

THE EFFECTS OF SILICON ON *FUSARIUM* SUPPRESSION IN DRAGONFRUIT PLANT

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Fungi are main pathogens causing losses in dragonfruit production. To overcome the problem, chemical fungicides are commonly used to control fungal diseases. In this study, *in vitro* antagonistic effects of silicon treatments against fungal growth and the susceptibility of silicon-treated dragonfruit against fungal infection were evaluated. There were two pathogenic fungal isolates used in this study, namely *Fusarium proliferatum* and *F. solani*, which were isolated from diseased dragonfruits. For the *in vitro* antagonistic effects, silicon dioxide was added into potato dextrose agar (PDA) at different concentrations: 0% (control), 0.15% (T1), and 0.25% (T2) in Petri dishes before inoculation with fungal pathogens and incubated for seven days. Meanwhile, healthy dragonfruit plants were inoculated with the pathogenic fungi on the stem prior to application of silicon treatments weekly, at different concentrations, namely 0% (control), 0.15% (T1), and 0.25% (T2) through spraying technique. All the stems were incubated for one month. Based on the results, average inhibition of radial growth for *F. proliferatum* were 0% (control), 46% (T1), and 57% (T2). For *F. solani*, average inhibition of radial growth were 0% (control), 51% (T1), and 63% (T2). T2 was significantly different with T1 and control for both of the fungi isolates. Stems inoculated with *F. proliferatum* showed lower disease severity (ds) in T1 (ds = 13.3%) and T2 (ds = 29%) as compared to untreated stems (ds = 39.67%). Meanwhile, stems inoculated with *F. solani* showed lower ds in T1 (ds = 4.33%) and T2 (ds = 11%) as compared to the untreated stem (ds = 51%). However, only treated stems inoculated with *F. solani* showed a significant difference with the control. Application of silicon in controlling fungal disease can help to reduce the side effects of chemical fungicides on farmer's health, ecosystem, and the environment while improving the quality of dragonfruits.

Keywords: silicon, fungal growth, dragonfruit, *Fusarium proliferatum*, *F. solani*