# A Comparative Study on the Toxicity of the Different Leaf Extracts of *Nerium indicum* ( **Adelfa** ) and *Tinospora rumphii* ( **Makabuhay** ) on *Rattus sp.* (Albino rat)

An Undergraduate Thesis

Presented to

the Faculty of the College of Arts and Sciences

De La Salle University – Dasmariñas

Dasmariñas, Cavite

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in Biology

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March 1998

## ABSTRACT

NAME OF INSTITUTION: De La Salle University – Dasmariñas

ADDRESS: Bagong Bayan, Dasmariñas, Cavite

TITLE: A Comparative Study on the toxicity of the Different Leaf Extracts of *Nerium indicum* ( **Adelfa** ) and *Tinospora rumphii* ( **Makabuhay** ) on *Rattus sp.* ( Albino rat ).

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FUNDING SOURCE: Parents COST: P 3,000.00

DATE STARTED: June 1997 DATE COMPLETED: October 1997

OBJECTIVES OF THE STUDY:

A. GENERAL

2/ this study

To test and compare the toxicity of the leaf extracts of *Nerium indicum* ( **Adelfa** ) and *Tinospora rumphii* ( **Makabuhay** ) on *Rattus sp.* ( Albino rat ). 2/

B. SPECIFIC

To know which of the two leaf extracts is more toxic to *Rattus sp.* ( Albino rat ).

SCOPE AND COVERAGE

This study about the toxicity of the different leaf extracts of *Nerium indicum* ( **Adelfa** ) and *Tinospora rumphii* ( **Makabuhay** ) on *Rattus sp.* ( Albino rat ) was conducted at De La Salle University – Dasmariñas for the extraction process and the treating of different leaf extracts on Albino rats. 3/ The gathering of **Makabuhay** leaves was done at Bacoor, Cavite and the gathering

of **Adelfa** leaves was at Quezon City. The different leaf extracts were administered orally using the gavage method.

Thirty five Albino rats were used to perform the study. Five Albino rats per treatment were used.

The toxicity of such extract was based on the time of death to ensue on rats, mortality rate and some symptoms or changes in the behavior of rats.

The organic solvents used were ethanol and methanol.

METHODOLOGY:

A. Research Design

This is an experiment that determined the rodenticidal properties of **Adelfa** and **Makabuhay** leaf extracts. Experiment was conducted to get the mortality rate of rats.

B. Research Setting

The **Makabuhay** leaves were gathered at Bacoor, Cavite and **Adelfa** leaves were gathered at Quezon City. The extraction process and administration of the solution on rats were conducted at the laboratory of De La Salle University – Dasmariñas.

C. Research Procedures

The leaves of **Makabuhay** and **Adelfa** were gathered and extracted in their specific solvent and rotary evaporator was used for further extraction.

Thirty five albino rats of the same age and weight were grouped into T0, T1, T2, T3, T4, T5, and T6, having five rats per group and were treated accordingly with the following different leaf extract concentrations:

T0 = control group

T1 = **Adelfa** leaf extract (100% concentration)

T2 = **Adelfa** leaf extract (75% concentration)

T3 = **Adelfa** leaf extract (50% concentration)

T4 = **Makabuhay** leaf extract (100% concentration)

T5 = **Makabuhay** leaf extract (75% concentration)

T6 = ***Makabuhay** leaf extract (50% concentration)*

Mortality rate, time in seconds for death to ensue on rat, and behavioral changes were recorded for each group of rats after the treatment of the leaf extracts.

MAJOR FINDINGS:

For **Adelfa** leaf extract, a 100% percentage mortality rate was observed in both 100% and 75% concentration with an average mean time of 33 secs and 76.4 secs, respectively. Only two rats died in 50% concentration having a 40% percentage mortality rate with an average mean time of 60, 495 secs. For the **Makabuhay** leaf extract which had 100% concentration, having 60% percentage mortality rate, three rats died with an average mean time of 103, 749 secs while a 0% percentage mortality rate was observed in both 75% and 50% concentrations.

CONCLUSION:

Based on the result of the study, the researchers arrived at the following conclusions that:

1. Both extracts of **Makabuhay** leaves and **Adelfa** leaves are toxic to albino rats.

2. **Adelfa** leaf extract with a 100% concentration is more toxic than **Makabuhay** leaf extract including the other leaf extract concentrations.
3. There was a high significant difference on the effect of the different treatment to the mortality rate of rats.

RECOMMENDATIONS:

The researchers offer the following recommendations:

1. Compare the toxicity of the other parts of the plants such as the seed, flower or bark of the **Adelfa** plant and the vine or the roots of the **Makabuhay** plant.
2. Give treatments which comes in solid forms like tablets or powders.
3. Test the toxicity of other plants which produce toxin.
4. Use methods which can define what specific substance or toxin is present in the plant that makes it toxic to rats and research further on the chemical structure of the chemical component of the extract.