

Title Activity of salts incorporated in wax in controlling postharvest diseases of citrus fruit
Author Khamis Youssef, Angela Ligorio, Franco Nigro and Antonio Ippolito
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Abstract

The role of some salts applied in combination with wax on the development of postharvest rots was examined on ‘Tarocco’ and ‘Valencia late’ oranges and ‘Comune’ Clementines. Sodium carbonate and bicarbonate, potassium carbonate and bicarbonate, ammonium bicarbonate, and potassium sorbate, at 6% concentration (w/v), in combination with a commercial wax, were evaluated for their activity against naturally occurring postharvest decay. Fruit were stored for one month at 4 °C (‘Tarocco’ and ‘Valencia late’ oranges) or 6 °C (‘Comune’ Clementine), followed by one week of shelf life at 20 ± 2 °C and high RH.

Most decay was from green and blue moulds, caused by *Penicillium digitatum* and *P. italicum*, respectively, with an average incidence of 11% for ‘Comune’ Clementines and 5% for both ‘Tarocco’ and ‘Valencia late’ oranges. Decay caused by *Botrytis cinerea* and *Alternaria* spp. was also observed. The incidence of postharvest rots on fruit treated with wax alone (11%) was higher than on those treated with water (7%), whereas in fruit treated with wax combined with different salts, decay incidence was significantly lower than with wax and water controls. In particular, potassium sorbate incorporated in wax significantly reduced the incidence of postharvest decay in all tested cultivars. The incidence of decay on fruit treated with imazalil was low, not exceeding 1%. Salts, except ammonium bicarbonate, interfered with the action of the wax to retard weight loss. The results indicate that the addition of the salts to wax may be an easy and effective mode of their application, since no additional equipment is needed.