

**EFFICIENCY OF THE METHOD SEED COATING RICE WITH
CHITOSAN NANOPARTICLE AND EXTRACT OF
ANTAGONISTIC BACTERIA *PSEUDOMONAS PUTIDA* ON
GROWTH AND IMPROVING COLLAR BLACK ROT DISEASE
RESTANCE (*ASPERGILLUS NIGER*) *IN VIVO***

**Vo Thi Thuong Thuong, Vo Thi Mai Huong, Nguyen Hien Trang,
Nguyen Cao Cuong, Tran Thi Thu Ha**

Summary

The study investigated the effect of the rice seed coat combinations chitosan nanoparticles and the extract of antagonistic bacteria *Pseudomonas putida* on growth and disease resistance of rice *in vivo*. The experiments were conducted with combination of two biological agents (chitosan nanoparticles and the extract of *P. putida* antagonistic bacteria). Results of the study showed that rice seed coating with chitosan nanoparticles before the next *P. putida* extract increased 97.78% germination rate compared to 91.11% (Control); average leaf speed was faster than 1.52 leaves and increased height to 20.07 cm higher than 5.38 cm; The resistance of collar black rot disease to chitosan nanoparticles before the next *P. putida* extracts was higher than that of other combined treatments and control. Rice seeds coated chitosan nanoparticles before the next *P. putida* extract had the AUDPC (62.22 and 77.78) lower than the control (188.89 and 177.69). Field production practices should be investigated to further assess the growth and disease resistance of rice.

Keywords: *Chitosan nanoparticles, extract of Pseudomonas putida, seed coating.*