B-113: Studies on alternative postharvest treatments on bananas free from agrochemicals

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The beneficial effects of pressure infiltration (PI) (at 4.3×10^{-3} kgm^{-3}) of 0.25% glacial acetic acid and 1% chlorox to bananas were reported last year. Here, possibility of using diluted commercial food grade artificial vinegar (at pH 3 –3.2) was investigated. In addition, PI of chlorox solutions for <5 min, and effect of chlorox dips were investigated, as although the earlier experiments prevented diseases, the bananas had a chlorine taste.

Mature green fingers (4 to 8) of 'Embul' bananas from the same hand were divided into each treatment and at least 3 trials were done per experiment. Scores of disease and colour were analysed by Friedman and Mann-Whitney tests and lesion sizes were analysed by t-tests or analysis of variance followed by DMRTs. Dip treatments (0.1 to 6% chlorox) and PIs (0.1 to 2% chlorox solutions) were given at room temperature (RT) and at 15°-17° C.

Dipping in diluted vinegar did not significantly delay ripening ($p=0.81$) and disease initiation ($p=0.38$), but infiltration delayed initial colour development, significant ($p=0.031$) on that day with no effect on disease. Dilute acetic acid (at pH 3-3.2) infiltrated bananas were inoculated with a conidial suspension of *Colletotrichum musae*, kept in moisture chambers (ca. 27°C) for 24 h before or after PI treatment. As the results did not indicate significant lowering of lesion development, success of acetic acid PI treatment could not be demonstrated by artificial inoculations.

The 0.5% and 1.5% Chlorox at RT delayed disease and colour change 3 and 2 days (in dippings) and 3 and 1 day respectively (in infiltrations). There were chill injuries on treated fruits at 14° and 17°. In taste panels, 0.1% and 0.5% chlorox and water infiltrated fruits were preferred. 0.1, 0.5 and 1% dipped and untreated controls were least preferred.

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