

Abstract:

Postharvest phytosanitation is essential for international and domestic commerce of tree fruits and nuts in the USA. Current methods used in the industry rely, however, on chemical fumigants that are either harmful to the environment or to human health. The multi-billion dollar US tree fruit and nut industries are facing a major challenge in meeting more stringent regulatory restrictions and in addressing ever-increasing public concern over health and environment. Developing thermal treatment protocols was our major focus based on radio frequency (RF) energy or in combination with conventional thermal methods such as water or air heating. To achieve a delicate balance between minimized thermal impact on product quality and complete kill of insect pests, information on thermal death kinetics of insects and commodity quality degradation kinetics is needed. In this paper, the general research strategy, principle of RF heating, and some main findings for post-harvest insect pest control in nuts are discussed.