

Aktivitas Bakteri Kitinolitik dari Cangkang *Perna viridis* sebagai Antifungi *Phytophthora palmivora* Penyebab Penyakit Busuk Buah Kakao (*Theobroma cacao* L.)

Activity of Chitinolytic Bacteria from *Perna viridis* Shells as Antifungal of *Phytophthora palmivora* Cause of Pod Rot Disease of Cacao (*Theobroma cacao* L.)

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Abstract: The emphasis on the growth of *Phytophthora palmivora* was important in order to reduce Pod Rot Disease of cacao (*Theobroma cacao* L.) which could harm agriculture sector. Some bacteria had chitinolytic enzyme activity that is potentially used as an antifungal against *Phytophthora palmivora*, because the cell wall of the fungi composed of chitin. The purpose of this research were to know chitinolytic bacteria from *Perna viridis* shell which had higher activity of chitinase enzyme, the amount of chitinase enzyme activity of each selected isolate, and to know the effect of chitinolytic bacterial isolates from *Perna viridis* shell to reduce the growth of *Phytophthora palmivora*. The bacteria were isolated from *Perna viridis* shell at Depok Beach, Kretek, Bantul, Yogyakarta. This research were an explorative research which include bacterial characterization and experimental research which include antagonistic test of chitinolytic bacteria against *Phytophthora palmivora*. The chitinolytic bacteria was isolated using selective chitin agar medium by pour plate method and then screening the isolates that had chitinase enzyme activity by measuring the enzyme activity of each bacterial isolates by spectrophotometric method. Selected bacterial isolates were characterized by macroscopic, microscopic and physiological characters. The bacteria that had been selected tested for their ability to reduce the growth of *Phytophthora palmivora* by Kirby Bauer modification method. The result showed that there were 10 isolates that had chitinase enzyme activity which two selected isolates had the higher chitinase enzyme activity. There were 7D and 6B isolates. The isolate 7D had 1,258 u/ml chitinase enzyme activity and isolate 6B had 1,212 u/ml chitinase enzyme activity. The result of chitinolytic bacterial antagonist test on *Phytophthora palmivora* growth showed that both bacterial isolates were potential to antifungal *Phytophthora palmivora* and showed a real effect in inhibiting the growth of *Phytophthora palmivora* with significance value < 0,05.

Keywords: Chitinolytic Bacteria, *Perna viridis*, *Phytophthora palmivora*

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