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Laboratory evaluation of Vacor (RH-787)-A new selective rodenticide against squirrel, *Funambulus pennanti*

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Laboratory trials were conducted for evaluating the effectiveness of Vacor (RH-787) (N-3-pyridylmethyl-N-P'-nitrophenyl urea) against *Funambulus pennanti*. Starved squirrels were fed with poisoned bait containing Vacor at different concentrations viz, 0.25, 0.5, 0.75, 1.0, 1.5 and 2.0 per cent for 24 hours. It was observed that Vacor at 0.25, 0.5 and 0.75 per cent concentration did not give any mortality even up to one week, due to the low intake of poison bait i.e. 4.2, 2.5 and 4 gm/100 gm squirrel, containing Vacor 105, 125 and 300 mg/kg. body weight respectively. However, other concentrations i. e. 1.0, 1.5 and 2.0 per cent gave cent per cent mortality in squirrels within 24 hrs. The average poison bait intake/100 gm squirrel

was 11.0, 8.5 and 7.65 gm containing Vacor 1023.25, 1375.0 and 1528.8 mg/kg body weight at 1.0, 1.5 and 2.0 per cent concentrations respectively.

It is interesting to note that the average mg/kg poison required for killing black rat (*Rattus rattus*) is 70.0, 102.80 and 122.30 at 0.25, 0.5 and 1.0 per cent concentration of vacor respectively while the lethal dose (mg/kg) required for squirrels is about fifteen times more than rats.

Poisoning symptoms were first noticed after 2-3 hours and involved noticeable reduction in general activity of the squirrel with partial paralysis of & the hindlegs. Acceptability of Vacor was found to be more with increasing the concentration in the bait.

Comparison of poison aversion behavior in *Bandicota bengalensis* and *Tatera indica*

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After being exposed to sub lethal quantities of zinc phosphide in cereal bait, both *B. bengalensis* and *T. indica* developed bait shyness. Further tests were carried out to see if bait shyness extended to all the constituents of original bait.

If animals are given the same bait but containing sublethal quantities of RH-787 instead of zinc phosphide, it was totally rejected by both the species indicating aversion towards bait even though a different poison was used.

Next, the cereal in the bait was replaced, retaining the oil of original bait. The new bait was avoided on the first two days. Obviously bait shyness extends to the oil component of the bait too.

In the third set of experiment retaining the original cereal and adding a new oil, the bait acceptancy was studied. It's rejection suggests

Vacor (RH-787) - An effective rodenticide against field rats

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In a test series of screening rodenticides under the Pilot Project on "Destruction of Field rats in U.P.", only a single dose of vacor (N-3-pyridylmethyl N'-p-nitro phenyl Urea), containing the following ingredients, was tested as bait against the Indian mole rat (*Bandicota bengalensis*) and the Indian gerbil (*Tatera indica*).

1. Maize flour — 68-70%,
2. Wheat flour — 22%,
3. Gram flour — 6%,
4. Powdered common salt — 1%,
5. Mustard oil — 1%, and
6. Vacor (RH-787) — 0.5-2%.

The observations revealed that at the concentration of 1% and

bait shyness towards the cereal component.

However, the ready consumption of a new bait mixed with sublethal quantities of RH-787 indicates that it is possible to overcome baitshyness in lesser bandicoots and gerbils by changing both poison and bait.

In all the experiments an alternate food was always available to the experimental animals.

above, the mortality ranged from 88 to 100 per cent in both the species of rodents tested. However, *T. indica* appeared to be more susceptible than *B. bengalensis* as the former died comparatively in shorter time than the latter.

A preliminary trial conducted at a field scale demonstrates that the bait shyness as shown in case of zinc phosphide, does not appear to be present in vacor as the rodent continued to feed throughout the course of investigation. But in contrast to zinc phosphide, vacor acts relatively slowly and rodents die after several hours of feeding.

