Declaration

I, **DAVIES MWAZI SINYANGWE**, hereby declare to the best of my knowledge and belief, except for the literature cited, that this is my original work and has never been submitted at this University or any University or Institute of higher learning for a higher degree award.

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Signature

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Date

Approval

(a) I as a supervisor certify that this dissertation has successfully been examined and approved

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Dr. Gibson Sijumbila

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Date

(b) I certify that this dissertation has been successfully examined and approved

Head of Physiological Sciences Department,

School of Medicine,

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Mrs. Sandra chileya

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Date

Certificate of completion

This dissertation of **Sinyangwe Mwazi Davies** has been successfully examined and approved as fulfilling partial requirements for the award of the degree of Master of Science in Biochemistry by the University of Zambia.

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Dedication

This study is dedicated to my sons and daughters Wila, Alinaswe, Twataizya and Faith

Abstract

Small scale and large scale farmers around Lusaka, the capital city of Zambia grow vegetables using intensive agriculture methods to satisfy the ever increasing demand. To ensure maximum yield farmers apply various types of pesticides to control pests and diseases that attack these vegetables. Organophosphate pesticides are widely used in agriculture for the control of various insect pests mainly in developing countries. The purpose of this study was to determine the residual levels of the most commonly used organophosphate, 2, 2-Dichlorovinyl dimethyl phosphate (Dichlorvos), in three common vegetables supplied at various study sites around Lusaka.

Samples of rape, lettuce and cabbage were randomly picked from the study sites around Lusaka. The vegetables were chopped into small pieces which were chemically treated to get methanol extracts. The extracts were then dissolved in an appropriate solvent and using Shimadzu High Performance Liquid Chromatography-Ultra-violet detector, levels of dichlorvos were determined.

The results of analysis showed that the levels of dichlorvos were significantly above the maximum accepted limit as set by Zambian Food and Drugs Act on vegetables. This higher than acceptable levels of dichlorvos may have implications on human health as the cumulative effect of organophosphates in human body has potential to cause long term health problems (Mackenzie Ross et al., 2010)

List of acronyms

FAO	Food and Agricultural Organization
FDA	Food and Drugs Act
HPLC	High Performance Liquid Chromatography
GDP	Gross Domestic Product
MRL	Maximum Residue Level
ZEMA	Zambia Environment Management Agency
OPs	Organophosphates Pesticides
WHO	World Health Organization

List of figures

List of tables

List of Appendices

TABLE OF CONTENT