STUDY ON THE CORRELATION OF CARBOFURAN RESIDUE IN BLOOD AND CHOLINESTERASE ACTIVITY

BY

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SUMMARY

This thesis is concerned with the toxicity of carbofuran and the correlation of the concentration of carbofuran residue in blood and the cholinesterase activity.

The project was divided into a short-term study-to determine the acute toxicity after a single oral dose, and long-term study-to determine the subacute toxicity of carbofuran after repeated oral sublethal doses.

A suitable modification for the measurement of carbofuran has been developed. This involved its determination as carbofuran by Flama Ionization-Gas Chromatography in the blood. The percentage recovery of carbofuran for small and large volumes of blood were 81.8±4.52 and 79.2±4.61 respectively.

The LD_{50} value of carbofuran was in reasonable agreement with those of other workers. The weanling rats were more susceptible to carbofuran than adult rats.

In the long-term study it was apparent that continued administration of sublethal doses of the compound results in decrease in an appetite of rats.

It was found that at 15 minutes after ingestion of carbofuran(3.4 mg/kg BW) 25.5% cholinesterase activity was decreased.

The correlation between the concentration of carbofuran residue and the cholinesterase activity was the negative correlation at correlation coefficient (r) = 0.77.

A suggestion as to where the remaining of carbofuran was stored in the various organs and the excretion of carbofuran are offered for further study. The metabolites of carbofuran in blood were also found, namely, 3-hydroxycarbofuran and 7-phenol.