

DETOXIFICATION OF THE FUSARIUM TOXIN FUSARIC ACID BY THE SOIL FUNGUS *Aspergillus tubingensis***F. K. Crutcher****J. Liu****L. S. Puckhaber****R. D. Stipanovic****S. E. Duke****A. A. Bell****USDA, ARS, SPARC****College Station, TX****H. J. Williams****Texas A&M University****College Station, TX****R. L. Nichols****Cotton Incorporated****Cary, NC****Abstract**

The fungal pathogen *Fusarium oxysporum* f. sp. *vasinfectum* (*Fov*) causes Fusarium wilt in cotton (*Gossypium hirsutum* L.) and produces the toxin fusaric acid (FA). Previous research indicates that in the high producing strains of *Fov*, FA plays an important role in virulence. To address the problems of emerging virulent isolates, such as Australian biotype and California race 4 isolates possessing high FA production capacity, mechanisms of FA detoxification in microorganisms have been evaluated. Screening of a soil sample from a cotton field infested with Reniform nematode and *Fov* identified and isolated an *Aspergillus tubingensis* strain with high tolerance to FA. HPLC analysis of culture filtrates from *A. tubingensis* grown in the presence of FA showed that FA concentration decreased, and an unknown compound appeared and increased over time. Spectral analysis and chemical synthesis identified the compound as 5-butylpyridine-2-methanol (fusarinol). The phytotoxicity of fusarinol compared to FA at different concentrations was measured by the ability of the compound to cause necrosis on cotton (cv. Coker 312) cotyledons. The toxic effects of fusarinol are significantly less than FA, providing a novel detoxification mechanism against FA mediated disease.