〔EISEI KAGAKU, **35**, 433 (1989)〕

Effects of Constituents of Paeony Root on the Mutagenicity of Benzo〔*a*〕pyrene.

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Paeony root extract shows strong antimutagenic activity for benzo[*a*]pyrene (B[*a*]P). The extract was fractionated to 26 fractions with Sephadex LH-20, and preparative high performace liquid chromatography. Antimutagenic activity was observed in Gallic acid (GA) and pentagalloyl glucose (PGG) in Paeony root extract. Antimutagenic effects of GA and PGG were explored in the following points. They are (I) reaction and adsorption of B[*a*]P with GA and PGG, (II) inhibition of the enzymatic activity of S9 mix by GA and PGG, (III) inactivation of the metabolites of B[*a*]P by GA and PGG, and (IV) bio-antimutagenic effect of GA and PGG on DNA damaged bacteria. GA and PGG inactivated the metabolites of B[*a*]P, and PGG inhibited the enzymatic action of S9 mix. Their inhibitory effect was recognized as desmutagenic action.

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Inhibition by Diacylmethane Derivatives of Mutagenicity and Nucleic Acid Binding of 2-Aminofluorene Derivatives.

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The active methylene compounds acetylacetone, 1,1,1-trifluoroacetylacetone, benzoylacetone, dibenzoylmethane, and 1,3-indanedione inhibited the mutagenicity of 2-nitrofluorene in *Salmonella typhimurium*. They also inhibited the *N,O*-acetyltransferase-catalyzed transfer RNA binding of *N*-hydroxy-2-acetylaminofluorene, but they did not inhibit *N,O*-acetyltransferase. However, only 1,3-indanedione and 1,1,1-trifluoroacetylacetone significantly inhibited the binding of *N*-acetoxy-2-acetylaminofluorene to transfer RNA. Reaction of the trifluoro compound with the acetoxy compound yielded 1-(*N*-2-fluorenylacetamido)acetone. These results demonstrate that active methylene compounds can inhibit mutagenicity and nucleic acid binding of chemical carcinogens.

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5,2′,5′-Trihydroxyflavone and 2′,β-dihydroxychalcone from *Primula pulverulenta*

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A new flavone, 5,2′,5′-trihydroxyflavone and 2′,β-dihydroxychalcone (β-diketone) were isolated from the farinose exudate of *Primula pulverulenta* D_{uthie} (Primulaceae) by preparative TLC of some minor fractions on silica gel. These structures were established on the basis of spectral data and confirmed by total synthesis. The farinose of *Primula* species are well known for the biosynthesis of unsubstituted flavone, the precursor of which was isolated for the first time in the present study. 2′,β-Dihydroxychalcone is a new natural representative of the rare group of β-diketone or dibenzoylmethanes and 5,2′,5′-trihydroxyflavone is also a novel flavone. A transformation experiment suggests that the β-diketone is converted into flavone during isolation procedures.