Title Roles of energy in senescence and disease development of harvested litchi fruit

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Abstract

Energy level is one of the major restrictive factors of fruit senescence and disease development. Distilled water (DSW, control), exogenous adenosine triphosphate (ATP, 1.0 mM) and uncoupling inhibitor, 2,4-dinitrophenol (DNP, 0.5 mM) were applied to non-inoculated and *Peronophythora litchi*-inoculated litchi fruit by vacuum infiltration at 75 kPa for 3 min., respectively. Fruit were then stored for 6 days at 25°C and 90-100% relative humidity. After 2 days of storage, ATP levels of ATP-treated fruit, tested by HPLC, were 25% (non-inoculated) and 10% (inoculated) higher than control fruit. With supply of ATP, litchi fruit exhibited lower browning index and disease incidence, higher level of total soluble solid, ascorbic acid, titratable acid, lower membrane permeability and MDA content during storage. Conversely, the processes of senescence and disease development were obviously quickened by DNP treatment. It's suggested that energy played a pivotal role in senescence and disease stress of harvested litchi fruit.