

Means of Retarding Development of Fishy Flavor and Inhibiting Lipoxygenase Activity by Microorganisms in the Presence of Salt

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Summary

Our overall goal of this study was to optimally control the leading function of *Eurotium herbariorum* and to search for new types of lipoxygenase (LOX) inhibitors, thus contributing development of the technology for food processing using microorganisms.

1. Prevention of fishy flavor by *E. herbariorum* --- Out of volatile flavor compounds in sardine trapped by headspace sampling, the amounts of propanal and 1-penten-3-ol were specifically increased as a function of storage time. As this was due to the action of LOX on lipid like EPA, it was found that LOX must be inactivated to avoid fishy flavor generation during storage of sardine. Addition of powdered mycerial mats of the fungus to sardine mince was with increasing desirable flavor characteristics as well as remarkable inhibition of volatile compounds formation and lipid oxidation. LOX activity was significantly retarded by the fungus metabolites like flavoglaucin. The fungus also decomposed aldehydes to produce the corresponding acids and alcohols even in higher concentrations of salt.

2. LOX inhibitors from microorganisms --- A fungus, *Aspergillus terreus*, produced 1,3-dihydro-7-methyl-4,5,6-trihydroxy-isobenzofuran as a strong inhibitor. Out of three kinds of derivatives isolated from *Penicillium daleae*, 2-acetyl-3,4-dihydroxy-5-methoxy-phenyl acetic acid had an inhibitory activity.