

Thymol nanoemulsions incorporated in quinoa protein/chitosan edible films; antifungal effect in cherry tomatoes

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© 2017 Thymol nanoemulsions were produced by spontaneous emulsification, ultrasound, and a combination of both methods. The best result in terms of size and polydispersion was spontaneous emulsification where thymol was efficiently encapsulated, the nanoemulsions inhibited *Botrytis cinerea* at 110 ppm of thymol. A 10% dilution of this nanoemulsion in water was used to prepare quinoa-chitosan films. The film microstructure was porous and heterogeneous. The tensile strength of the film was significantly lower but its mean elongation at break was similar to that of the control film. The water vapour permeability was similar to that of the control film. The effect of nanoemulsion-thymol-quinoa protein/chitosan coating on mould growth in inoculated cherry tomatoes was evaluated. Compared with control samples (tomatoes without coating and those coated with quinoa protein/chitosan), tomatoes with this coating and inoculated with *B. cinerea* showed a significant decrease in fungal growth after 7