

**Thesis Title**                      Inheritance of Genes Resistance to *Aspergillus flavus*  
in Groundnut

**Author**                              Miss Tanawan Mongkolsiriwat

**M.S.**                                  (Agriculture)Agronomy

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**Abstract**

Genetic inheritance of genes resistant to *Aspergillus flavus* is evaluated using five groundnut cultivars and its ten progenies. Two consecutive experiments were set up including: 1). critical growth stages and combining ability in which the parent and  $F_1$  were inoculated with spore suspension ( $1 \times 10^7$  spore/ml. concentration) at the three stage of growth; flowering stage, 2 weeks after flowering, and pod maturing stage under pot planting condition. 2). the resistance of  $F_2$  plants to *A. flavus* under field planting condition, inoculated at 2 weeks after flowering. The evaluation for resistant level was done on seed in laboratory after harvesting.

In all growth stages evaluated in experiment 1, the fungus showed the difference in its pathogenic and virulence to the inoculated plants. Only the uninoculated control plants of the parent and  $F_1$  that the fungus showed avirulent effect. It could be concluded that, in groundnut all stages of its growth would be critical to be susceptible to *A. flavus* once the plant was directly infected, even though it is a resistance variety. Therefore, better field management to prevent the spreading of the fungus is necessary.

Analysis of combining ability showed significantly estimates only for general combining ability (gca), indicated that an additive gene effect is responsible for this resistance in groundnut. Varieties (J11xRCM387)-8-6-2, J11 and RCM387 showed the high gca.

The result in experiment 2 showed that there was a considerable variation of  $F_2$  in colonization of the fungus. The resistant  $F_2$  progenies came from crosses with the high gca parents. The test of gene action in this generation confirmed the action of additive gene as showed previously. Furthermore, two major genes showed responsibility on the resistance inwhich the resistant action is likely to follow the gene for gene hypothesis.