

Acharawan Teerapensang 2010: Efficacy of Rhizobacteria Strain E7-17 and S1-10 for Controlling the Important Setts Transmission Diseases of Sugarcane. Master of Science (Agricultural Research and Development), Major Field: Agricultural Research and Development, Interdisciplinary Graduate Program. Thesis Advisor: Assistant Professor Chalida Leksomboon, Ph.D. 59 pages.

Red rot wilt disease caused by *Colletotrichum falcatum* Went. and *Fusarium moniliforme* Sheldon., smut disease caused by *Ustilago scitaminea* Syd. and white leaf diseases caused by a phytoplasma considered the important setts transmission diseases of sugarcane in Thailand. The use of infected seed cane is important way the disease is spread. The objectives of this study were to investigate the effect of rhizobacteria strain E7-17 and strain S1-10 on suppression of the three diseases in infected setts. The rhizobacteria were applied as a sett treatment. Red rot wilt-infected sett of cultivar K93-236 treated with the strain E7-17, smut-infected sett of cultivar Kamphaengsaen94-13 and white leaf-infected sett of cultivar K93-219 treated with the strain E7-17 and S1-10 were assessed in greenhouse condition. The resulted showed that the rhizobacteria *Bacillus subtilis* strain E7-17 reduced the disease incidence of red rot wilt and improved vegetative sett germination. Disease incidence recorded at 1st, 2nd and 3rd month showed that the strain E7-17 decreased disease incidence by 69.17, 42.50 and 40.00 %, repectively as compared with the water-treated control. Sett treatment with the strain E7-17 and S1-10 could not reduce the incidence of white leaf in K93-219. Whereas, Kamphaengsaen94-13 didn't show any symptom of smut disease in both the control and treatment. Furthermore, the rhizobacteria could not increase the growth of K93-219 and Kamphaengsaen94-13 from disease-infected setts. The effect of the strain E7-17 on enhancement of plant growth in disease-infected sett of K93-236 could not compare because it was 100% disease incidence in the control and all plant died.

Student's signature

Thesis Advisor's signature