

**Title** Application of radio frequency heating to control brown rot on peaches and nectarines  
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### Abstract

Brown rot caused by *Monilinia* spp. is a serious postharvest disease affecting stonefruit. Currently, no chemical fungicide is allowed to be applied to stonefruit postharvest in Spain, which creates the need to develop effective postharvest treatments. This is the first report using radiofrequency (RF) heating to control brown rot in peaches and nectarines artificially inoculated with *Monilinia fructicola* or with natural *Monilinia* spp. inoculum. From preliminary studies, a RF treatment at 27.12 MHz, with 17 mm distance between fruit and upper electrode and 18 min exposure time was selected as effective conditions to control brown rot in peaches without affecting fruit quality. This RF treatment was investigated to control *M. fructicola* inoculated 0, 24 and 48 h before RF treatment and using inoculum concentrations of  $10^3$ ,  $10^4$  and  $10^5$  conidia mL<sup>-1</sup>. The average brown rot incidence ranged from 44–82% to 63–100% in ‘Summer Rich’ and ‘Placido’ peaches, respectively. Brown rot reduction did not generally depend on the time of inoculation. RF treatment significantly decreased the incidence of brown rot in ‘Summer Rich’ peaches inoculated at  $10^3$ ,  $10^4$  and  $10^5$  conidia mL<sup>-1</sup>, whereas in ‘Placido’ peaches, brown rot was only reduced when fruit were inoculated at  $10^3$  conidia mL<sup>-1</sup>. The RF treatment was also investigated in naturally infected fruit where the *Monilinia* spp. development was completely inhibited in both ‘Summer Rich’ and ‘Placido’ peaches. No brown rot control was observed in nectarine fruit artificially inoculated or with natural inoculum.