

Influence of Polyphenols on Bacterial Biofilm Formation and Quorum-sensing

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Many bacteria utilize sophisticated regulatory systems to ensure that some functions are only expressed when a particular population density has been reached. The term ‘quorum-sensing’ has been coined to describe this form of density-dependent gene regulation which relies on the production and perception of small signal molecules by bacterial cells. As in many pathogenic bacteria the production of virulence factors is quorum-sensing regulated, it has been suggested that this form of gene regulation allows the bacteria to remain invisible to the defence systems of the host until the population is sufficiently large to successfully establish the infection. Here we present first evidence that polyphenolic compounds can interfere with bacterial quorum-sensing. Since polyphenols are widely distributed in the plant kingdom, they may be important for promoting plant fitness.

Key words: Quorum-sensing Inhibition, Biofilm Formation, Polyphenols