
FACULTY OF AGRICULTURE AND ANIMAL SCIENCES

DEPARTMENT OF CROP PRODUCTION AND MANAGEMENT

EFFICACY OF ALOE VERA (*Aloe barbadensis miller*) AND PAPAYA (*Caricapapaya*)

**EXTRACTS ON THE MANAGEMENT OF COWPEA WEEVILS DURING
STORAGE**

BY

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**RESEARCH REPORT SUBMITTED TO THE DEPARTMENT OF
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DECLARATION

This research report is my original work and has not been presented for any award in any other University or Higher Institution of Learning.

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APPROVAL

This is to certify that this research report entitled efficacy of aloe vera extract and papaya extract on the management of cowpeas weevils in the storage by Akellot Frances is done under my supervision and is ready for submission as a partial requirement for the award of Degree of Bachelor of Science in Agriculture of Busitema University.

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DEDICATION

I dedicate this research report to GOD Almighty my creator for the far he had brought me from the beginning to the end, good health, wisdom, knowledge energy and understanding during my research work. I also dedicate this work to my beloved husband Radius and my children Turner and Heal hand. Once more I want to dedicate this report to all the staff of Busitema University, Dr Opio Peter (PhD.) for the parental guide and attention he rendered me during my research, Mr. Amayo Robert the research coordinator.

Appreciation to my parents toto Christine, brothers Ben, Fred, Swaibu, Joshua who have been helpful to my life financially, physically, spiritually to see that I succeed in my studies.

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LIST OF ABBREVIATION

CRD	Completely Randomized Design
ANOVA	Analysis of variance
MaRCCI	Makerere Regional Center for Crop Improvement
ISTA	International Seed Testing Association
IITA	International Institute of Tropical Agriculture
FAO	Food and Agricultural Organization
BCE	Before Common Era or Before Current Era
AATF	African Agricultural Technology Foundation
DFID	Development for International Development
LSDs	Least Significant Differences
DMRT	Duncan Multiple Range Test

Abstract

Cowpea (*Vigna unguiculata*) is a multi-purpose indigenous crop that grows largely in the tropics of sub-Saharan Africa (SSA).

Cowpea is consumed either as a vegetable for the leaves, fresh pods, or grain. Cowpea is regarded as a cheap source of protein to poor resource farmers whose diet largely depends on starchy foods such as millet, sorghum, maize, cassava, and sweet potatoes making it a potential crop to contribute to the alleviation of malnutrition.

The use of environmentally friendly measures to control cowpea weevils (*Callosobruchus maculatus*), such as natural plant extracts is gaining interest.

The reason being that they are less costly and non-hazardous to human and environment. This study examined the efficacy of Aloe vera (*Aloe barbadensis miller*) and Papaya (*Carica papaya*) extracts on cowpea weevils during storage.

The experiment consisted of four treatments (Aloe vera leaf extract 10 g/100 g; (W/W), Papaya leaf extract (10 g/100 g; (W/W)), Actellic dust (*Pirimiphos-methyl+Permethrin*) (0.4 g/100 g) and the untreated control) and two varieties of cowpeas that is Narocowpea2 and Mual19-119. The experimental design was in 2 x 4 factorial design under Complete Randomized Design (CRD). Each treatment was replicated thrice. Data collected were weevil adult mortality, number of eggs, number of larvae, percentage grain damage, percentage weight loss and percentage germination and emergences.

Among the plant extracts the mortality was significantly high in both Narocowpea2 and Mual19-119 cowpea varieties more than 65% compared to the untreated control. The plant extracts in this study markedly reduced the number of eggs 15 and 17, larvae 53 and 94, grain damage 16.9% and 12.1%, emergence and weight loss in both varieties of cowpea during storage. The plant extracts significantly increased the germination percentage of both varieties of cowpeas compared untreated control. The findings of this study therefore suggest that both Aloe vera and Papaya leaf extracts can be an alternative to synthetic chemical insecticides in the control of adult cowpea weevils (*Callosobruchus maculatus*) during storage. Farmers should always use plant extracts for the control of cow pea weevils during storage as an alternative for synthetic pesticides.

Key words; Cowpea weevils, Narocowpea2, Mual19-119, Aloe vera, Papaya leaf extract, Mortality.

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