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Toxicity of Flocoumafen and Zinc Phosphide against Field Rodents

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Abstract Toxicity test was carried out to study the efficacy of acute and chronic rodenticide viz zinc phosphide (2%) and flocoumafen (0.005%) against the field rodents. The post treatment control success due to flocoumafen is 70.28, 75.42, 86.64, 92.62% on 2nd, 4th, 6th and 8th day respectively, as compared to acute rodenticide it comes 60.48, 64.22, 72.46, 80.32% and the results reveals that both the rodenticides can be used for the pestiferous species. The mortality data indicate flocoumafen proved excellent and rapid control success with no primary and secondary hazards. Major rodent species identified were *Tatera indica*, *Meriones hurrianae* and *Rattus meltada*.

Keywords Anticoagulant, Efficacy, Rodenticide, Chronic, Toxicity.

Introduction

Rodents are the only pests which damage the standing crops and household commodities which is of economic significance, they play vital negative role in agriculture and health problems (Rao 2010). They are prolific breeders and high degree of adaptability have created innumerable problems to the farmers (Sridhara and Sivayya 2008). Looking to the heavy loss caused by them. It is essential to control and reduce their ever increasing number (Tripathi 2007). Toxicity to the second generation anticoagulant to the field and domestic rodents reported by Saxena (1996). Several method have been used for the control of rodents but the damage caused by them to a wide variety of human interest to control through the rodenticide is most expedient and feasible (Saxena et al. 1999). Hence the present investigation was undertaken.

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Materials and Methods

The field trial was conducted at a village Muhana 22 km from Jaipur during the month of December-January 2011-12. Treatment was carried out in 6 different plots of approximately 4 ha each. The predominant species of rodents infesting the area were *Merianes hurrianae*, *Tetera indica* and *Rattus meltada*.

The pretreatment level of rodent infestation was estimated by adopting the burrow count method (Barnett and Prakash 1975, Rao 1977). The burrows were located, checked for occupancy and plugged with wet soil and lime in experimental plots. The reopened burrow on the next day were treated with 20 g of poision baits (2% zinc phosphide) and other 3 plots with (0.005% flocoumafen) being placed deep inside the burrows. After treatment burrows were closed and marked. The experimental plots were kept under strict vigil. The efficacy of rodenticide was evaluated on the basis of burrows reduction recorded up to 8 days.

Results and Discussion

The result of the investigation are summarized in Table 1. There was a uniform progressive burrow control was achieved by both the rodenticide, it takes an average of 2 to 8 days to kill the rat population.

Flocoumafen is highly potent single feed 2nd generation anticoagulant rodenticide with good

Table 1. Comparative efficacy of acute and chronic rodenticide against field rodents.

Rodenticide conc	Pre-treatment live burrow count	Percent reduction in live burrows (Days after treatment) 2nd	4th	6th	8th
Zinc phosphide (2%)	484	60.48	64.22	72.46	80.32
Flocoumafen (0.005%)	462	70.28	75.42	86.64	92.62

palatability. It further indicates high potentiality of the compound i.e. 0.005% of flocoumafen as compared to 2% zinc phosphide. The acceptance and effectiveness of the rodenticide further support the findings of Singla and Prashad (2010). There was no significant difference in the percent control on 2nd and 4th day when treated with both the rodenticide, but a significant difference was observed on 6th and 8th day of poisoning. Flocoumafengave 86.64 and 92.62% control success, while zinc phosphide gave only 72.46 and 80.32% control success on the 6th and 8th day of treatment. These findings are further supported by Saxena et al. (1993) and Saxena (1996). From the above findings it may be concluded that both the rodenticide can be used to minimize the rodent infestation but flocoumafen undoubtedly proved its superiority over zinc phosphide as it does not cause bait shyness and very less mean ingredients is required to achieve the complete kill.

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