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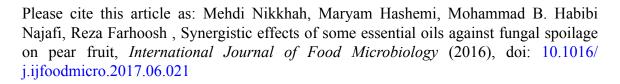
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Synergistic effects of some essential oils against fungal spoilage on pear fruit

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Abstract:

The development of natural protective agents as alternatives to chemical fungicides is currently in the

spotlight. In the present investigation, chemical composition and antifungal activities of thyme,

cinnamon, rosemary and marjoram essential oils (EO), as well as synergism of their possible double

and triple combinations were investigated. The compositions of the oils were determined by GC/MS.

For determination of antifungal activity against Penicillium expansum and Botrytis cinerea, a broth

microdilution method was used. The possible interactions of some essential oil combinations were

performed by the two and three-dimensional checkerboard assay and isobologram construction. An in

vivo antifungal assay was performed by artificial wounding of pear fruits. The maximum antifungal

activity was demonstrated by thyme and cinnamon oils which displayed lower MIC values whereas

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