Food hoarding behaviour of *Bandicota bengalensis* and *Tatera indica*

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Since quantitative data on hoarding behavior of rodents is of significance in assessing grain losses due to rodents, experiments were conducted on some aspects of this behaviour in lesser bandicoots and a gerbil. Amongst cereals only maize was stored, while the preferential order of pulse hoarding was ground nut > cow pea > green gram in both the species. Female *B. bengalensis* hoarded more pulses than cereals, the gerbils did not exhibit any such sexual dimorphism. While larger

grains and whole pellets were preferentially hoarded by lesser bandicoots, the gerbil preferred to hoard only larger grains with pellet size having no effect on hoarding. Presence of nesting material decreased hoarding tendency except in female gerbils whereas, food deprivation elicited higher hoarding in males of both the species. *B. bengalensis* hoarded more grains and pellets than the amount consumed whereas, *T. indica* hoarded more pellets.

Rodent control week in India during May 1978

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To create an awareness that Rodents are No. 1 enemies of our society, 17 Save Grain Campaign teams have organised a National Rodent Control Week during May 1978 in different parts of the country. The Rodent Control week was launched in 217 villages situated in 48 districts throughout the country. These demonstrations were given in 33,149 farmer houses in which 1,39,014 rats were

killed. In the vicinity of villages farmers were given 1,48,846 demonstrations of rat burrow fumigations in the field. Farmers were also taught how to make rodent proof houses. The programme was given a wide publicity in news papers so that an awareness is created. 89 press reports appeared in news papers in different languages. The programme was given a wide coverage on radio and 57 talks on rodent

control were delivered from different stations of All India Radio, Krishak Charcha, Group discussion with farmers, short term training of rodent control, Film shows, slide shows and 41 exhibitions were organised to

Bandicota bengalensis in Bikaner Town

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We have been trapping Indian gerbils, *Tatera indica indica* from Bikaner for the last 27 years where they are found abundantly in the main streets of the town. When the house rats, *Rattus rattus rufescens* venture out of the residential premises they are usually killed by the gerbils or are chased away. With the colonising of the town streets by *T. indica*, the number of house rats has considerably reduced during the last two and a half decades.

Recently another 'colonising' rodent, the indian mole rat *Bandicota bengalensis* has been collected from a small site in the *anaj mandi* (Foodgrain bazar). It is living in the same ecological niche as that of *T. indica*. It is interesting to watch at night both the rather aggressive species foraging together in Bikaner streets oblivious of the passerby men, dogs and livestock.

demonstrate the role of rodents and how to control them. Slogans were stencilled on the walls of the farmer houses and booklets were distributed to the farmers on rodent control.

With our trapping record spread over the last 27 years in Bikaner town, we are definite that *B. bengalensis* did not occur there and, therefore, it appears that it has been recently introduced through trucks/railway along with foodgrain bags from Sri Ganganagar district from where most of the cereals are transported to Bikaner for local consumption.

It is surmised that the introduction of *B. bengalensis* is an alarming as well as a dangerous event considering that they have replaced *R. rattus* in Howrah and Bombay since the turn of the Century and that they are more destructive than house rats. The recent report of the occurrence of *B. bengalensis* in the northern parts of Sirohi district further indicates that a smaller race is expanding its range into the desert region also.

Rodent control programme at farm level in U.P.

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A Rodent Control Programme was launched in eight villages in Fatahpur Sikri and Achnera Blocks of Agra District, from 4-2-1979 to 8-2-1979. Seven "krishak charchas" were arranged, three small training courses on rodent control for farmers

were organised and rodent control demonstration were given in 268 houses. In fields 39,840 burrows were fumigated. Three small exhibitions and four film-shows were arranged, emphasising how to control rodents in houses and fields.

