ENG 10 LECTURE SECTIONS C AND T
PROF. MABINI DG. DIZON
(LECTURER)

SAMPLE Materials and Methods in Listed Form

The Effect of Nami (*Dioscorea hispida* Dennst.)
Crude Extract on the Internal Organs
of Tadpoles

MATERIALS AND METHODS

A. Materials

nami (D. hispida) extract
48 tadpoles
8 wide-mouthed bottles
anhydrous sodium sulfate
syringe with needle
razor blade
fume hood
mortar and pestle
chloroform
2% KOH
ethanol series (95% and 100%)
10% formalin
glycerol series (20%, 50%, and 80% and 100%)
Bouin's solution
alizarin red stain
dissecting microscope
camera with film

(Note: Materials appear in listed form especially for a research proposal. This is so since it is a lot easier or more systematic to gather first all the materials needed before performing the experiment. A disadvantage if materials are combined with the procedures is that, just filtering through the paragraphs to identify the materials can be another hard task. In descriptive studies, however, materials and methods are combined.)

B. Methods

1. Preparation of plant Extract
   a. Tubers of Diocorea hispida will be collected in Batangas, cleaned, thinly sliced and air-dried for three days.
   b. The tubers will then be air-dried in an oven set at 37 – 40 ^{0}C for another three days or until it is

crisp enough to be ground to a fine powder form.

c. The powdered material will be soaked in chloroform for three days with occasional stirring.
d. The filtrate obtained will be passed through an anhydrous sodium sulfate.
e. The resulting thick oil extract will be air dried under a fume hood and used as the test material.

2. Test Animals
   a. A total of 48 tadpoles will be obtained from the greenhouse area of the Biological Sciences building.
   b. These tadpoles will be placed in wide-mouthed bottles.

3. Experimental Procedures
   a. The tadpoles will be divided into four treatment groups, namely:

      legless tadpoles;
      tadpoles with small hindlegs;
      tadpoles with larger hindlegs; and
      tadpoles with both the hindlegs and the forelegs.

   b. For each of the treatment groups, 6 tadpoles will be considered and placed in separate bottles with labels.
   c. Another set of tadpoles will be injected with the nami extract (about 1 to 2 milliliters) everyday for two days.
   d. Fixation of Tadpoles for Skeletal Examination

      d.1. Three tadpoles from each treatment group, including the control, will be dehydrated in 95% ethanol for four days; followed by another four days in 100% ethanol.
      d.2. The tadpoles will be eviscerated prior to clearing in 2% KOH for 24-35 hours.
      d.3. After clearing, the tadpoles will be stained with alizarin red for three to four hours or until the bones become more vivid than the surrounding tissues.

d.4. The tadpoles will be drained, destained and dehydrated in the series of 20%, 50% and 80% glycerol for 24-28 hours in each concentration and 18 hours in 100% glycerol.

d.5. The tadpoles will then be subjected to skeletal examination and photographed.

e. Fixation of Tadpoles for Soft Tissue Examination.

e.1. The tadpoles for soft tissue examination will be fixed in Bouin's solution for one week and hand-sectioned using a razor blade.

e.2. The sections will be placed in 10% formalin, examined under a dissecting microscope, and photographed.

4. Analysis of Data

a. Pictures of the animals treated with nami extract will be compared to those of the control.

b. Any abnormality or deviation from the normal features like the malformation of a bone structure will be noted and considered as significant effect of the test material.

C. **Detailed Schedule of Activities**

Date	**Activity**
April 8, 2006	Procurement of tubers
April 9	Preparation of tubers
April 16	Procurement and sorting of tadpoles
April 18 – 19	Testing of the extract on tadpoles
April 22	Dehydration of tadpoles in 95% ethanol, fixation of tadpoles in Bouin's solution
April 26	Dehydration in 100% ethanol
April 29	Rinsing of tadpoles in water and hand-sectioning; placement of sections in 10% formalin
April 30	Clearing of tadpoles in 2% KOH and draining in 20%

	glycerol
May 2	Destaining in 50% glycerol, soft tissue examination
May 5	Dehydration in 80% glycerol
May 7	Further dehydration in 100% glycerol
May 9	Skeletal examination
May 13	Organization/analysis of data
May 25	Writing of the first draft
June 5	Submission of the first draft

(Note: The Methods can consist of the main procedures relevant to the experiment. If the procedures are long, sub classification is encouraged. The Methods also contain the manner by which data will be analyzed, e.g. statistical tool, as well as the Detailed Schedule of Activities. Note that statements are in the passive voice, future tense.

The Procedures are chronologically numbered or labeled.

The Detailed Schedule of Activities, meanwhile, affords the researcher to monitor if he/she is on schedule, ahead of schedule or lagging behind.)

(Prepared by MDG Dizon, 81810)