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**Proceedings of the Fourth Symposium of the  
International Society for Tropical Root Crops**

**Held at CIAT, Cali, Colombia, 1-7 August 1976**

**Edited by James Cock, Reginald MacIntyre, and Michael Graham**



**The International Society for Tropical Root Crops in collaboration with  
Centro Internacional de Agricultura Tropical  
International Development Research Centre  
United States Agency for International Development**

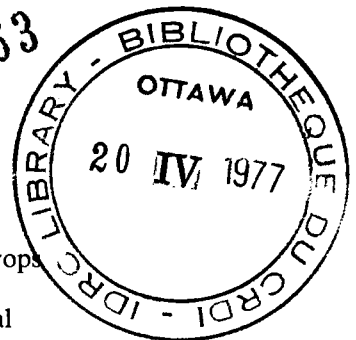
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**PROCEEDINGS**  
of the  
**FOURTH SYMPOSIUM**  
of the  
**INTERNATIONAL SOCIETY**  
**FOR TROPICAL ROOT CROPS**

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*O. minuta* is the dominant predator. It is adapted to prey on tetranychids and is known from mites from several hosts (Frank 1972). The species, being density-dependent, survives the periods of low-host density on cassava by moving on to other hosts.

Both *Typhlodromalus* spp. are in constant association with the host on cassava. They have good searching ability and are present whether the numbers of the hosts are high or low. *T. limonicus* survives the periods of host scarcity by feeding on pollen (McMurtry and Scriven 1965). Both the phytoseiid predators and *O. minuta* merit introduction against *M. tanajoa* in Africa.

Of the other predators, the staphylinids *Oligota barbadorum* and *O. centralis* and phytoseiids *Euseius hibisci* and *Phytoseiulus macropilus* need to be further evaluated.

Thanks are due to H. A. Denmark, Florida Department of Agriculture and Consumer Services, and C. H. W. Flechtman, Universidad de São Paulo, Brazil, for the identification of mites. J. H. Frank, Florida Medical Entomology Laboratory, Vero Beach, Florida, identified *Oligota* spp. These investigations were financed by the International Development Research Centre, Canada.

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## Susceptibility of Cassava Chips to *Araeceras fasciculatus*

K. S. Pillai<sup>1</sup>

Studies were made to ascertain the relative susceptibility of cassava chips made from different varieties to *A. fasciculatus*. The test insect was collected from the storage house and cultured in the laboratory on cassava chips. Ten cassava varieties H-165, H-226, H-1687, H-2304, H-38, H-3641, H-312, H-97, H-2059, and H-1310 were used. H-226 and H-2304 were the least susceptible.

Because raw cassava tubers cannot be stored indefinitely, the common practice is to slice the tubers and sun-dry them before storing. The slices (chips) are also parboiled, dried, and stored to enhance the keeping quality. The

sun-dried chips are more widely preferred for eating. Chips are attacked by more than a dozen storage pests, the most important one (*Araeceras fasciculatus*) causing great economic loss. It is commonly called the arecanut beetle as it was a specific pest of stored arecanuts (Ayyar 1940; Nair and Oommen 1969). *A. fasciculatus* eats a wide variety of foods and

<sup>1</sup>Central Tuber Crops Research Institute, Trivandrum, India.

Table 1. The means of insect population and quantity of cassava chips damaged in different treatments (varieties).

Varieties	Mean population of test insect	Mean quantity of chips damaged (g)
H-226	39.3	154.3
H-1687	101.1	217.7
H-165	85.0	209.3
H-2304	64.0	147.0
H-38	88.3	209.0
H-3641	97.3	207.0
H-312	99.3	201.0
H-97	100.0	200.3
H-2059	90.0	194.7
H-1310	106.3	205.0

infests such crops as cassava, maize, pulses, ginger, and arecanut (Raghunath and Nair 1970). Though it is a serious pest of stored cassava chips, little work has so far been done on the extent of damage and the relative resistance/susceptibility of different cassava varieties. Raghunath and Nair (1970) reported that cassava is the preferred host material of the insect.

### Materials and Methods

Mass culture of *A. fasciculatus* on cassava was maintained in the laboratory from the inoculum obtained from the storehouse. Fresh sun-dried chips (250 g) of uniform size from each of the 10 hybrids were kept in thick polythene bags. Three identical samples were used in the experiment. Ten pairs of freshly emerged test insects were put into each bag for feeding and multiplication. The bags containing host material and test insects were dipped and kept in the laboratory for 45 days. The

bags were then opened, and the number of adult beetles and the quantity of chips powdered were recorded. The data collected were subjected to analysis of variance.

### Results and Discussion

The data presented in Table 1 record the mean number of adult insects (from 39.3 of H-226 to 106.3 of H-1310) obtained and also the mean quantity of cassava chips powdered or damaged in each variety (147 g of H-2304 to 217.7 g of H-1687) after 45 days. The quantity of chips damaged was usually directly proportional to the progeny increase in the test insects. The data indicate that H-226 and H-2304 are significantly superior to the other varieties in not promoting the population buildup of the pest.

There is also a significant difference between H-226 and H-2304 and H-226 has the highest resistance to this insect.

In quantity of chips damaged, all varieties except H-2304 and H-226 are susceptible and significantly inferior, but between these two there is no significant difference.

Thanks are due to Dr N. Hrishi, Director, Central Tuber Crops Research Institute, Trivandrum, for his kind help and for providing necessary facilities. Smt K. R. Lakshmi assisted in the statistical analysis of the data.

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## Utilization of Potatoes in the Tropics

N. R. Thompson, R. T. Wurster, and K. D. Sayre<sup>1</sup>

Research at the International Potato Center in Peru has demonstrated that excellent potato yields can be obtained under both intermediate- and low-elevation tropical environments. The potato clones that are well-adapted to these conditions mature quickly (65-90 days). This characteristic allows more flexibility to introduce the potato into current farm-

<sup>1</sup>On leave from Michigan State University, USA; Regional Research and Training, International Potato Center, Lima, Peru, and Department of Plant Physiology, International Potato Center, Lima, Peru, respectively.