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## Antifungal activity and growth promoting activity by *Burkholderia* sp. in perilla culture

Sang Yoon Jeon, Yong Kyun Kim, Hong Joo Son,  
Young Whan Choi<sup>1</sup> Kyu Young Kang<sup>2</sup> and Keun Ki Kim\*

Department of Biotechnology and <sup>1</sup>Department of Horticulture, Miryang National  
University, Miryang 627-706, Korea

<sup>2</sup>Division of Enviro-Biotechnology and Food Science and Technology, Gyeongsang  
National University, Chinju 660-701, Korea

The damage in the leaf perilla has greatly been increased because of the increased density of disease, and pathogens were have power of resistance to agricultural chemicals by replanting. To solve the forementioned problems, farmers are overusing agricultural chemicals, causing other damages by the chemical residue. In this study, antagonistic bacteria as biological control agents were isolated to produce the environmentally-friendly crops for use in green houses. 18 strains of antagonistic bacteria were totally isolated from the soil and plants in the Perilla fields. According to the results of anti-fungal spectrum against several pathogens by antagonistic bacteria, the antagonism effect of the isolates was remarkable against grey mold rot by *Botrytis cinerea*, sclerotinia rot by *Sclerotinia sclerotiorum*, and stem rot by *Rhizoctonia solini*. To evaluate the biological control effects of the isolates against the major diseases of Perilla, studies were carried out to evaluate the preventive and the curative effects of the diseases throughout the pot experiments. According to the forementioned experiments, the preventive and the curative effects by the isolates against sclerotinia rot were respectively showed as 55% and 92%. For the grey mold rot, those were 40% and 78%, respectively. As to the evaluation of the growth-promoting effect by antagonistic bacteria, the length and the biomass of the tested plants were increased to 120% and to 164%, respectively. For the leaf area was respectively increased to 220%. Furthermore, antagonistic bacteria was identified as *Burkholderia* sp. according to the results of physiological properties and genetic methods.