J. Int. Environmental Application & Science, Vol. 6 (4): 558-568 (2011)

Antagonistic Activity of Indigenous Indonesian Bacteria as the Suppressing Agent of Rice Fungal Pathogen

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Received August 16, 2011; Accepted October 11, 2011

Abstract: Biological control using antagonistic bacteria has been applied as an alternative environment-friendly method of plant disease control. This study was aimed to evaluate antagonistic activity of indigenous Indonesian bacterial isolates for the control of rice fungal pathogens. Eight bacterial isolates obtained from different locations/environments in Java, Indonesia, were tested against rice sheath blight *(Rhizoctonia solani)* and leaf blast disease *(Pyricularia grisea).* The result showed that antagonistic activity against fungal pathogens was varied depending upon the bacterial species. Four bacterial isolates (C 32a, C 32b, I. 21, and I.5) have shown inhibition effect against mycelia growth of *R. solani.* Five isolates (C 29d, E 65, I.21, I. 5, and II.14) could inhibit the growth of *P. grisea*, whilst *Bacillus firmus* E 65 isolate was very effective in suppressing *P. grisea* (18.15%). Overall, *B. firmus* isolates E 65 was very effective in inhibiting severity of both fungal pathogens. It was suggested that the antagonistic activity of indigenous Indonesian bacterial isolates studied, particularly *B. firmus* E 65 and *Pseudomonas aeruginosa* C 32b have an excellent potential to be used as biocontrol agents of *R. solani* on rice at the greenhouses when treated as pre-treatment spraying application.

Key words: *rice, antagonistic bacteria, biocontrol, Rhizoctonia solani, Pyricularia grisea*

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