Post-harvest dynamics of canker-affected acid lime: Implications for shelf life and market value

Bholanath Mondal[1*], Uttam Mondal[1] and Palash Mondal[2]

[1]Department of Plant Pathology, [2]Department of Agricultural Entomology, Palli-Siksha Bhavana (Institute of Agriculture), Visva-Bharati, Sriniketan, West Bengal, India

** E-mail: bholanath.ppvb@gmail.com*

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ABSTRACT

Citrus canker, caused by Xanthomonas axonopodis pv. citri (Hasse) Vauterin et al., represents a major threat to acid lime (Citrus aurantifolia (Christm.) Swingle) production, significantly impairing fruit quality and reducing marketability. Throughout the year, monthly average market prices for acid lime were recorded across five quality grades (0 to IV). The percentage decrease in market price for grades I to IV, relative to grade 0, was calculated. Standard procedures were used to estimate cultivation costs, and the Benefit-Cost Ratio (BCR) was calculated to assess profitability. Post-harvest keeping quality is crucial for storage, transportation, and obtaining higher market prices. The presence of visible citrus canker symptoms on the fruit surface led to reduced quality and lower prices, with heavily infected fruits fetching the lowest market values. Fluctuations in market prices over the months appeared to correlate with fruit availability, size, and the extent of canker-related lesions. Fruits not infected by the disease exhibited no signs of rotting after 8 days of storage at room temperature. In contrast, infected fruits demonstrated varying levels of deterioration based on their grade. The potential market price loss could be lowered by 14.26% through effective disease management practices, considering only grade 0 fruits in the BCR calculations. This study underscores the post-harvest challenges posed by citrus canker and highlights the need for effective disease management strategies to maintain fruit market value.

Keywords: Acid lime, citrus canker, keeping quality, post-harvest loss.