

Thesis Title Acute and Subacute Toxicopathologic Effects of
the Periwinkle Plant : Catharanthus roseus
G.Don in Rats and Mice.

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Degree Master of Science (Pathobiology)

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ABSTRACT

Catharanthus roseus (Vinca rosea) or "Pang-Puay-Farang", was extracted with absolute ethanol and tested for the alkaloid content and given to two species of animals, i.e., rats and mice. Both sexes of Wistar rats and Swiss albino mice, 4 wk-old, were used for acute (7 days) and subacute (21 days) toxicity test. For acute toxicity test each group of 4 male and 4 female rats, 7 male and 7 female mice were given crude extract via drinking water (tap-water) at levels of 0, 100, 500 and 1,000 ppm and via gastric intubation at a dose of 0, 100, 1,000 and 10,000 mg/kg body weight. For subacute toxicity test, all regimens were similar to those in acute toxicity test via drinking water except all animals were observed for a period of 21 days.

There was a slight decrease in weight gain, food and water consumption in most of treated animals. The relative liver weight of male rats given 1,000 ppm extract in acute test was markedly increased

as well as relative spleen weight of male rats of 500 ppm in subacute test. Packed cell volume (Hct) and hemoglobin concentration in treated groups were similar to those of the control but was markedly increased in male and female mice given the highest level of the extract in both acute and subacute tests. Total white cell count was generally lower than that of the controls and was significantly decreased in the female mice given 1,000 ppm extract in acute toxicity test and 100 ppm extract in subacute toxicity test. Percentage of differential white count was prominent in lymphocytes population whereas number of neutrophil was more prominent in mice.

SGOT, SGPT activities were moderately to severely increased when observed in acute and subacute toxicity tests. Total protein was markedly increased in both sexes of rats given 1,000 ppm extract (acute toxicity test) whereas in animals treated with 500 ppm extract (subacute toxicity test) was found to be markedly decreased. BUN levels were significantly lower than those of the controls observed in 1,000 ppm extract-treated male rats of subacute toxicity test. There was a marked decrease in blood glucose concentration observed in many treated groups of both sexes of two species in acute and subacute toxicity test. Pathologically, the changes consisted of cellular degeneration, necrosis and decrease in number of cell components. Cellular hypertrophy and hyperplasia was also found in bile duct epithelium and Kupffer cells in the livers and Leyding cells in the testes. Stomach and duodenum showed minimal to mild degree of alterations, i.e., inflammatory cell infiltration, glandular dilatation and a slight flattening and shorttening of mucosal epithelium. There was an increase in size of many white pulps in the treated spleen resulting from an increase in cellular population. Ovaries of treated female animals showed numerous corpora lutea formation with only a few mature ova.