CAN AN ISOLATE OF *TALAROMYCES* REDUCE THE PATHOGENICITY OF THE PLANT PATHOGEN *FUSARIUM OXYSPORUM* F. SP. *VASINFECTUM*

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Abstract

Race 4 of *Fusarium oxysporum* f. sp. *vasinfectum* (Fov) is an emerging problem for cotton production in the U.S. because it is significantly more pathogenic than races 1 and 2 which are endemic to the U.S. Race 4 is a prodigious producer of the phytotoxin fusaric acid compared to races 1 and 2. When the biosynthesis of fusaric acid is blocked in Fov isolates that produce high quantities of fusaric acid, their pathogenicity is significantly reduced. Thus, fusaric acid production appears to be a critical factor in the enhanced pathogenicity of Fov race 4. Soil from a cotton field was screened for microbes that would degrade fusaric acid. Among these microbes, an isolate of a *Talaromyces* species was identified that converted fusaric acid into the less toxic catabolite fusarinol. In studies by others, *Talaromyces* has been identified as a potential biocontrol agent. In growth chamber assays, germinated cotton seedlings were planted in soil together with the *Talaromyces* species. Eight days later, Fov race 4 was introduced into the soil. Plants thus treated showed reduced wilt symptoms compared to control plants. Thus, this *Talaromyces* isolate may be a useful biocontrol agent due in part to its ability to catabolize fusaric acid into a less phytotoxic compound.