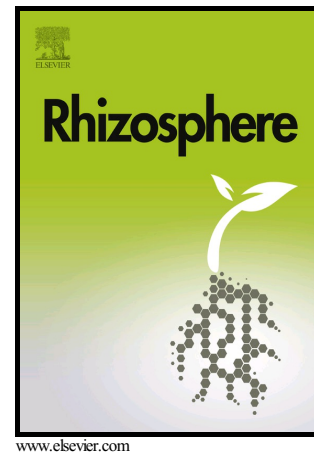


## Author's Accepted Manuscript

Quorum quenching activity of rhizosphere bacteria  
against *Ralstonia solanacearum*

Shiva Kumar Jayanna, Sharanaiah Umesha



PII: S2452-2198(17)30061-7  
DOI: <http://dx.doi.org/10.1016/j.rhisph.2017.05.007>  
Reference: RHISPH68

To appear in: *Rhizosphere*

Received date: 18 March 2017  
Revised date: 23 May 2017  
Accepted date: 24 May 2017

Cite this article as: Shiva Kumar Jayanna and Sharanaiah Umesha, Quorum quenching activity of rhizosphere bacteria against *Ralstonia solanacearum*, *Rhizosphere*, <http://dx.doi.org/10.1016/j.rhisph.2017.05.007>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and a review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Quorum quenching activity of rhizosphere bacteria against *Ralstonia solanacearum***

**Shiva Kumar Jayanna, Sharanaiah Umesha\***

Department of Studies in Biotechnology, University of Mysore, Manasagangotri, Mysore-570006, Karnataka, India

su@appbot.uni-mysore.ac.in

pmumesh@gmail.com

\*Correspondence: Department of Studies in Biotechnology, University of Mysore, Manasagangotri, Mysore-570006, Karnataka, India. Tel.: +91 821 2419884; 09449264384; Fax no.: +91 821 2419884

**Abstract**

Many Gram-negative bacteria control the expression of virulence factors through quorum sensing (QS) mechanism. Enzymatic degradation of these signalling molecules is an important possible way to interfere with this QS mechanism. Such quorum quenching (QQ) enzymes are widespread in the bacterial world. The *Pseudomonas aeruginosa* 2apa, *Pseudomonas fluorescens*, *Serratia marcescens* and *Enterobacter amazonense* which are used as biocontrol agent were tested for QQ activity using *Chromobacterium violaceum* CV026 biosensor strain. Cell-free lysate of *P. aeruginosa* 2apa exhibited effective N-acyl homoserine lactone (AHL) degrading ability by inhibiting violacein production in biosensor strain. Further when the cell-free lysate was applied to *Ralstonia solanacearum*, it resulted in inhibition of biofilm formation. The confocal laser scanning microscopic analysis showed decrease in total biomass formation in treated slides. Our study shows the potential of AHL degradation by AHL acylase present in cell-free lysate of *P. aeruginosa* 2apa and inhibition of biofilm formation in *R. solanacearum*.

**Keywords:** Quorum quenching, Rhizosphere bacteria, *Chromobacterium violaceum* CV026, *Ralstonia solanacearum*, Biofilm inhibition

Bacteria use small diffusible signalling molecules called autoinducers (AI) to communicate each other termed as quorum sensing (QS). The principal QS signalling

Download English Version:

<https://daneshyari.com/en/article/5762806>

Download Persian Version:

<https://daneshyari.com/article/5762806>

[Daneshyari.com](https://daneshyari.com)