

# Effect of surround WP (a Kaolin-based particle film) on *Ceratitis capitata* infestation, quality and postharvest behavior of cactus pear fruit cv Gialla

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## Abstract

A Kaolin-particle film (Surround WP) was applied at 3% to cactus pear (*Opuntia ficus-indica* cv Gialla) to assess its capacity to control medfly (*Ceratitis capitata* Wiedemann) infestation and to evaluate its effects on the quality and postharvest behavior of treated fruit. In the first trial, Kaolin was applied at the end of July when fruit were green and about two weeks later, at color breakage. Its efficacy was compared with a standard organophosphate insecticide (Phosmet). The experiment was conducted in two locations in 2014 and 2015. Kaolin application was very effective in preventing medfly attacks until natural fruit drop in November. Kaolin treated fruit were harvested at the commercial maturity stage and stored 2 weeks at 8 °C plus 1 week at 20 °C, or 3 weeks at 2 °C plus 1 week at 20 °C. The incidence of decay in the presence of medfly larvae or only due to molds was 2-13%. Phosmet was ineffective in preventing medfly attacks. The second study of Kaolin on fruit quality and postharvest behavior demonstrated that Kaolin slightly delayed fruit coloration when fruit was once or twice before harvest. Respiratory activity, ethylene rates, juice chemical composition and color at harvest time and after 1 or 2 weeks of storage at 8 °C plus 4 d at 20 °C demonstrated slight differences between Control fruit and Kaolin. Vitamin C, betaxanthins levels and the antioxidant capacity of Kaolin treatments were lower or not different than Control fruit at harvest but increased at a higher rate than in Control fruit over storage. Total phenols decreased in all treatments during storage but at a slower rate in Kaolin treatments. Overall results show that Kaolin treatments are effective to prevent medfly attacks in cactus pears with no negative effect on fruit quality and shelf life.