

EFFECT OF FOOD ATTRACTANTS ON COCONUT RED PALM WEEVIL, *RHYNCHOPHUS FERRUGINEUS* OLIVER

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ABSTRACT

The efficacy of different food attractant combinations were studied against coconut redpalm weevil, *Rhynchophorus ferrugineus* Oliver. More population of weevils get attracted towards logs treated with tender coconut water + castor cake than tender coconut water alone upto 8th week and a high response noticed till 4th week. In both the field trials food attractants added with castor cake shown better attraction of weevils. When castor cake added with tender coconut water and coconut toddy captured more adult insects.

INTRODUCTION

The redpalm weevil, *Rhynchophorus ferrugineus* Oliver is an important pest of coconut, causes severe damage to coconut plantation. About 11.65% palm trees are affected by redpalm weevil in our country (Shekar, 2000). The symptoms of the infestation can be observed in early stages on leaves which become yellow where wilting starts from inner whorls. In stem, circular holes can be seen with oozing of brownish black viscous fluid. The petiole get splitted longitudinally and foul odour emitted from the affected trees. Use of food attractant as physical method for the management of redpalm weevil is a approachable concept. In the present study different food attractants were used to trap the redpalm weevil and their efficacy was evaluated in field condition.

MATERIAL AND METHODS

The experiment was taken up at two different locations, one at Siramaanam village (Trial I) and another at Pechiparai (Trial II) of Kanyakumari district, Tamil Nadu during September 2001 - 2002, where the incidence of redpalm weevil is high in that area for the past two years. The coconut palms were planted at 10 x 10 m and were nearly 6 years old T x D type. Coconut logs of 50cm length were longitudinally split up and cut surfaces

soaked uniformly with different treatments. The treatments comprised of the food attractant composition along with 5% yeast. The treatments viz., tender coconut water (1 lit), palmyrah fruit pulp (1 lit), pineapple fruit pulp (1 lit), coconut toddy (1 lit), palmyrah toddy (1 lit), coconut toddy + castor cake (25g), palmyrah toddy + castor cake (25g) and tender coconut water + castor cake (25g). The split halves were kept one above the other and placed near the coconut trees. Each treatment has ten palms as replication. The number of adult weevil attracted to the food was observed daily in the morning hours and they were changed afresh periodically at weekly intervals. The observation taken at two locations were pooled. The observations were taken up continuously for ten weeks. The data on number of beetles attracted in everyweek was statistically analysed in randomized block design.

RESULTS AND DISCUSSION

The mean population in ten weeks showed a significant variation among the treatments (Table 1). In the first trial maximum adult weevils were recorded on the logs treated with tender coconut water (3.15/day) followed by tender coconut water + castor cake (3.01/day). But in the second trial maximum weevils were attracted towards tender coconut water + castor cake (4.33/day) followed by coconut

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Table 1. Mean population of adult redpalm weevil attracted in ten weeks

S. No.	Treatments	Trial I (No./day)	Trial II (No./day)	Mean
1.	Tender coconut water	3.15 (1.77)	1.62 (1.25)	2.38
2.	Palmyrah fruit pulp	0.81 (0.92)	0.76 (0.86)	0.78
3.	Pineapple fruit pulp	1.12 (1.06)	0.78 (0.89)	0.95
4.	Coconut toddy	0.72 (0.85)	1.15 (1.08)	0.94
5.	Palmyrah toddy	0.93 (0.94)	1.26 (1.13)	1.09
6.	Coconut toddy + castor cake	2.42 (1.55)	3.02 (1.74)	2.72
7.	Palmyrah toddy + castor cake	1.01 (0.99)	1.46 (1.19)	1.23
8.	Tender coconut water + castor cake	3.01 (1.72)	4.33 (2.07)	3.67
	CD (P=0.05)	0.193	0.078	-
	S.E.	0.089	0.036	-

Values in parentheses are square root transformed.

