Antifungal activity of essential oils associated with carboxymethylcellulose against *Colletotrichum acutatum* in strawberries

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Abstract

The antifungal activity of the essential oils (EOs) of *Eucalyptus staigeriana, Lippia sidoides* and *Pimenta pseudocaryophyllus* was evaluated *in vitro*, by direct contact and by exposure to volatiles, against *Colletotrichum acutatum*, an important pathogen of strawberry. The chemical composition of the EO with the highest activity and its effects on the morphology of the pathogen were verified. The *in vivo* antifungal activity of this EO associated with carboxymethylcellulose (CMC) coating, in preventive and curative applications, was also evaluated. *L. sidoides* EO presented the highest antifungal activity *in vitro*, being more efficient by direct contact than by volatilization. This EO has a predominance of the compound thymol and was able to cause dehydration and rupture of the pathogen hyphae. *In vivo*, strawberries treated with CMC associated with *L. sidoides* EO presented a reduction in disease severity, when treated in a curative way. Thus, the association of *L. sidoides* EO with CMC can be a potential alternative for the control of this disease.