

- **Volatiles in dairy products after supplementation of essential oils in the diet of cows and influence on taste of cheese**

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Abstract:

This research investigated volatiles in dairy products and taste and sensory properties of cheese after a feeding trial with 16 cows in two groups, of which one was supplemented with essential oils. Gas chromatographic analyses of the powdery supplement, raw milk and extracted milk fat measured the concentrations of volatiles in these matrices. Quantitative descriptive analyses and a consumer test evaluated sensory properties and acceptance of cheese samples. Of 30 volatiles in the powder, eight were selected for quantification, showing amounts of 1.4 mg (pulegone) to 106.4 mg (menthol) per g. Eucalyptol, camphor, menthol, menthone, pulegone and thymol were monitored in dairy products. Results adumbrate a slight carry-over of volatiles into milk and an accumulation in milk fat. In raw milk, the levels of monitored substances were very low (0.09 µg thymol to 13.17 µg menthone/100 g milk) and nearly disappeared by using experimentally defined limits of detection. However, eucalyptol, menthone and pulegone showed a significant difference between treatments in raw milk ($p = 0.002$ – 0.036). Individual cow effects did not cause differences on total amounts of volatiles in milk and fat. On the other hand, descriptive sensory tests of cheese by a trained panel displayed a high variability of sensory properties of samples. The following liking test using naïve consumers showed clearly higher ratings for cheese samples of two treated cows, however, without differences due to feeding versions.

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