〔Mutat. Res. **241**, 283 (1990)

Mechanism of antimutagenicity of aquatic plants extracts against benzo[*a*]pyrene in Salmonella assay.

TAKAHIKO SATO*, YOUKI OSE, HISAMITSU NAGASE, HIDEAKI KITO

The mechanism of an antimutagenicity of water extracts of grass-wrack pondweed (*Potamogeton oxyphylus* MIQUEL), curled pondweed (*Potamogeton crispus* L.) and smartweed(*Polygonum hydropiper* L.) towards benzo〔*a*〕pyrene mutagenicity in *Salmonella typhimurium* was investigated. The antimutagenic components in the aquatic plants were water-soluble, heat-resistant and had a high molecular weight. The antimutagenic effect of the plants extracts was caused by adsorption rather than by bio-antimutagenicity or decomposition of benzo〔*a*〕pyrene. Chlorophyll did not play an important role.

〔Mutat. Res., **244**, 129 (1990)〕

Inhibitory Action of Peony Root Extract on the Mutagenicity of Benzo [*a*] pyrene.

YOSHIMICHI SAKAI, HISAMITSU NAGASE, YOUKI OSE, HIDEAKI KITO, TAKAHIKO SATO*, MAKOTO KAWAI and MIZUO MIZUNO

The inhibitory effects of peony root extract on the mutagenicity of benzo〔*a*〕pyrene (B〔*a*〕p) have been investigated in the *Salmonella typhimurium* revertion test. Four kinds of experiments were performed : direct chemical reaction (1) between peony root extract and B〔*a*〕p, and (2) between peony root extract and active metabolite(s) of B〔*a*〕p, (3) inhibition of metabolic processes of B〔*a*〕p with S9 mix, and (4) inhibition of activation on mutagenicity. Peony root extract interfered with the action of enzymes in the S9 mix, and inactivated the activity of B〔*a*〕p metabolites. The bio-antimutagenic effect was assayed by revertion in *Salmonella typhimurium* TA98 and TA100.

〔Eisei Kagaku, **36**, 304 (1990)〕

Studies on the Quantitative Structure Activity Relationship of Anti-mutagenic Phenol Carboxylic Acids to Benzo[*a*]pyrene.

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Quantitative structure-activity relationship was studied on antimutagenic phenol carboxylic acids. Antimutagenic activities of 104 compounds were examined with Ames test by using *Salmonella typhimurium* TA98 with S9 mix and benzo〔*a*〕pyrene. Theory of quantification I was applied to this study, and the chemical structures of compounds were classified into 3 items. It was found that 3,4,5-trihydroxy, 3,4,5-trimethoxy group and coumarin acted for enhancing antimutagenicity, while 4-albehyde, 2-carboxy and 4-carboxy group acted for enhancing mutagenicity.