In vivo Effect of Essential Oils from Laurus Nobilis, Anethum Graveolens and Mentha Piperita on Mycobiota Associated with Domiati Cheese During Storage

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Abstract:

Abstract Three concentrations (3, 5, and 7 ml/100g retentate) of each of three natural oils were added during manufacturing of low salt white cheese. The mycobiota of cheese were assessed after 8 hours, 3 weeks, 7 weeks and 11 weeks. Twelve species were isolated (Aspergillus flavus, A. fumigatus, A. niger, A. versicolor, Penicillium aurantiogriseum, P. camembertii, P. griseofulvum, P. islandicum, P. oxalicum, P. restrictum, Ulocladium atrum and the yeast species Debaryomyces hansenii). The total counts of fungi increased in Laurus nobilis oil-treated cheese at the three concentrations after 3 weeks compared with control, but decreased after 7 weeks in treatment with 3 and 7% of oil concentrations. Cheese treated with Anethum graveolens oil at 3% concentration showed the highest fungal counts after 7 weeks of storage. The fungal counts decreased by increasing all concentrations of Mentha piperita oil (3, 5 and 7%). Generally, treatment of cheese with M. piperita oil significantly decreased the total counts of fungi. On the other hand, oils of L. nobilis and A. graveolens at 3 to 7% concentrations caused an increase of total counts after 3 and 11 weeks but L. nobilis and A. graveolens oils caused a decrease after 7 weeks at 5 and 7% concentrations compared to control. Isolates of Aspergillus flavus screened for aflatoxin production using Coconut agar medium (CAM) were positive for aflatoxin B production when observed at 365 nm UV light.

Keywords:

Keywords Domiati cheese, Essential oils, Laurus nobilis, Anethum graveolens, Mentha piperita, GC-MS, Fungi, Aspergillus, Penicillium, Aflatoxin

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