Research Paper

Silicon Mediated Enhanced Resistance in Rice Plants Against Thrips; *Stenchaetothrips biformis* (Bagnall) (Thripidae: Thysanoptera)

G.D.S.N. Chandrasena[1]*, H.N.S. Fernando[2], W.M.J. Bandara[1], D.M.O.K. Dissanayake[1], U.C. Kahawaththa[1], P.M.H. Cooray[2], M. Pagirathi[3]

[1] *Rice Research and Development Institute, Batalagoda, Ibbagamuwa, Sri Lanka*

[2] *Regional Rice Research and Development Centre, Bombuwela, Sri Lanka*

[3] *Rice Research Station, Sammanthurai, Sri Lanka*

[*] *Corresponding author: susanthinilminic@gmail.com*

Abstract

Silicon is considered as a beneficial element for plant growth mostly by inducing plant resistance to multiple stresses. As all the improved high yielding rice varieties in Sri Lanka are susceptible to rice thrips; *Stenchaetothrips biformis;* a major pest, farmers depend on synthetic insecticides to manage it. In view of this problem, three silicon-containing materials i.e. partially burnt paddy husk, powder form of amorphous silica and its granular form were evaluated against rice thrips to explore their thrips resistance enhancing effect. The experiments were conducted in randomized complete block design in Wet Zone (WZ), Dry Zone (DZ), and Intermediate Zone (IZ). The treatments were tested as soil amendments at different application rates. The degree of protection afforded by the treatments against the pest was assessed by their population density. The results revealed that, soil amendment of Si provides substantial protection from rice thrips. But the required application rate appeared to be varied according to the soil and environmental condition of the region. To get significantly better results, 16-26 kg of SiO_2 ha^{-1} need to be applied for the WZ and DZ, while 40- 52 kg of SiO_2 ha^{-1} is needed for the IZ. The resistance enhancing ability of silica-containing products is negatively correlated with their particle size i.e. smaller the particle size, the larger the effects.

Keywords: Amorphous silica, Enhanced resistance, Silicon, Thrip

** *The full paper of this abstract will be published in the Tropical Agriculturist Vol: 169 of 2021*