

BIOCONTROL OF POTATO CYST NEMATODE *Globodera rostochiensis*  
BY RHIZOBACTER ISOLATES ON POTATO

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**ABSTRACT**

Biocontrol of potato cyst nematode *Globodera rostochiensis* was studied on potato using three isolates of rhizobacter from Banjarnegara (*Pseudomonas diminuta*, *Bacillus alvei*, *Bacillus stearothermophilus*). In a greenhouse experiment, all three isolates of rhizobacter not affect plant height, root and tuber weight but significantly increased root length and significantly reduced the number of cyst formed. Rhizobacter isolates were tested for siderophores, cytokinin and giberellic acid production. All three isolates of rhizobacter produced cytokinin and giberellic acid but didn't produce siderophores on Chrome-Azuroil Sulphonate (CAS). This study suggests that *Pseudomonas diminuta*, *Bacillus alvei*, and *Bacillus stearothermophilus* may be used for the biocontrol of *G. rostochiensis* on potato. Mode of action of this isolates through cytokinin and giberellic acid production.

Key words: *Globodera rostochiensis*, rhizobacter

**INTRODUCTION**

Potato (*Solanum tuberosum* L.) is an important horticultural commodities in Indonesia which is currently the subject of alternative food, as a source of protein, carbohydrate-rich food to support the diversification program. One factor in the risk of potatoes cultivation is the presence of pests and diseases, one of which is the potato cyst nematode / PCN (*Globodera rostochiensis*). This nematode is very dangerous to plant potatoes so that the whole world should be aware of it.

PCN has influence on plant growth and yield of potatoes. In low density, most tolerant crops to PCN, the damage only on the development of root system without affecting the overall development, but at the degree of attack increases, plants can not compensate and showed symptoms of nutrient and water shortages due to the inefficient root system. Eventually the situation will reduce potato yields (Jones, 1957 in Turner and Evans, 1998). Economic threshold harvest losses due to PCN is usually less than 20 eggs per gram of soil (Evans and Stone, 1977), although such interaction with the environment and the difference in the level of tolerance of host plants can provide economic vary threshold values.

If PCN was established, it is difficult to control and controlling the common practice of farmers is using synthetic nematicide because of more effective and efficient compared