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The Potential Of Oviposition Of *Paederus Fuscipes* With The Treatment Of *Calotropis procera* Leaf Powder.

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ABSTRACT

Powdered leaves of *Calotropis procera* were assesed for ovicidal activity in *Paederus fuscipes.* Present study is revealing oviposition of *P. fuscipes* with the various treatment of *Trogoderma granarium* under laboratory condition. The observations are, daily egg laying capacity in adult of *P. fuscipes* (fed with normal diet) start on the 4th day (4.66 eggs per female) after emmergence as adult. The average number of eggs laid per female on 16th day was 51.97 i.e., 100%, where as in *T. granarium* sprinkled with *C. procera* leaf powder given to *P. fuscipes* is 31.98 i.e., 61.5% and the *T. granarium* which fed throughout the life with 2% *C. procera* leaf powder mixed with refined wheat flour fed by *P. fuscipes* is 13.98 i.e., 26.9%. The observations revealed the adverse effect on reproductive physiology of the beetle, resulting into the significant inhibition oviposition of *Paederus fuscipes*.

Keywords: *Paederus fuscipes,* Oviposition and *Calotropis procera*.

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INTRODUCTION

Paederus fuscipes (Staphyilinidae), commonly known as "Rove beetle" is one of the largest groups of beetles with a number of species distributed throughout the worldwide [1]. Adult *P. fuscipes* are attracted to incandescent and fluorescent light at night [2,3]. This species contains vesicating fluids [4]. *P. fuscipes* is also well known for causing dermatitis in humans. The toxic haemolymph of the beetle is known as paederin, causes necrotic blisters when the insect is crushed on human skin. It is found in cropped areas preferably in maize, berseen and rice fields. Although it is widely occured but very less awareness is noticed about its biological and ecological system. It is also useful insect in agricultural fields being a major polyphagous predator of several agricultural pests [5]. Due to its predatory and medicinal importance, the life-cycle of *P. fuscipes* was studied by many researchers under laboratory conditions.

MATERIAL AND METHODS

POWDER PROCEDURE

Fresh leaves of *Calotropis procera* were collected from its natural habitat. The collected leaves were washed and shade dried. After 10-15 days, the dried leaves were ground to fine powder and kept in air tight containers for further use.

BIOASSAY

The individuals of *P. fuscipes* were reared in the laboratory at 30 ± 2^0C and 70 ± 5% RH in BOD incubator. Initially, the desired number of eggs were collected by allowing the untreated adults of both sexes of similar age-groups to lay eggs. Then sifting the eggs in the batches of 10 eggs (n=3) separately in beakers covered with muslin cloth containing various dietary formulations (case -1: *Trogoderma granarium* sprinkle with *C. procera* leaf powder and case- 2: *T. granarium* which fed throughout the life with 2% *C. procera* leaf powder mixed with refined wheat flour) and control with normal diets.

The oviposition of untreated and treated *P. fuscipes* (case -1 and case- 2) from the 4^{th} day onwards and continue till 16^{th} days. The eggs laid by different sets (case -1 and case- 2) were collected and counted to obtain the average number of eggs laid by a single female from every 2^{nd} day upto 16^{th} day [6,7]. The statistical analysis was done by SPS package following the methods [8].

RESULTS AND DISCUSSION

The daily egg laying capacity in untreated adults of *Paederus fuscipes* was observed on 4th day after its emergence (Table-1). On the subsequent ; 4^{th} , 6^{th} , 8^{th} , 10^{th} , 12^{th}, 14^{th} and 16^{th} days, the number of eggs laied by the females was recorded as 4.6, 6.3, 8.3, 10.6, 9.0, 7.6, and 5.3, respectively. *P. fuscipes* were feed on *T. granarium* (sprinkle with *C. procera* leaf powder) has shown change in their egg laying pattern: i.e., on 4^{th} , 6^{th} , 8^{th} , 10^{th} , 12^{th}, 14^{th} and 16^{th} days, the number of eggs laid by the females was reduced as 4.0, 5.3, 6.6, 5.0, 5.3, 3.3, and 2.3, respectively. However, the significantly number of eggs was observed in *P. fuscipes* which feed on *T. granarium,*(feeded with 2% *C. procera* leaf powder mixed with refined wheat flour throughout the life), from 4^{th} , 6^{th} , 8^{th} , 10^{th} , 12^{th}, 14^{th} and 16^{th} days, the eggs laid by the females were reduced as 4.3, 3.6, 3, 2.3, 0.6, and no egg laying on 14^{th} and 16^{th} day. It is clear from the above observation that *C. procera* leaf powder as a dietary component reduces the egg laying capacity of *P. fuscipes.* The results indicate that daily egg laying capacity in adult of *P. fuscipes* (fed with normal diet) start on the 4^{th} day (4.66 eggs per female) after emmergence as adult. The average number of eggs laid per female on 16^{th} day was 51.97 i.e., 100%, where as in *T. granarium* sprinkled with *C. procera* leaf powder given to *P. fuscipes* is 31.98 i.e., 61.5% and the *T. granarium* which fed throughout the life with 2% *C. procera* leaf powder mixed with refined wheat flour fed by *P. fuscipes* is 13.98 i.e., 26.9%. there might be some active principle in *C. procera* leaf powder that interact with the reproductive physiology of the beetle resulting in to the less production of viable eggs. Few researcher have observed its adverse effect on the developmant of *C.gelidus* and *C.tritaeniorhynchus*. In the present study *C. procera* leaf powder reduced the fecundity of *P. fuscipes* [9].

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Table -1 : The daily egg laying capacity (Mean ± SE) of *Paederus fuscipes* feeding on *Trogoderma granarium* untreated and treated.

Number of days	Untreated	Treated		Critical Difference at	
	P. fuscipes feed on *T. granarium* (Control)	*P. fuscipes reared* on *T. granarium* sprinkle *with C. procera* leaf powder (Mean ±SE)	*P. fuscipes reared* on *T. granarium* feed throughout the life with *2% C. procera* leaf powder mixed with refined wheat flour (Mean ±SE)	0.01 Level	0.05 Level
2	-	-	-	-	-
4	04.66 ± 0.333	04.00 ± 0.577	04.33 ± 0.333	2.25	1.49
6	06.33 ± 0.333	05.33 ± 0.333	03.66** ±0.333	1.74	1.15
8	08.33 ± 0.881	06.66 ± 0.333	03.00** ± 0.577	3.34	2.21
10	10.66 ±0.666	05.00** ± 0.577	02.33** ± 0.333	2.85	1.88
12	09.00 ± 0.577	05.33** ± 0.881	00.66** ± 0.333	2.25	1.48
14	07.66 ± 0.333	03.33** ± 0.666	-	2.25	1.40
16	05.33 ± 0.881	02.33** ± 0.333	-	1.42	0.94
Total	51.97	31.98	13.98		
Percentage (%)	100	61.53	26.90		

Significant at *P /_ 0.05; **P /_ 0.01

CONCLUSION

On comparision with control it was observed that the daily eggmass prduction of *P. fuscipes* reduced significantly with different methods of treatment with *T. granarium*, the results has emerged as a search of new pestisides and insecticides. This is an ecofriendly, easily approachable method for the control of serious polyphagous pest.

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