**The distribution of airborne *Aspergillus flavus* isolates in maize fields
and natural drying places in Thailand—A preliminary examination
in rainy season (September, 1985)—**

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タイのメイズ畑, 自然乾燥場の空気から分離した *Aspergillus flavus* の分布
—雨季(1985年9月)における予備調査—

Summary

The distribution of airborne *Aspergillus flavus* spores was determined at several maize production areas during rainy season in Thailand. The higher distribution was detected in the atmosphere at middleman's, natural drying places, compared with maize fields where little or no spores were found.

Although there were several reports of aflatoxin contamination on Thailand maize during the harvest and storage^{1)~3)}, aflatoxin contamination of maize in the field before harvest is now recognized as a serious problem^{4)~6)}.

The present study was initiated to obtain the distribution of *Aspergillus flavus* isolates from the atmosphere at maize fields and natural drying places in Thailand.

Materials and Methods

A. flavus spores were collected by "SAS Compact" Bacteriological Air Sampler (Pool Bioanalysis Haliana Co.). A Petri dish (8.4 cm diameter) containing the medium (39 g of Difco PDA, 30

mg of rosebengal, 30 mg of chloramphenicol and 1000 ml of distilled water) was placed at the top of the sampler. The sampler was operated to suck the air for 60 seconds at each sampling sites. The Petri dish was incubated at room temperature (25–30°C) and the numbers of *A. flavus* were counted.

Results and Discussion

As shown in Table 1, little or no spores of *A. flavus* were detected in the atmosphere at maize fields before and after harvest. However, considerable amounts of *A. flavus* isolates were detected in the air sampler dishes from middleman's natural drying places at Chiang Rai and Chiang Mai, where harvested maize with a high moisture content was handled to dry. The high spore concentrations of *A. flavus* in the atmosphere at these places indicated the airborne inoculum problem may be significant to know a critical point in preharvesting aflatoxin contamination of maize in the rainy season.

Bothast et al.⁷⁾ reported that airborne *A. flavus* spores in maize fields were probably quite low. On the contrary, Holtmeyer and Wallin⁸⁾ demon-

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Table 1. Distribution of *A. flavus* isolates from spores collected from the atmosphere at Thailand maize-production sites, September 1985

Location	Numbers of <i>A. flavus</i> isolates/on Petri dish from air sampler after operating for 60 seconds
Chiang Rai	
Field in Horticulture Research Center	0
Chiang Rai	
Maize field (after harvest)	0
Chiang Rai	
Hill (roadside)	0
Chiang Rai	
Middleman's natural drying place	482
Chiang Mai	
Maize field in Field Crops Research Center	2
Chiang Mai	
Maize field (after harvest)	0
Chiang Mai	
Middleman's natural drying place	276
Lopburi	
Phra Phuttabat Field Crops Experiment Station	0
Lopburi	
Phra Phuttabat Field Crops Experiment Station	0

strated that they were present at all sampling sites in each growing season. Further examination on the seasonal changes in airborne *A. flavus* isolates at the same locations is needed to determine the source of inoculum of aflatoxin-producing fungi.

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