Observations on the effect of flood on rodent population at Singur, West Bengal

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The authors have been visiting Singur, 34 km northwest of Calcutta in Hugli district, West Bengal from time to time since 1974 to study the ecology of the House Rat, *Rattus rattus arboreus* and the House Shrew, *Suncus murinus*. Four species of rodents, *Bandicota bengalensis bengalensis*, *Millardia meltada*, *Mus cervicolor* and *Mus booduga booduga* are also known to inhabit the cultivated fields. The number of rodent burrows found in the harvested fields in the year 1974 to 1978 (upto August) were on an average 40 per acre (96/hectare).

Due to torrential rains and release of water through irrigation

canals, crop fields at Singur were inundated with water upto 1.5 m for 10 to 15 days late during September. Such enormous floods are unprecedented in the history of West Bengal (8 per acre, 19.7/ha.) during the months, September to December, revealed a significant reduction (about 80 per cent) in their numbers. It appears that during the flood, most of the rodents were either drowned or were eaten away by predatory birds. Only a few which might have escaped into the high ground or in the nearby houses appear to have immigrated back to the fields after the flood water receded and rehabilitated themselves in the fields. It is interesting to

observe that even after extensive floods, about 20 per cent rodent population could survive this natural calamity and the entire population was not wiped out. Moreover, *Bandicota bengalensis* were found,

after the floods, in larger numbers (more than 60 per cent) in the fields which indicates that it is more successfully adapted to withstand odd situations in the ecosystem as compared to other species.

A note on the breeding season and litter-size in the rodents of Andhra Pradesh

A. P. Jain

CPPTI, Hyderabad

An investigation on the breeding season and litter-size of the rodents around Hyderabad was made from January, 1977 to March 1979. The rodents were trapped, poisoned in

the fields and some were maintained in the laboratory for breeding purposes. Direct observations were also made in the fields. The results are summarised below :

Species	Breeding season	Litter size (Range)
<i>Mus p. platythrix</i>	May - February	4-7
<i>Mus b. booduga</i>	May - February	1-6
<i>Mus m. tyleri</i>	All the year round	1-8
<i>M. m. humouras</i>	October - December	1-5
<i>Golunda e. ellioti</i>	August - September	3-7
<i>Bandicota b. bengalensis</i>	April - December	4-12
<i>Bandicota indica</i>	September - March	1-4
<i>Rattus cutchicus australis</i>	July - March	1-4
<i>Rattus rattus rufescens</i> <i>R. r. wroughtonii</i>]	All the year round	1-9

Rattus c. australis, *Mus p. platythrix*, *Golunda e. ellioti* easily breed under captive conditions. The breeding season of most of the rodent species, correlates with the

cropping pattern of the area as paddy is harvested during April-May and November-December. young ones born during the period get good supply of food in the field.

Utilization of essence as attractant to field rodents

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With a view to make the rodent baits more acceptable the effectiveness of various fruit and flower essences, as attractant, was worked out in respect of the Indian gerbil, *Tatera indica*. The essences screened were lemon, raspberry, orange, pineapple, almond, keora (*Pandanus odoratissimus*) mango, khus (*Vetiveria zizanioides*), banana, rose and saffron.

50 g water soaked gram was taken in 12 petri dishes separately

and 4 drops of each essence were mixed in them except control (water soaked gram). Each treatment was replicated four times. The treated grains were fed *ad libitum* to *T. indica* kept in cages. After 24 hours of the treatment, the left over grains were taken out from the cages and weighed separately. On the basis of food consumed, it was concluded that rose and saffron essence were the best attractant amongst all the treatment,

Notes & News

i) Dr. M. R. N. Prasad Professor of zoology at the University of Delhi, at present at Geneva with the W. H. O., was awarded Sir J. C. Bose award for his research work in life sciences.

ii) The ninth vertebrate Pest Conference will be held in Fresno, California from 4-6 March, 1980.

iii) Dr. Ishwar Prakash, Coordinator, CAZRI, Jodhpur has been designated as the member of the Steering Committee of the International Theriological Council.

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