EFFECT OF POTASSIUM (KCl) APPLICATION ON POSTHARVEST DISEASE CONDITION AND FRUIT QUALITY OF RIPE PAPAYA

(*Carica papaya* L.)

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ABSTRACT

Fusarium is one of the most destructive postharvest diseases of red lady papaya. *Fusarium* species are a weak pathogen and there are several species causing diseases, where *Fusarium moniliform* is the most common species causing fruit rot in tropical countries. Initially disease symptoms appear as circular water-soaked lesions on ripening fruit which later becomes depressed. At the advanced stage of disease development, the soft rotted area is covered with a white mycelial mat of the fungus. Fungus also penetrates into the tissues of the fruit, causing it to become darker and softer than the surrounding tissues. Nutritional conditions under which the plants are grown have shown significant impact on the disease severity and disease occurrence.

In this study four treatments (0%, 2%, 4% and 6% of KCl) were applied as spray solutions in to the papaya fruits three weeks before harvesting. Treatments were arranged in a Randomized Complete Block Design (RCBD). After fruits were harvested they were inoculated with *Fusarium* and kept under the ambient conditions. Then disease severity, disease lesion development and time taken to disease occurrence were observed. Fruit quality parameters were also measured such as TSS (Total Soluble Solids), pH, peel color, flesh color and fruit firmness.

Application of 4% KCl significantly reduced the *Fusarium* rot disease than other treatments and it also resulted in fruits having the highest pH and TSS values. Treatments with 4% and 6% KCl gave the best flesh color (dark red / red) and highest fruit firmness at the table ripe stage. There was no significant impact of the 4% and 6% KCl on decreasing the percentage of weight loss during ripening and increasing the peel color development. In this study it was found that the continuous increase of KCl levels, beyond an optimum level can cause negative impacts on fruit quality.

Key words: Fusarium fruit rot, Red Lady papaya, Potassium, Fruit quality, Disease severity