
Post-Harvest Treatment Using Coatings of Chitosan and And Mentha X villosa Huds. Essential Oil Maintains the Quality of Tomatoes (*Lycopersicum esculentum*) and Delays the Growth of Post-Harvest pathogenic Fungi

Ingrid Conceição Dantas Guerra (I), Rayssa Julliane de Carvalho (I), Estefânia Fernandes Garcia (I), Marta Suely Madruga (I), Miriane Moreira Fernandes dos Santos (I), Priscila Dinah Lima Oliveira (I), Evandro Leite de Souza (I)

(I) UFPB - Federal University of Paraíba (Cidade Universitária, s/n - 58051-900 - Castelo Branco, João Pessoa - PB, Brazil)

Resumo

Public concern to minimize post-harvest losses due to microbial spoilage has aroused interest in finding safer protectors cultures with a view to replacing synthetic chemical pesticides. An emerging alternative has been the use of natural protectors with potential fungitoxic, which must have low mammalian toxicity, less deleterious effects on the environment, and wide public acceptance. The growing recognition of the impact of fungal infections in plant production, and the difficulty of treatment, demonstrate the need to evaluate the potential use of chitosan combined with essential oils as an inhibitor of fungal growth in vitro. This study evaluated the efficacy of the combined application of chitosan (CHI) and Mentha x villosa Huds. essential oil (MV) in the inhibition of *Aspergillus flavus*, *Aspergillus niger*, *Rhizopus stolonifer*, *Botrytis cinerea* and *Penicillium expansum* on laboratory media and on tomatoes (*Lycopersicum esculentum*) and its influence on the physical, physicochemical and sensory characteristics of the fruits during storage (25oC, 12 days and 12oC, 24 days). The MIC values ranged from 5 µL/mL for the essential oil to

Referência:

Ingrid Conceição Dantas Guerra, Rayssa Julliane de Carvalho, Estefânia Fernandes Garcia, Marta Suely Madruga, Miriane Moreira Fernandes dos Santos, Priscila Dinah Lima Oliveira, Evandro Leite de Souza. Post-Harvest Treatment Using Coatings of Chitosan and And Mentha X Villosa Huds. Essential Oil Maintains the Quality of Tomatoes (*Lycopersicum Esculentum*) and Delays the Growth of Post-Harvest Pathogenic Fungi. In: **Anais do 12º Congresso Latinoamericano de Microbiologia e Higiene de Alimentos - MICROAL 2014** [= Blucher Food Science Proceedings, num.1, vol.1]. São Paulo: Editora Blucher, 2014.
DOI 10.5151/foodsci-microal-306

8mg/mL to chitosan against microorganisms tested. We used the MIC of chitosan and oil, and subinibitory concentrations ($\frac{1}{2}$ MIC and $\frac{1}{4}$ MIC). The chitosan film and the essential oil of *M. villosa* Huds and in subinibitory and inhibitory concentration caused strong inhibition (96 to 98%) on mycelial growth of all the microorganisms studied. The inhibition of spore germination of the test strains in all combinations tested were greater than 90%, in addition to inhibiting the growth of the assayed fungi strains in artificially infected tomatoes as well as the autochthonous mycoflora of tomatoes stored at both room and cold temperature. In general, the application of a coating composed of CHI and MV at sub-inhibitory concentrations preserved the quality of tomatoes as measured by their physical and physicochemical attributes, while some of their sensory attributes improved throughout the assessed storage time. Through the results, it is clear the potential use of the combination of chitosan coating and the essential oil of MV in sub-inhibitory concentrations in the control of post-harvest fungal pathogens.

Palavras-Chave: medicinal plants, fungi, biopreservation

Agência de Fomento: BNB