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Use of Lamiaceae essential oils to control postharvest rots caused by *Botrytis cinerea* and *Penicillium expansum* on four cultivars of apple

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The most important postharvest diseases of apples include gray mold and blue mold rots. Essential oils have recently been identified as an alternative strategy to reduce the use of synthetic fungicides to control postharvest diseases of fruits and vegetables. The postharvest efficacy of the essential oils from basil, lavender, marjoram, oregano, peppermint, rosemary, sage, savory, thyme and wild mint was assessed on apples cvs Golden Delicious, Granny Smith, Red Chief and Royal Gala to control *Botrytis cinerea* and *Penicillium expansum*. Apples were artificially inoculated with a spore suspension of each pathogen. All the treated fruits were stored at 4°C. After 15 and 30 days, the diameter of the rot around each wound was measured. Results showed that, at the same concentration, treatments based on savory and thyme essential oils were statistically more effective in controlling both pathogens than the other essential oils. Moreover, they were more effective on apples cvs Granny Smith and Red Chief than on cvs Golden Delicious and Royal Gala. Higher essential oil concentrations (10%) were sometimes associated to phytotoxicity symptoms. Apples cv Golden Delicious and cv Granny Smith were more susceptible to phytotoxicity. The efficacy of essential oil treatments and their phytotoxicity were partially cultivar-dependent, when applied on apples.