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Effects of Fenaminosulf on Growth of Pepper (Capsicum annuum L.), Microbial Communities and Enzymatic Activities of the Soil Infested with Fusarium oxysporum

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Abstract

Pepper wilt disease is common in the production of pepper in Guizhou province, China, and fenaminosulf is often used to prevent its occurrences in agricultural practices. To estimate the effects of fenaminosulf on the sustainable pepper production, a pot experiment for 93 days was conducted to investigate the effects of fenaminosulf on the growth of pepper (Capsicum annuum L.), microbial communities and enzyme activities of the soil infested with phytopathogen-Fusarium oxysporum. Four treatments: T1 – seeding a week after pathogen inoculation in the soil, T2 – seeding and soil drenching of fenaminosulf (at recommended dose) a week after pathogen inoculation in the soil, T3 – pathogen inoculation in the soil at the first four to five-leaf stage of pepper seedling and T4 – soil drenching of fenaminosulf (at recommended dose) a week after pathogen inoculation in the soil at the first four to five-leaf stage of pepper seedling were established. The studies showed that T2 and T4 of fenaminosulf application obviously improved pepper survival rate, partially inhibited plant growth and development and significantly reduced soil bacterial quantity, but had no similar effects on the soil activities of catalase, urease and alkaline phosphatase. On the basis of stronger growth potential of plant, larger quantities of bacteria and actinomycetes and higher activities of catalase and alkaline phosphatase in the soil, T4 strategy might be reasonable for the production of pepper in the field where pepper wilt disease usually occurs

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