

Surasak Jaikla 2014: Effects of Bacteria Isolated from Paddy Soil in Central Region of Thailand on Brown Planthopper, *Nilaparvata lugens* (Stål).

Master of Science (Entomology), Major Field: Entomology, Department of Entomology.

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Misuse of chemical pesticides in rice field affected many aspects of human health ,environment and chemical residue. Therefore biocontrol method is one of the alternative ways to resolve these problems that mentioned above. This study aims to bring the bacteria isolated from rice field soil in Lopburi province ,central of Thailand that best effectiveness in controlling *Nilaparvata lugens* (Stål) (Brown plant hopper, BPH) 5 bacterial strains such as LBR10, LBR13, LBR34, LBR55 and LBR67. Laboratory test results on mortality rate of *Nilaparvata lugens* (Stål) in different time ,Production of enzyme protease (proteinase) ,Induction of rice producing Peroxidase and β -1,3 glucanase enzymes and promote the growth of rice plant. The results of these experiments that mention above showed that the bacterial strains LBR10, LBR13, LBR34, LBR55, LBR67 likely to affect the mortality rate of *Nilaparvata lugens* (Stål) without any factors significantly. It also found that bacterial strains LBR10, LBR13 and LBR34 can encourage the rice plant height and root length than untreated controls significantly. In addition, the 5 bacterial strains also has the ability to produce the enzyme proteinase by enzyme plate assay protocol and can induce the production of rice enzymes,Peroxidase and β -1,3-glucanase enzymes.This study shows that effective bacteria can be used in pest control by biocontrol method to promote the growth of rice plants and reduce the use of chemical pesticides as well as induction of plant enzymes that affect the strength of the plant.

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Thesis Advisor's signature

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