

SCBI 453 Coevolution Term Project

10% of marks for course

1. Select a Thai plant species. Each student must select a different plant species.
2. Tell Aj. John of the plant species you have chosen.
3. Examine the plant and present any evidence of physical defenses, chemical defenses and of special structures for attracting natural enemies of herbivores.
4. Search the literature for information on defenses in the plant, e.g., chemical compounds in the plant, special plant structures, etc. and how they affect herbivores.
5. Present a 5 minute talk (followed by 3 minutes of questions) on the most interesting findings of your project.
6. Write a report (in Thai or **English**) about your plant species (4-5 pages) and its defenses against herbivory.

SELECT ANY PLANT THAT INTERESTS YOU

OR

SELECT ONE FROM THE LIST

Assignment hints

Examine your plants – If you have a camera, then take photographs

Examine (use a magnifying glass) the plant's young leaves, old leaves, stems, flowers, fruits for:

1. Structures that may be **physical defenses** against herbivores, e.g., hardness, toughness (devise your own measure of hardness, toughness), spines, hairs or trichomes.
2. Evidence of **chemical defenses**
 - (a) Take a leaf from a plant. Crush the leaf. Smell it. Describe the smell.
 - (b) Cut a leaf with a sharp knife while the leaf is still attached to the plant. Describe any liquid that comes out, e.g., color, viscosity (i.e., does it flow like water, like honey, etc?). From what part of the leaf does the liquid come out from? Does the liquid become sticky or hard? Cut another leaf with a sharp knife while still attached. Measure the time for the liquid to become sticky or hard.
 - (c) Do the same as (b) but with a stem.
3. **Special structures** (e.g., extrafloral nectaries, domatia) that may attract natural enemies of herbivores - **Mutualism**
4. Evidence of **herbivory**, i.e., of being eaten = damage to plant – holes in leaf, missing parts of leaves, curled leaves, spots on leaves, frass on stem, hole in stem, tunnel in leaf, etc. What type of herbivore may have caused the damage? [For Discussion in your report – If the plant has defenses, then why was it damaged by herbivores?]
5. Search the **literature** (library, Internet) for information about chemical compounds found in your plant species. What are the types of compounds? What are their effects on insects? On mammals?
6. **Five minute talk** (end of term). Select the most interesting part of your work. Prepare a MS PowerPoint presentation – Introduction, Methods, Results, Discussion. Use photographs, diagrams and tables wherever possible.
7. **Report**
 - (a) Introduction, Aims, Methods, Results, Discussion, Conclusions, References.
 - (b) Cite references. E.g., “Alkaloids have been reported from this plant (Smith et al. 1997).”
 - (c) Use photographs, diagrams and tables to present your information wherever possible.
8. Some **Books** about plant-herbivore or plant-insect interactions – LOOK IN LIBRARY.