

Comparative Study of Indigenous and Nonindigenous Rhizobacterial Isolates to Induce the Resistance of Bunching Onion Against *Spodoptera exigua* (Hübner)

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Abstract

Spodoptera exigua (Hübner) is known as a cosmopolitan pest of many crops, including bunching onion. Infestation by *S. exigua* is often serious in tropical regions, and insecticide resistance is a major problem in the management of this pest. Treating crops with a group of naturally occurring beneficial root bacteria, termed plant growth-promoting rhizobacteria (PGPR), has been shown to increase plant growth and enhance plant health. The effects of PGPR on plant–insect interactions have been reported in very few studies. The aim of this study was to compare the effect of indigenous and nonindigenous PGPR to induce the resistance of bunching onion against *S. exigua* and to increase plant growth and yield. The study was designed as a field experiment at endemic area for *S. exigua*. Treatments were 12 indigenous rhizobacterial strains from bunching onion rhizosphere, 14 nonindigenous rhizobacterial strains from the *Cyperus esculentus* rhizosphere, a control (without PGPR), and an insecticide (imidacloprid). PGPR strains were inoculated on bunching onion at two periods: at the time of planting as a seedling treatment, and on 2-week-old plants as a soil drench. The randomized complete block design was replicated three times. During the experiment, the population density of *S. exigua* and the damage to bunching onion and its growth and yield were evaluated. Our results showed that inoculation with the indigenous rhizobacterial strains was more effective to induce the resistance of bunching onions against *S. exigua* and to increase the growth and yield of bunching onion compared to nonindigenous rhizobacterial strains, control, and insecticide.

Keywords

Rhizobacteria Indigenous Nonindigenous Plant growth promotion Resistance Bunching onion *Spodoptera exigua*

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