

QUORUM-SENSING MIMIC COMPOUNDS IN GENOTYPES OF CORN.

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Pathogenic, symbiotic and saprophytic plant-associated bacteria utilize quorum-sensing to monitor their own population density. This cell-to-cell communication uses small, diffusible signal molecules called *N*-acylhomoserine lactones (acyl-HSLs), which the bacteria produce via I-proteins and detect through R-proteins. Acyl-HSLs diffuse from the bacterial cells and accumulate in the environment. Once the level of these signals reaches a threshold, the quorum of cells induces the transcription of sets of target genes. The pathogen of interest, *Pantoea stewartii* subsp. *stewartii* (Pss), uses quorum-sensing signaling to cause Stewart's Wilt disease of sweet corn and Leaf Blight disease in dent corn. In this study several corn genotypes that exhibit varied responses to Pss were characterized. Corn leaf and stem extracts were prepared and assayed to determine if different genotypes produced signal(s) that interfere with bacterial acyl-HSLs. This was done through the use of a bacterial acyl-HSL biosensor strain that produces phenotypic changes in the presence of acyl-HSLs. Several genotypes have been identified to produce acyl-HSL mimic compounds. The production of acyl-HSL mimic signals by corn genotypes could account for their differential resistance to Pss.