Shelf-life estimation and quality of resistant bananas to black leaf streak disease during ripening

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Abstract

Black Leaf Streak Disease (BLSD), also known as Black Sigatoka, is considered the most important banana leaf disease worldwide, because it reduces, in average ($\downarrow$), both yield ($\downarrow$ 38%) and postharvest banana green-life ($\downarrow$ 40%). The control of this disease requires weekly applications of fungicides, which increase the economic and environmental costs for banana production, especially in a few countries in Latin American, which account for over 80% of total banana traded internationally. However, frequent fungicide spraying leads to rapid evolution of fungicide-resistance fungal strains that cause disease-control failures. This work aimed to evaluate the shelf-life and postharvest quality of three genotypes of banana (*Musa* spp.) resistant to BLSD. Survival analysis methodology was used to estimate shelf-life using the Log-Rank test. Postharvest quality included variables such as peel weight, pulp weight, soluble solids, total sugar, starch, total chlorophyll and total carotenoids. The best results were highlighted by BRS Tropical including a high shelf-life for green life (GL) phase of 22.28 days, followed by BRS Vitória (13.45 days). BRS Platina presented the lowest GL phase (11.23 days). BRS Tropical presented a highest yellow life (YL), including good postharvest quality at end of ripening as soluble solids (25.53°Brix), total sugars (13.73 g 100 g^{-1}) and starch (1.32 g 100 g^{-1}). Results suggest that BRS Tropical, which presented a longer shelf-life (27.85 days), may be indicated for exports purposes as well as in natura consumption. Due to the short shelf-life, BRS Vitória and BRS Platina were more suitable for processing industry.