

P-022: HETEROLOGOUS EXPRESSION OF *MYROTHECIUM* TRICHOETHCENE P450 OXYGENASE IN *FUSARIUM VERTICILLOIDES*

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Macrocyclic trichothecenes are toxic sesquiterpenoids that are produced by certain fungi and plants. The unique structural features of macrocyclic trichothecenes make them 10-fold more toxic than *Fusarium* trichothecenes. *Myrothecium roridum* has been previously reported to contain at least three trichothecene biosynthetic genes that are comparable to genes to in *Fusarium sporotrichioides*, *Tri4*, *Tri5* and *Tri6*. *MrTri4* has 63% genetic identity with *FsTri4*. We have recently shown that *FsTri4* controls the first four oxygenations in *Fusarium* trichothecene biosynthesis. Heterologous expression of *MrTri4* in a *Tri4* mutant of *F. sporotrichioides* did not result in a wild-type trichothecene profile, producing only minimal amounts of T-2 toxin. In this study we expressed *MrTri4* in *Fusarium verticillioides*, a species that does not produce trichothecenes, and found that transformants converted exogenous trichodiene to isotrichodiol suggesting that *MrTri4* controls the first three oxygenation steps in *Myrothecium* macrocyclic biosynthesis.

