

〈原 著〉

## Phenol系化合物と蛍光合成基質の結合能

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### Conjugation Potency of Some Phenolic Compounds with Synthetic Fluorescent Substrates

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#### Abstract

Most fragrance materials causing allergic contact dermatitis have electrophilic active sites, and bind covalently with nucleophilic groups of protein side chains. The  $\epsilon$ -amino group of lysine, the imidazole group of histidine, and the sulfhydryl group of cysteine may be very important as nucleophilic groups of amino acids in protein.

Conjugation potency of the phenolic compounds with monodansyl cadaverine (MDC) and monodansyl histamine (MDH) were investigated using high-performance liquid chromatography (HPLC).

Conjugates of phenolic compounds and MDC or MDH were produced only in the presence of  $H_2O_2$ -peroxidase.

Isoeugenol showed a high reactivity to MDC and moderate reactivity to MDH. Eugenol and acetyl isoeugenol showed a moderate reactivity only to MDC. Acetyl eugenol showed no reactivity to MDC nor to MDH. The results of these in vitro tests were well correlated with those of in vivo tests.

As a result, it was suggested that the conjugation of phenolic compounds with carrier protein is an oxidation reaction, and that the  $\epsilon$ -amino group of lysine is more important than the imidazole group of histidine as the binding sites in protein.

**Key words:** contact dermatitis, phenolic compounds, monodansyl cadaverin, monodansyl histamine, high-performance liquid chromatography