



SPEECH INFORMATION (For Conference Program Book)

Topic	Development of <i>Purpureocillium takamizusanense</i> , a Native Entomopathogenic Fungus, for Agricultural Pest Control
<p>Abstract (No more than 350 words)</p>	<p>The entomopathogenic fungus <i>Purpureocillium takamizusanense</i> isolate TCTeb01, which was isolated from an infected litchi stink bug (<i>Tessaratoma papillosa</i>), has shown strong potential for controlling this pest. The fungus can infect both adult and nymphal stages of the litchi stink bug, causing death and leaving the insects attached to the shoots like “zombies”. In infection tests conducted in a greenhouse, TCTeb01 caused mortality rates of 86.1% in adults and 48.3% in nymphs within 28 days after inoculation with the conidial suspension. In field trials, the TCTeb01 wettable powder formulation achieved over 50% control efficacy. TCTeb01 also exhibits a broad host range, being effective against other agricultural pests such as the melon thrips (<i>Thrips palmi</i>), striped flea beetle (<i>Phyllotreta striolata</i>), tea mosquito bug (<i>Helopeltis fasciaticollis</i>), oriental fruit fly (<i>Bactrocera dorsalis</i>), coffee berry borer (<i>Hypothenemus hampei</i>), and even the eggs of root-knot nematodes. In contrast, its environmental and mammalian safety has been well demonstrated. TCTeb01 is harmless to beneficial insects such as honey bees (<i>Apis mellifera</i>) and the predatory bug (<i>Eocanthecona furcellata</i>). Toxicological tests, including acute oral and pulmonary toxicity/pathogenicity studies, have confirmed its safety. A solid-state fermentation process has been established for large-scale production, along with a technique for obtaining conidial powder without a drying step. Both the conidial powder and the wettable powder formulations exhibited a shelf life exceeding six months at room temperature. This production process not only reduces energy consumption compared to conventional drying methods but also maintains conidial viability without the need for low-temperature storage. Overall, TCTeb01 represents a promising and environmentally friendly biopesticide for controlling litchi stink bugs in litchi and longan orchards in Taiwan.</p>

