

Abstract:

Fruit fly infestations limit fruit marketability and many countries/regions require that potentially infested fruits be quarantine treated to assure insect mortality. The Mexican fruit fly is a common pest that infests many subtropical and tropical fruits. Persimmon and guava fruits are hosts of the Mexican fruit fly. Quarantine treatments against fruit flies often involve heat treatments, and the most frequently used are heated air (HA) or hot water dips (HWD). HA or HWD treatments involve exposure of fruits to heat for one or more hours to allow conduction of heat to the fruit center. These long exposures may alter fruit appearance, flesh quality, aroma or flavor. Recently, heat treatments provided with radio frequency (RF) energy have been studied as a possible novel treatment for insect control in nuts and fresh fruits. RF treatments expose fruit to short wavelengths that activate bipolar molecules in the fruit generating heat throughout the fruit by molecular agitation, consequently raising fruit temperatures much faster and more evenly. RF heat treatments may have less negative effects on fruit quality. The objective of this study was to determine the tolerance of persimmon and guava fruit to exposures to RF energy capable of controlling Mexican fruit fly larvae.