

Acidic electrolyzed water treatment delayed fruit disease development of harvested longans through inducing the disease resistance and maintaining the ROS metabolism systems

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Abstract

This work was designed to assess the effects of acidic electrolyzed water (AEW) on disease occurrence, disease-resistant enzymes activities, H₂O₂ content, as well as the ROS scavenging systems in longans during postharvest storage. The harvested 'Fuyan' longan fruit were immersed in AEW with ACC of 80 mg/L at pH 2.5 for 10 min, and then stored at 25 °C. Results suggested that AEW treatment suppressed the occurrence of fruit disease, promoted the activities of PAL, CHI, GLU, C4H and 4-CL, and boosted the amount of H₂O₂. In addition, AEW treatment decreased the production of O₂^{•-} generation rate and MDA content, increased the activities of antioxidant enzymes (*e.g.* SOD, CAT and APX), and maintained high levels of non-enzymatic antioxidant systems (*e.g.* AsA, GSH, DPPH radical scavenging ability and reducing power). These results revealed that AEW may be an effective treatment to enhance the fruit disease resistance and ROS scavenging capacity for suppressing the disease development of postharvest longans.