Table 2. Population of adult redpalm weevil (mean of two trials)

Treatments	I Week	II	III	IV	V	VI	VII	VIII	IX	X
T ₁	3.81 (1.95)	3.79 (1.94)	3.51 (1.86)	3.54 (1.87)	2.47 (1.57)	2.34 (1.52)	1.64 (1.28)	1.56 (1.25)	0.61	0.58
T ₂	1.13 (1.06)	1.13 (1.06)	0.86 (0.93)	0.97 (0.99)	0.79 (0.87)	1.04 (1.02)	0.79 (0.88)	0.26 (0.51)	0.51	0.37
T ₃	1.28 (1.13)	1.04 (1.02)	1.54 (1.24)	1.12 (1.06)	1.17 (1.08)	0.84 (0.90)	0.79 (0.87)	0.53 (0.71)	0.60	0.61
T ₄	1.52 (1.23)	1.04 (1.01)	0.78 (0.88)	1.67 (1.28)	1.11 (1.05)	1.11 (1.05)	0.58 (0.76)	0.54 (0.72)	0.47	0.51
T ₅	1.28 (1.13)	1.68 (1.28)	1.40 (1.17)	1.42 (1.18)	1.46 (1.21)	1.13 (1.06)	0.83 (0.92)	0.79 (0.87)	0.48	0.46
T ₆	4.35 (2.07)	4.36 (2.07)	4.31 (2.06)	4.11 (2.03)	2.56 (1.59)	2.87 (1.69)	1.81 (1.33)	1.54 (1.23)	0.73	0.53
T ₇	2.08 (1.43)	1.54 (1.24)	1.97 (1.41)	1.37 (1.17)	1.33 (1.15)	1.54 (1.23)	0.79 (0.89)	0.95 (0.96)	0.49	0.26
T ₈	6.04 (2.44)	5.78 (2.41)	6.14 (2.46)	5.35 (2.31)	3.61 (1.89)	4.31 (2.06)	2.24 (1.48)	2.14 (1.46)	0.55	0.54
CD (P=0.05)	0.125	0.038	0.073	0.045	0.046	0.048	0.054	0.047	NS	NS
S.E.	0.061	0.018	0.036	0.022	0.022	0.024	0.026	0.023	0.026	0.029

Values in parentheses are square root transformed.

toddy + castor cake (3.02). In both the trials logs treated with coconut toddy + castor cake attracted more weevils compared to logs treated with coconut toddy alone (0.72 and 1.15/day). The mean data on two trials showed that when castor cake added with tender

coconut water attracted maximum population (3.67/day) of adults followed by coconut toddy (2.72/day). The tender coconut water treated logs also showed a considerable population (2.39/day). Rajan and Nair (1997) reported that trapping of adult weevil more in fresh toddy

treated with yeast. In the present study when the same treatment added with castor cake showed additive effect and trapped more adult weevils.

The weekly adult population of redpalm weevil attracted showed a significant difference among the treatments except 9th and 10th week (Table 2). The weevil population was more upto 4th week on all the treatments, though the treatments afreshed at weekly intervals. The weevil population may declined over that period of time. There is gradual reduction of population in all the treatment during the later period. However, in tender coconut water + castor cake treated logs trapped 2.14 adults/day at 8th week. The food attractants can be utilised well in the pest monitoring strategy of redpalm weevil. When appropriate toxicant added to the food baits the same can be exploited for the management. Kurian *et al.* (1979) reported redpalm weevil has been managed by adopting IPM strategy comprising several components, including

trapping of the adult weevils with food attractants. The food baits can also be utilised along with pheromone or insecticides. While the food baits acts synergistically with the pheromone to increase the overall weevil attracting capacity of the trap (Hallett *et al.*, 1999), the insecticide solution immobilizes and kills the weevil that entered the trap (Oehlschlager *et al.*, 1993). Abraham *et al.* (1989) also reported that trapping the floating population of weevils using coconut logs treated with fermented toddy is one of the best cultural method for the weevil management. Adoption of the method in IPM package has yielded encouraging results in the farmers garden.

In the study among the food attractants tested the tender coconut water based combinations attract more adult weevils. Moreover when castor cake added to the components increased the trapping efficiency. This can be useful in IPM component for the management of redpalm weevil.

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