

COMMUNICATION SIGNALS PRODUCED BY TUMOR-INDUCING AND TARTRATE-CATABOLIC PLASMIDS OF AGROBACTERIUM VITIS. *Nathanial Lowe and Michael A. Savka*. Biological Sciences, Rochester Institute of Technology. massbi@rit.edu*

Agrobacterium vitis, a Gram-negative bacterium, causes a disease known as crown gall on grape plants. Crown gall is characterized by the development of plant cell tumors after infection with tumorigenic strains of *A. vitis*. Tumorigenic *A. vitis* strains contain a large extrachromosomal DNA element known as tumor-inducing plasmid (pTi) and may also contain a tartrate-catabolic plasmid (pTr). The Ti and Tr plasmids may allow *A. vitis* strains to interact in alternative lifestyles with host plants and competing microorganisms. Because bacterial signals called *N*-acyl-homoserine lactones (acyl-HSLs) are important in the ecology of plant-associated bacteria, we determined the acyl-HSLs produced by Ti and Tr plasmids from nopaline-, octopine- and vitopine-type strains of *A. vitis*. An *Agrobacterium tumefaciens* derivative, UBAPF2, which alone does not produce acyl-HSLs, was conjugated with wild type *A. vitis* strains to assemble a collection of UBAPF2 strains carrying a Ti or Tr plasmid. This collection allowed for the identification of acyl-HSL signal(s) produced from pTi or pTr plasmids. Transconjugates (UBAPF2 containing a single Ti or Tr element) were tested for signal production using an acyl-HSL-specific *A. tumefaciens* biosensor strain NTL4 in diffusion well assays. To further characterize acyl-HSLs, signal preparations were separated by thin layer chromatography (TLC) and detected using biosensor strain NTL4. Fourteen of the sixteen transconjugates produced a short-chain acyl-HSL signal identified as 3-oxo-C8-HSL by mobility and detection characteristics. Transconjugates containing pTrAB3 and pTrTm4 did not produce a detectable acyl-HSL signal. UBAPF2 transconjugates harboring pTiNi1, pTrAB4, pTrRr4 or pTrAT6 produced the characteristic short-chain signal and, interestingly, an additional long-chain acyl-HSL signal absent in TLC signal profiles of corresponding wild type strains.