

<b>Thesis Title</b>	The Resistance of some Paddy Rice Varieties to Damage Caused by <i>Sitotroga cerealella</i> (Olivier) During Storage	
<b>Author</b>	Mr. Pragot Suwannasing	
<b>M.S. ( Agriculture )</b>	Entomology	
<b>Examining Committee</b>	Associate Prof. Dr. Vichian Hengsawad	Chairman
	Associate Prof. Dr. Sanit Ratanabhumma	Member
	Assistant Prof. Dr. Sawai Buranapanichpan	Member
	Associate Prof. Dr. Jariya Visitpanich	Member

### ABSTRACT

The resistance of some paddy rice varieties to damage caused by the Angoumois grain moth, *Sitotroga cerealella* (Olivier) was conducted during 1997-1998 at the Postharvest Technology Research Centre , Faculty of Agriculture, Chiang Mai University. The studies were divided into 2 parts : 1) Antixenosis mechanism of resistance for shelter, oviposition and feeding and 2) Antibiosis mechanism of resistance affecting insect life cycle. Each study comprised of 14 treatments (rice varieties) arranged in a Randomized Complete Block Design (RCBD) with 4 replications. The rice varieties tested were Khao Dawk Mali 105, Nam Roo, RD 10, RD 15, DOA 2, Khao Jao Hawm Klong Luang 1, Phrae 1, Sew Mae Jan, RD 6, Niew San Pah Tong, Jao Khao, Khao Pong Khrai, DOA 1, and Muey Nong 62 M.

The study on the antixenosis mechanism revealed Niew San Pah Tong exhibited the lowest adult number (21.0 adults) however, it was not significant difference ( $P=0.05$ ) from the adult numbers of the following varieties : Jao Khao, DOA 1, Phrae 1, Khao Dawk Mali 105, RD 6, Sew Mae Jan, DOA 2, and Nam Roo with shown 24.0, 24.5, 27.0, 27.7, 28.7, 30.5, and 33.5 adults, respectively. Less number of eggs were recorded on Niew San Pah Tong, Jao Khao, Khao

Dawk Mali 105, Sew Mae Jan, RD 6, DOA 1, Phrae 1, DOA 2, Nam Roo, and RD 10 with average numbers of 53.5, 71.0, 75.2, 87.0, 87.7, 88.7, 90.2, 95.5, 96.5, and 97.2 eggs, respectively. The numbers of eggs laid performed positive correlation with the length and the basal width of the sterile lemma. The low grain infestation were obtained on the following varieties : Phrae 1, Niew San Pah Tong, Sew Mae Jan, RD 6, Khao Dawk Mali 105, Nam Roo, Muey Nong 62 M., Khao Jao Hawm and Klong Luang 1 with infestation percentages of 2.3, 2.4, 2.8, 2.9, 3.0, 3.1, 3.3, and 3.7%, respectively.

The study on antibiosis mechanism of rice varieties tested on the insect life cycle were shown longer egg incubation periods on Nam Roo, RD 10, Phrae 1, Sew Mae Jan, RD 6, Niew San Pah Tong, Jao Khao, and Muey Nong 62 M with an average of 3.4, 3.4, 3.4, 3.4, 3.4, 3.4, 3.5, and 3.5 days, respectively. The longest larval periods were exhibited on Sew Mae Jan (32.5 days), and DOA 1 (32.8 days), and shortest were on Khao Dawk Mali 105 (28.1 days), and RD 10 (27.8 days). The longest pupal periods were recorded on Phrae 1 (5.9 days), and Muey Nong 62 M (5.8 days) while the longest adult period was found on Khao Dawk Mali 105 (5.1 days).

Significant difference of the insect weight among the treatments was noted. Larval and pupal weights were significantly lower on Phrae 1 with 3.0 , and 2.8 mg., respectively, while less adult weights were displayed on Phrae 1, Khao Dawk Mali 105, RD 6, Muey Nong 62 M, Khao Jao Hawm Klong Luang 1, Niew San Pah Tong, and DOA 2 with the means of 2.0, 2.2, 2.3, 2.3, 2.4, 2.5, and 2.6 mg., respectively. Lowest survival percentages were demonstrated on Phrae 1 ( 8%), and Niew San Pah Tong (11%), respectively.