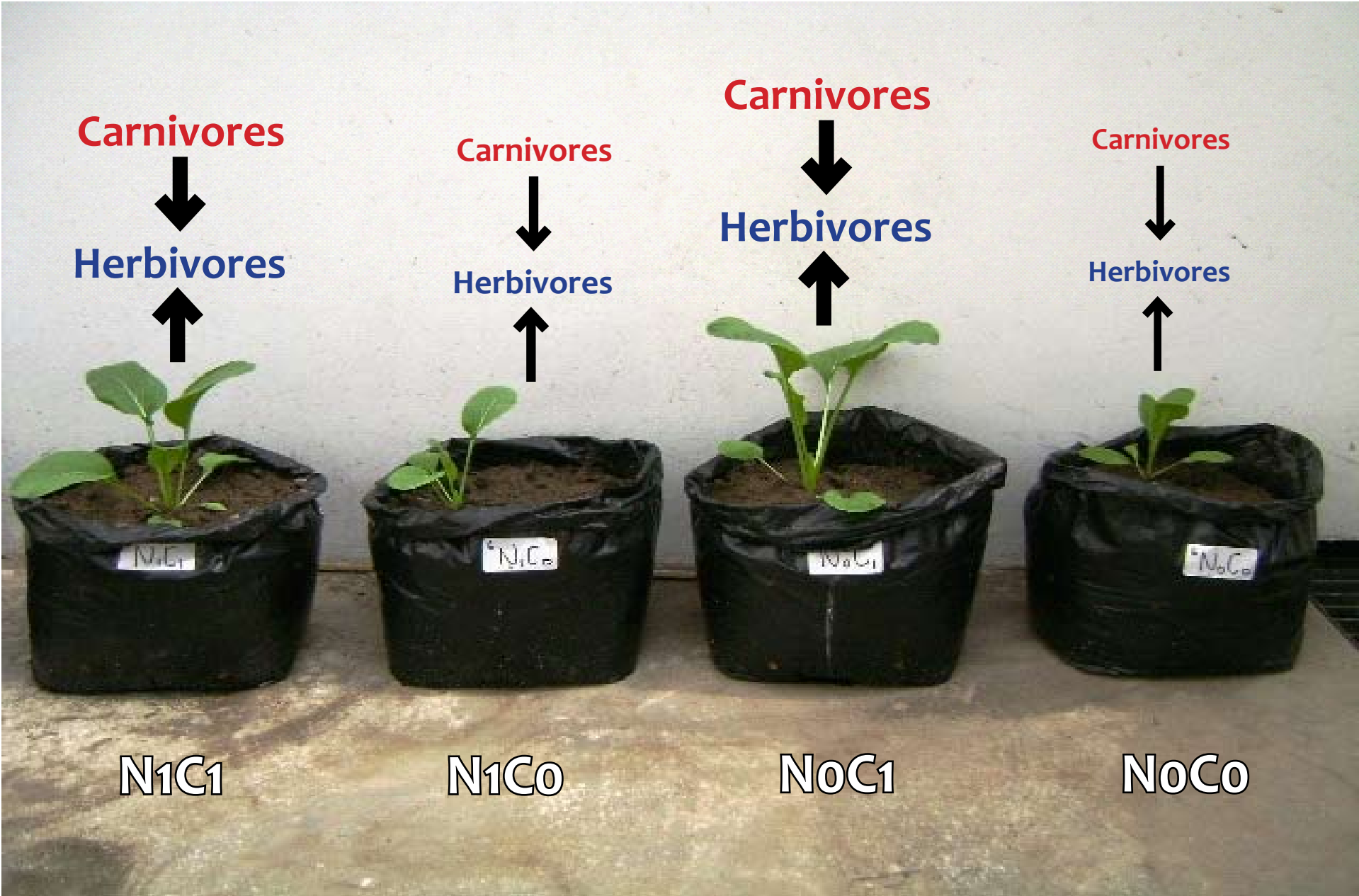
Effect of treatments on chewing herbivores



Effect of treatments on carnivores



Conclusions



1. Composted Siam weed enhanced the population of arthropods due to increment of the performance of Chinese cabbage (**bottom-up mechanism**)
2. The compost kept biomass of Chinese cabbage higher than others (enhanced **tolerance mechanism**)

Questions?

1. Toxic compounds? Do they still harm on crop? Or they can be degraded into harmless forms?
2. Do the compost harm on useful organisms in rhizosfer?
3. More experiments are needed to reveal detrimental effects of using composted Siam weed