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The effects of two essential oil and UV-light irradiation treatments on the formation of biogenic amines in vacuum packed fillets of carp (*Cyprinus carpio*)

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Abstract

Fillets of carp (*Cyprinus carpio*) were treated either by an application of an essential oil (thyme, oregano) or by UV-C irradiation (two different doses: 121 and 243 mJ/cm^2). All the control and treated vacuum packs were stored at 3.5°C for up to 49 days. The content of eight biogenic amines (putrescine, cadaverine, spermidine, spermine, histamine, tyramine, tryptamine and phenylethylamine) were determined after storage. Thyme oil and, especially, oregano oil were found to be effective in suppressing the formation of putrescine, cadaverine, tyramine and phenylethylamine. UV irradiation at the selected doses was shown to be less effective. Samples rated as being of good quality contained less than 10 mg/kg of each of these four amines. The polyamines spermidine and spermine in treated samples did not show statistically significant changes during storage of samples. Tryptamine was not detected in samples treated with essential oils, histamine was not detected in any of the samples. The application of thyme and oregano oils prolonged the shelf-life of samples by 5 and 6 times respectively.