Studies of Fungicides Used in Sheath Blight of Rice and Non-pesticide Control

Chun-Chi Lin[1] and Chih-Wei Wang[1]

Abstract

In order to provide various strategies to control sheath blight of rice in different farming methods. This study is to know the growth properties of the pathogen and their susceptibilities to 17 commercially available fungicides registered in Taiwan. In the same time, non-chemical plant protection materials are also tested. *Rhizoctonia solani* isolates used in this study were collected from Taitung city, Luye, Guanshan, and Chishang Township. The optimal growth temperature for these isolates is 28℃ to 30 ℃. Their colony phenotypes are various. The Chishang's isolate seems to be *Rhizoctonia oryxae-sativae* Sawasa. Its optimal growth temperature is 32 ℃. We used 17 fungicides, which could be classified to 7 different modes of actions. In growth testing, we found that Pencycuron, Pencycuron & tebuconazole, carbendazim & mepronil are efficient in inhibiting sclerotia germination. Hexaconazole, flutolanil, Pencycuron, carbendazim & mepronil are efficient in inhibiting mycelium growth. Phosphorous acid, *Trichoderma* sp., *Bacillus subtilis*, and *Streptomyces* sp. are used in controlling sheath blight of rice. Their mechanisms may be activation of plant disease resistance ability, competition of nutrients and spaces, and its antagonistic properties independently. Efficacies of phosphorous acid mixing with either one of the other three bio-control agents are better than its single application. Phosphorous acid mixing with *Trichoderma* sp. shows the best disease controlling result.

Keywords: Rice, Sheath blight, Fugicides screening, Non-pesticide control

[1] Assitant Reasercher of Taitung DARES, COA.