



Short Communication

The Effect of *Azadirachta Indica* (Neem) Leaf Extract on Longevity of Snails (*Achatina achatina*)

Ufele A.N., Nnajidenma U.P., Ebenebe C.I., Mogbo T.C., Aziagba B.O. and Akunne C.E.
Nnamdi Azikiwe University Awka, Anambra State, NIGERIA

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Abstract

The research was interested in finding out if the neem leaves can serve as a molluscicide. In this experiment 240 *Achatina achatina* were used. Twenty snails were randomly selected and placed in each green house representing a treatment. There were four groups. Group 1 served as control without any neem leaf. Group 2 received 100% of the neem leaves extract. Group 3 received 70% of the extract while the group 4 received 50% of the extract. The extraction of the neem leaves was done using alcohol as extracting reagents using cold maceration method of extraction. The experiment lasted for eight days and replicated three times. The result obtained was subjected to analysis of variance (ANOVA) at $P < 0.05$. There was significant difference $P < 0.05$ in the longevity of the snails in different treatments. This indicates that the neem leaves are molluscicides.

Keywords: *Azadirachta Indica*, *Achatina achatina*, longevity.

Introduction

Snails farming is one of the most lucrative and prolific farming in recent times. This has raised the interest of improving the culturing and rearing of snails within Nigeria to increase protein intake through eating snail meat. Snails are herbivores but not all vegetative sites are suitable for the rearing of snails even though snails thrive well in vegetative environment as herbivores¹. There are some herbs or vegetations which could have adverse effect on the rearing of snails². In some countries like U.S.A where snails are been considered as pests, they grow these vegetations or herbs that will help to eradicate the pest without pollution of the environment³. In Nigeria, where snails are considered as food, these vegetations or herbs that have adverse effect on the snails should be avoided.

Neem tree, *Azadirachta Indica* is a native of India. It has pesticidal and medicinal properties⁴. Neem tree is acknowledged to be the most effective and environmental friendly source of pest inhibitors⁵. The main active ingredient of Neem is Azadirachtin, a tetranotriterpenoid⁶. Neem tree products are used in many medicinal and agricultural purposes. It is largely relied on for herbal medicine in its ingrained countries and is used in many pharmaceutical and cosmetic products as well as pest control in homes⁷. A paste made from the leaves has been found to an efficacious treatment for skin injuries. Small parts of leaves assorted with regular feed seem to affect intestinal parasites in livestock⁷.

Material and Methods

Extraction of Neem Leaves: The method of extraction used was the Cold Maceration Method. The dried leaves were

blended into powder and one liter of ethanol was used as extracting reagent. Homogeneity of the mixture was ensured by stirring the mixture at intervals and the mixture was allowed to stay for 3 days for maximum extraction before filtration was done. The filtrate was heated in a round bottom flask balanced on a hot water bath, this made the extract concentrated.

Treatment of Snails with Extracts: Four green houses were made for the treatments into which twenty *A. achatina* were placed in each house. The floor of green house 1, contained 4kg of heated and cooled soil without any extract. The floor of green house 2 contained 4kg of heated and cooled soil with 100ml of 100% extract. The floor of green house 3 contained 4kg of heated and cooled soil with 100ml of 70% of the extract while green house 4 contained 4kg of heated and cooled soil with 100ml of 50% of the extract.

The data obtained were subjected to Analysis of Variance (ANOVA) and the means for the various treatments were compared for significant differences ($P < 0.05$) using SPSS software package⁸.

Results and Discussion

Using table 1, it was observed that there was significant difference ($P < 0.05$) in all the snails in different treatments. Figure 1 shows that snails in the green house 1 (control) did not die, they had the highest longevity followed by those in green house 4 which were treated with 50% extract. Snails in green house 2, that is those treated with 100% extract had the lowest longevity followed by those in green house 3, that is those treated with 70% extract. This shows that neem leaves act as molluscicides.

