〔Wat. Sci. Tech., **25**, 363-370 (1992)〕 [Lab. of Public Health]

Mutagenicity of ozonation products from humic substances and their components.

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Eight structural components of humic substances were ozonated. Mutagenicity was found on TA 100 with and without S9 mix for all the ozonated components. Aldehydes, Ketones and carboxylic acid were identified as the ozonation products from p-hydroxybenzaldehyde. Among these products, acetaldehyde, formaldehyde, glyoxal, glyoxylic acid and methylglyoxal were mutagenic compounds. The quantitative analysis of these mutagenic aldehydes was performed. Glyoxal and glyoxylic acid were main mutagenic products. Granular activated carbon treatment after ozonation was performed. Most of the mutagenic aldehydes reduced, but only glyoxal increased.

〔Chem. Res. Toxicol., **5**, 183-187 (1992)〕 [Lab. of Public Health]

Arylamination and arylation of 4,4,4-trifuluoro-1-phenyl-1,3-butanedione with N-acetoxy derivatives of 2-aminofluorene.

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N-Acetoxy-2-(acethylamino) fluorene bound to tRNA at 37℃, pH 7.0, and this reaction was inhibited by 4,4,4-trifluoro-1-phenyl-1,3-butanedione or 2-thenoyltrifluoroacetone. N-Acetoxy-2-(acethylamino) fluorene reacted with these reactive methylene compounds to form transitory 3-substituted 2-(acethylamino) fluorene intermediates, which, following cleavage of the trifluoacetyl group, yielded 3-phenacyl-2-(acethylamino) fluorene or 3-(2-thenoylmethyl)-2-(acethylamino) fluorene. N-Acetoxy-2-[(trifluoroacetyl)amino]fluorene reacted with 4,4,4-trifluoro-1-phenyl-1,3-butanedione to yield two products. The inhibition by β-ketones of nucleic acid-binding and bacterial mutagenesis of carcinogens are likely due to their trapping of the carcinogens.

〔Sci. Total Environ., **116**, 137-144 (1992)〕 [Lab. of Public Health]

Suppression of sediment oxygen demand with lime-based treatments.

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Sediment oxygen consumption was measured using a continuous flow-through system before and after the application of lime-based material onto the surfacial sediment. Lime-based amendments including quick-lime, calcium hydrate, a mixture of calcium hydrate and magnecium hydrate and dromitic lime were effective in suppressing sediment oxygen consumption, while precipitated calcium carbonate had little effect. The dose of quick-lime required to suppress the biological respiration is estimated to be >50 g/m^2 for river sediments and >25 g/m^2 for sludge, respectively.