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Inhibitory Effect of Some Medicinal Plants Essential Oils on Post-Harvest Fungal Disease of Greenhouse Tomato Fruits

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Abstract

The consequence in misuse of chemical biocides for controlling pests and diseases has drawn the attention of policy makers in development of methods potentially available in nature for the purpose. One of the new and safe methods of controlling pests and diseases is the usage of essential oils from medicinal plants. In the present investigation, inhibition of spore germination of post-harvest gray mold rot and *Rhizopus stolonifer* exposed to the different concentrations of some medicinal plants essential oils (*Thymus vulgaris, Mentha piperita, Carum caraway, Rosmarinus officinalis* and *Foeniculum vulgar*) were studied. Essential oils were examined at 0.5 % and 1 % in comparison to the control (without any treatments). All the data statistically analyzed. Results shown that growth of gray mold and *Rhizopus* completely inhibited by *Carum caraway* at both levels until first week. *M. piperita* and *R. officinalis* oils (at both levels) and *T. vulgaris* oil (at 1%) had suitable effects until third days, after this time the fungal diseases start to decaying the fruits from the blossom end point. The fruits that treated with fennel oil start to decaying from the second days after treatment. Therefore inhibitory potency of essential oils on the post-harvest disease of greenhouse tomato fruits was as *Carum caraway* > *M. piperita* > *R. officinalis*> *F. vulgar* > *T. vulgaris* and the extent of inhibition of fungal growth was dependent on the concentration of essential oils usage. These results clearly indicated that it is necessary to focus on practical application of the essential oils for inhibition of post-harvest pathogen growth and these compounds could be used as a substitute for chemical fungicides since they are natural, and none-toxic to humans

Keywords: Essential oils, Medicinal plants, Post-Harvest disease, Bio-control