

Genomic and transcriptomic studies on chilling injury in peach and nectarine

Susan Lurie

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Abstract

Peaches and nectarines are temperate climate stone fruit, which should be stored at 0 °C to prevent ripening of these climacteric fruit. However, if stored for too long they will develop chilling injury when removed from cold storage. The disorders which develop are internal and not detectable until the fruit is consumed. Chilling injury damage includes; 1) dry, mealy, woolly (lack of juice) fruit, 2) hard-textured fruit with no juice (leatheriness), 3) flesh browning, 4) flesh bleeding or internal reddening (Lurie and Crisosto, 2005). There are genetic components to these disorders in that early season fruit are generally more resistant than late season fruit, and white fleshed fruit more susceptible to internal browning than yellow fleshed fruit. This review examines genomic and transcriptomic studies which have endeavored to find quantitative trait loci (QTLs) and genes responsible for the different chilling injury symptoms.