Pre-harvest Soil Application of Rice Husk Ash on Post-harvest Quality of Green Chili (*Capsicum annuum* L.)

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Green chili (*Capsicum annuum* L.) is commercially grown as a spice crop in Sri Lanka. Rapid changes in post-harvest quality and pre-harvest and post-harvest diseases are the main problems in the green chili industry. Silicon (Si) application has shown many beneficial effects on plant growth and disease control. The present study evaluated the effect of soil application of Rice husk ash (RHA), a natural Si source on postharvest quality of green chili, compared to the fungicide treated plants and non-treated control plants. RHA was added to plants (2g/plant) starting at 10 days after seedling establishment and continued up to 28 days at seven days intervals. Si accumulation in leaves and pods were tested during the growth. Natural disease occurrence, changes in chlorophyll content, pH, total soluble solids (TSS), Titratable acidity (TA), ascorbic acid content, total phenolic content, peel color, visual quality rating (VQR), weight loss, cuticle epidermal layer thickness, crude protein, crude fat, crude fiber, total ash, and moisture percentage were measured in the harvested pods. Soil amendments with Si significantly reduced the postharvest weight loss through delayed ripening and reduced natural disease occurrence hence enhancing VQR ($p < 0.05$). Accumulated Si content in leaves of the RHA treated plants was significantly higher ($p < 0.05$) than that of control plants although the differences among the pods of different treatments were insignificant ($p > 0.05$). RHA treatment increased the Crude Protein, ash, total chlorophyll, total phenol content, and cuticle epidermal layer thickness significantly but did not affect other physic-chemical parameters tested ($p > 0.05$). These results suggest that by using the pre-harvest soil application of RHA, the postharvest quality of green chili can be improved. Enhanced Si content in leaves and increased phenolic content in pods may have some role in Si-induced disease resistance and other quality parameters.

Keywords: Green chili, Rice husk ash, Post-harvest quality, Post-harvest disease, Si Content