From the results obtained it was observed that neem leaves are molluscicides at high concentrations. The effect of neem leaf extract on snails *A. achatina* as shown in the result indicated that the leaves had poisonous elements that can destroy the systems of the snails despite that Akinusi¹ stated that immune system of snails are strong. The above result supports that there

are some herbs or vegetations which could have adverse effect on the rearing of snails as stated by Amusan and Omidiji². It has pesticidal and medicinal properties⁴. The result obtained coincides with Anon⁵, research who stated that neem tree is acknowledged to be the most effective and environmental friendly source of pest inhibitors.

Table-1
ANOVA of longevity of snails treated with different concentrations of neem extract

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
control	Between Groups	.000	8	.000	.	.
	Within Groups	.000	18	.000		
	Total	.000	26			
100% extract	Between Groups	1056.000	8	132.000	1188.000	.000
	Within Groups	2.000	18	.111		
	Total	1058.000	26			
70% extract	Between Groups	1260.519	8	157.565	54.542	.000
	Within Groups	52.000	18	2.889		
	Total	1312.519	26			
50% extract	Between Groups	708.667	8	88.583	72.477	.000
	Within Groups	22.000	18	1.222		
	Total	730.667	26			

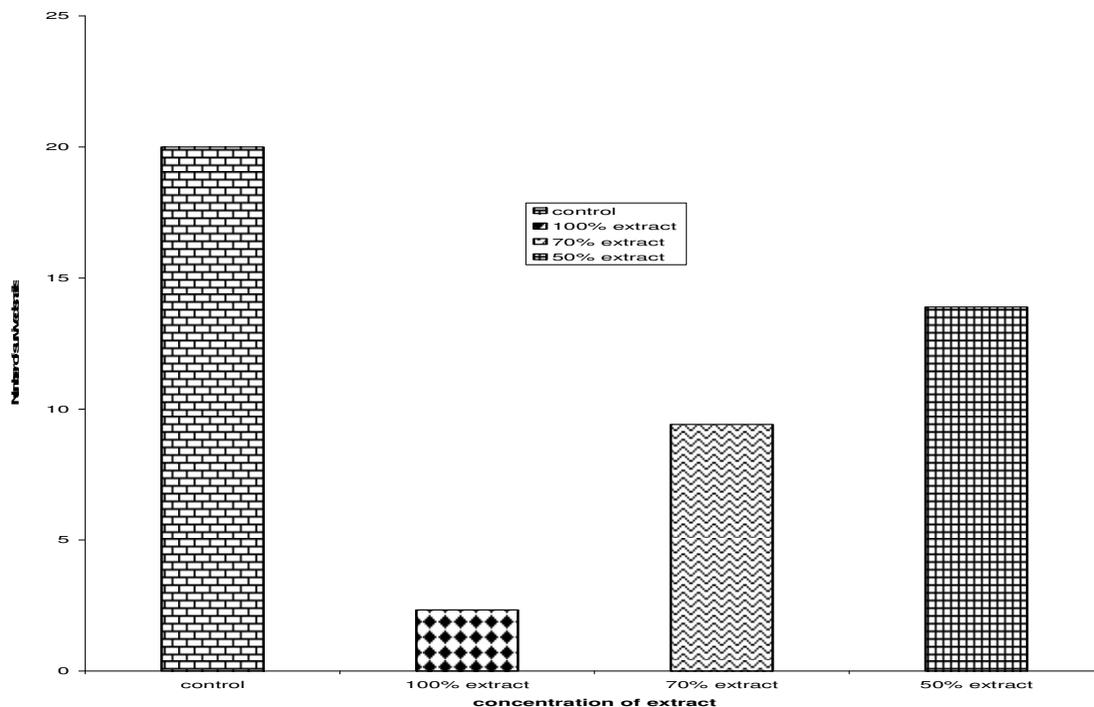


Figure-1
Longevity Mean

Conclusion

Using the above result one can say that in some Countries where the snails are seen as pest, they can use neem leaves to control them. But in Nigeria where snails are source of protein, neem plants should not be planted close to snail farm or use as bedding.

References

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