



Exploration and Analysis of the Commelina Biocide

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Introduction

Commelina biocide is the natural organic biocide extracted and obtained from commelina plants within two days to three days, which is effective for controlling stubborn pests and insects found in homes and farms or gardens.

This project is interesting to explore, extract and analyse the organo-biocide from the commelina plants effective for controlling various bothersome pests and insects in farms, gardens and home fields. The commelina plants provide biocide which effectively control Tutaabsoluta (tomato leaf miner), mosquitoes, cockroaches, moths, bedbugs, beetles, mites, caterpillars, mealybugs, aphids,

Therefore, this project will help to solve the problem of crop and vegetable losses in farms and gardens caused by damaging pests and insects among crop farmers, in order to promote sustainable crop farming and vegetable gardening which result into production and harvesting of quality and large quantity of crop harvests to meet the market and economic sense as well to ensure enough food availability which provide raw materials for manufacturing and processing industries in Tanzania.



Method

In this project, the methods used to explore and analyse the commelina biocide from the parental plants health is organic solvent extraction method and its application on pests and insects involved observation method.

In our project, the materials used to extract biocide and analyse its effectiveness are, commelina plants, mortar and pestle, 3 beakers, sprayer, knife, storage bottles, salts, water, filter funnel or filter paper, sample of insects including beetles, cockroaches, bedbugs, moths, Tutaabsoluta, caterpillars and aphids, box houses (experimental house and control house).



Figure 01: Photos showing the commelina plants.

Procedure

In our project, two houses were constructed using boxes, one being control house while another was an experimental house to verify the effectiveness of commelina biocide in controlling and killing insects and pests. After constructing two houses, one house was planted with the surrounding commelina plants (experimental house) while another had no commelina plants.

These two houses were taken to the bushy area where large number of mosquitoes were found, the house which had no commelina plants accumulated large number of mosquitoes and other flies, but the house planted with the commelina plants did not allow entry and accumulation of mosquitoes inside it, showing that commelina plants can act as the bio-repellent of insects in homes, apart from extracting its extract biocide solution.

In the house without commelina plants, the commelina biocide solution extracted was sprayed inside and eventually killed all mosquitoes and other insects inside the house indicating that commelina is more effective organic biocide.



Figure 02: Photos showing materials used in extraction of commelina biocide.



Figure 03: (a) A photo of house with commelina plants (b) A photo of house without commelina plants

Results

By assessing and analysing, the commelina biocide extracted from commelina plants that was sprayed to 10 beetles, 10 moths, 10 Tutaabsoluta, 10 caterpillars, 20 cockroaches and 20 bedbugs, eventually killed them effectively.

In our project, we also made investigation on mosquitoes as the case study for about five days, involving the house without commelina plants (control house) and house with commelina plants (experimental house), the effectiveness of the commelina biocide in killing the mosquitoes was analysed as in the table of results shown.

From the results and graphs above show that; the commelina biocide is more effective in controlling pests and insects both in homes, farms and gardens since it kills only targeted pest and insect species such as beetles, locusts, caterpillars, moths, aphid species and Tutaabsoluta in farms and gardens to ensure sustainable crop farming and gardening to farmers. This is evident in the house without commelina plants after spraying commelina biocide, many mosquitoes inside the house were killed by commelina biocide but in the house planted with the commelina plants, there were no mosquitoes inside showing that commelina plants repel insects even if you plant around the houses.

Not only commelina plants can repel insects in home fields, but also kill many targeted bothersome insects and pests in farms and vegetable gardens. In our project, we sprayed on the caterpillars, Tutaabsoluta, bedbugs, cockroaches, moths, beetles and aphid species and the biocide killed them effectively.

Conclusions

The findings and results from the sprayed commelina biocide to various pests and insects such as moths, cockroaches, mosquitoes, Tutaabsoluta and beetles confirm that, the commelina biocide is more effective in killing pests and insects, more affordable, accessible and safe for human being and environmentally friendly, kills many targeted species of insects and pests in gardens and farms, it can act as organic manure, it is easy to formulate, it is cheap and affordable, compared to chemical pesticides. So people should use it in promoting sustainable crop farming and vegetable gardening in Tanzania by producing high quality and quantity of crops and vegetables, it also enables the crop farmers and vegetable gardeners to send their crops and vegetables to the markets with high economic sense and commelina biocide enables the producers to have self-employment and economic gain when selling it to crop farmers and gardeners..

Acknowledgments

We would like to extend our special gratitude of thanks and sincere appreciation to the school administration and staff members of Nganza Girls Secondary School especially the school Headmistress Madam Mageni Julius Misambo for the support in the course of this project.

We are also grateful to Mr. Peter Miligwa Mathias, a young scientist project mentoring teacher for his great supervision, constructive criticism and willingness in preparation and accomplishing this project. Much thanks should also go to Dr. Never Mwambela Zekeya, the Lecturer from College of African Wildlife Management- Mweka, for her great assistance in our project.

TABLE OF RESULTS
The table of results showing number of mosquitoes in house without and house with commelina plants.

Number of days	Number of mosquitoes in house without commelina plants	Number of mosquitoes in house with commelina plants
Day 1	40	00
Day 2	54	00
Day 3	60	00
Day 4	70	00
Day 5	82	00

GRAPH SHOWING NUMBER OF MOSQUITOES IN HOUSE WITHOUT COMMELINA PLANTS

