

Title Antagonistic action of siderophore produced from *Burkholderia* sp. CAS-5 upon the postharvest pathogen *Penicillium expansum*

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Abstract

A soil microorganism producing siderophore under low iron stress (up to 5 μ M of iron) was identified as *Burkholderia* sp. by 16S rDNA sequence analysis, biochemical-, physiological tests and morphological analysis using electron microscopy. Hydroxamate nature of siderophore was detected by Csaky test. Hydroxamate type siderophore produced by *Burkholderia* sp. CAS-5 was partially purified by extraction the supernatant with methanol and Sephadex LH-20 column chromatography with methanol as eluent. The purified siderophore improved the biological control of blue rot caused by *Penicillium expansum*. The production of the siderophore was closely associated with the iron concentration in the medium. Thus, very low additions of the iron reduced the siderophore production considerably. The antagonistic effect of *Burkholderia* sp. CAS-5 and siderophore against *P. expansum* was studied by using in vitro assay. In the in vitro assay, siderophore reduced the growth of *P. expansum*, whereas the chelate (siderophore plus iron) did not. Siderophore antagonism was then related to competition for iron.