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UTILIZATION OF ROOT-COLONIZING BACTERIA TO PROTECT HOT-PEPPER AGAINST *TOBACCO MOSAIC VIRUS*

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ABSTRACT

Tobacco Mosaic Tobamovirus (TMV) is one of important constraint infecting Solanaceous plants including hot pepper in Indonesia. To accomplish and improve the effectiveness of virus management, we used root-colonizing bacteria (rhizobacteria) which isolated from healthy hot pepper. Eight rhizobacteria isolates were selected and were evaluated their capacity in enhancing plant growth and induce systemic resistance (ISR) against TMV in greenhouse trials. The rhizobacteria was applied as seed treatment and soil drench. Bacterized-seedling showed better growth vigor, fitness and milder symptom than non-bacterized control plants. It suggested that the effect of growth promotion and protection of rhizobacteria against TMV. The protection effect of rhizobacteria was more pronounced after challenged inoculation by TMV, especially for plant treated by isolates I-6, I-16 and I-35. However, the viral accumulation was slightly affected by bacterial treatment. The rhizobacteria treatment elicited ISR might be by increasing peroxidase enzyme activity or not depends on the species. Based on whole results, isolate I-35 was the potential plant growth promotion rhizobacteria (PGPR). The I-35 was identified as *Bacillus cereus* based on morphological characteristics and nucleotide sequences of 16S r-RNA.

Key words: Root-colonizing bacteria, TMV, ISR

Running title : Root-colonizing bacteria to protect hot pepper against TMV

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