



Analysis and Investigation of Utupa as a Natural Pesticide



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Introduction

Utupa is a natural plant that grows in both dry and semi arid areas. Morphologically utupa has broad leaves, tap rooted system and bears fruits similar to bean fruits. In some areas of Tanzania such as Rukwa utupa is used by indigenous people as a natural medicine for fishing activities. It cause irritation and allergic conditions in fish. The aim of this project was to investigate and analyze Utupa as a natural pesticide. Pests in crops is a big issue and challenge to many farmers in Tanzania. The use utupa when applied effectively on crops will overcome this problem hence encourage and increase crop production. The project was done in Kalambo district of Rukwa region at a botanical garden of Matai secondary school. The idea of conducting this project arose due the fact that utupa is cheap and easy to afford compared to industrial made pesticides. The industrial made pesticides are effective to plants, however they are too expensive and requires knowledge in its application therefore it was worth to think a cheap and effective solution to combat pest problems to raise and improve crop production..



Method

The methods used in the project were both experimental and observation. In this activity, the beans sown in school botanical garden were left for three weeks. After germination, some bean seedlings were attacked by bean aphids the pests that destroy bean leaves. The garden was then divided into two portions namely A and B. Utupa was only sprayed in portion B to investigate the results after collecting data for two weeks.

The distribution and arrangement of bean seeds is explained as follows, 250 bean seeds were sown in a farm specified as botanical garden. The beans were sown in 10 different lines and each line contained 25 seeds. The garden was then divided into two portions namely A and B. Portion 'A' contained 4 lines or 100 seeds while portion B contained 6 lined or 150 seeds. This can be summarized as follows

Portion A	Portion B
Line1.....	Line5.....
Line2.....	Line6.....
Line3.....	Line7.....
Line4.....	Line8.....
	Line9.....
	Line10.....
Portion A was used as a control experiment.	Portion B was manipulated to observe the changes.

Procedure

After one week, all seeds were germinated to become seedlings and about the 2nd week bean aphids affected the seedlings. The utupa was applied in portion B to compare the results with portion A.

Utupa pesticide was prepared and sprayed to the affected seedlings in portion B only (line 5, 6, 7, 8,9, 10) to the affected seedlings and analyze its effectiveness.

Materials required to prepare utupa

The following materials were used to prepare this natural utupa.

- Knife
- Pestle and mortal
- 500g leaves of Utupa plants
- 100g of fruits of utupa plants
- Water 500cm³
- Sprayer (15L)
- Beaker 1000mls

Results

During five days data recording the results were summarized in tabular form below.

From the result above it shows that the number. of seedlings affected with bean aphids was high before applying utupa. After applying utupa at each line, the affected beans decreased successively from day 1 to day 5. The above results can be represented in graphical form shown below

Days/Lines	Affected	Unaffected	Total
1	18	7	25
2	7	18	25
3	5	20	25
4	4	21	25
5	1	24	25
6	0	25	25

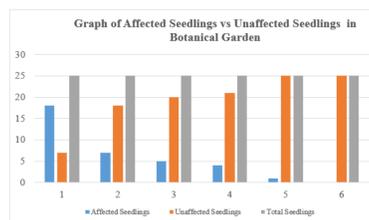


Fig. Graph of affected seedlings vs unaffected seedlings in Botanical Garden

The following procedures were followed in preparing a natural pesticide juice from Utupa plant.

- The knife was used to obtain leaves and fruits from utupa plant
- The fruits and leaves were cut into small pieces and mixed together.
- The contents were put in a mortar containing 100 ml of water to be soaked.
- After 30 minutes, the contents were ground using a pestle. Little water was added while grinding until a thin paste was obtained.
- The contents were squeezed well using two wooden pads until a juice was obtained.
- The juice was filtered well into a beaker then transferred to a storage bottle.
- Using measuring cylinder 100mls of utupa juice was measured and put into sprayer containing 3L of water. More water was added until it reached 5 L mark. This juice was applied in all affected seedlings of portion B (Line 5-10) while portion A (Line 1-4) was kept constant. After spraying the observation were recorded for five days.

Conclusions

From the result above it shows that the number. of seedlings affected with bean aphids was high before applying utupa. This number decreased progressively until no pests seen at the end of the experiment.

Limitation Of The Findings.

The following were the limitation of findings during this project.1.Temperaturevariations,the proportion of utupa juice compared to amount of water as well as keenness during application of pesticide.

As it is shown on the trends of above graph utupa is a good pesticide when is well applied to plants. This pesticide is cheap to prepare, less cost full and easily available to our environment. When well applied it kills pests hence solve the problem facing farmers of poor crop production due to presence of pests.

Acknowledgments

The team participated in preparing this book represents numerous efforts to dedicated people. We particularly wish special thanks for the following people on their contributions, Noah Asangalwisy, our mentoring teacher at Matai secondary school who worked hand in hand with us on the process of writing and conducting the research. On other hand, we wish special thanks to YSt Team for running the program which help us to build new knowledge then come up with solutions to various problems in our society.