



## **ABSTRACT**

### **“*Streptomyces*: A novel path to plant pathogenicity”**

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Among the multitude of soil-inhabiting, saprophytic *Streptomyces* species are a growing number of highly successful plant pathogens. *Streptomyces scabies* is the dominant pathogenic species worldwide, but a recent survey has identified more than a dozen additional pathogens in North America alone. A vision of the evolution and the molecular mechanisms of virulence in this actinobacterial genus is materializing, through genome-based bioinformatics and functional analysis. From the standpoint of plant biology, the novel cellulose synthesis inhibitor thaxtomin, is particularly interesting, as is the release of pathogen derived nitric oxide (NO) at the host-pathogen interface. Manipulation of plant physiology and defense responses through the production of auxin, a coronatine-like molecule, cytokinin, and novel secreted proteins also is being investigated. An interesting aspect of this pathosystem is the lack of host or tissue specificity, suggesting interaction of pathogen effectors with highly conserved components of defense signaling pathways.