

Inflorescence xylem development as a key to cope with heat issue in tropical fruit production

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Abstract

Longan (*Dimocarpus longan*) is a well-acclaimed tropical fruit tree which suffer from irreversible flower abortion caused by seasonal hot wind, even in well-irrigated area. Inflorescence of the plant elongates along with the blooming of earlier developed flowers; thus, produce a mixture of flower states in each flowering stem. However, only a specific state suffers from the heat. Here, we proposed a possible answer to the problem from anatomical study of xylem tissue of the inflorescence. The vessel element development correlated to the sensitive flower state are limited as the whole inflorescence expanding. The number of vessel and total water transportation area per stem at the heat-sensitive flower state is 25% of other insensitive states. Without proper development of xylem tissue to transport water, unlimited water availability would not overcome the damage. Xylem tissue is, along with other important factors, might be a key to cope with water-related issue in the tropical fruit production.

Keywords: longan, flower, hot wind, inflorescent, anatomy, xylem, development

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