

Thesis Title	Antimutagenic, Antimicronucleus Formation and Antineoplastic Effects of Local Tea.
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ABSTRACT

Five brand names of local tea in Thailand were investigated for antimutagenic activity by Ames test using 2-(2-furyl)-3-(5-nitro-2-furyl) acrylamide (AF₂) as a tested mutagen. Results revealed that these different sources of tea had similar potentials in reducing the mutagenic activity induced by such mutagen in *Salmonella typhimurium* strain TA98. The further study by the same test also showed that local tea was able to inhibit the mutagenicity induced by 2-aminoanthracene (2AA), aflatoxin B₁ (AFB₁), benzo(a)pyrene (BP), cyclophosphamide (CP), 4-nitro-o-phenylenediamine (NPD), and 4-nitroquinoline-1-oxide (4NQO) in *S. typhimurium* strains TA98 and TA100 in the absence and presence of metabolic activation due to the property of the tested mutagens. In the antimutagenicity study of tea towards mitomycin C (MC) was done by Rec-assay, it was found that tea was also capable to inhibit the mutagenicity induced by MC. In the experiment on the addition of tea before and after application of the mutagen, it was found that the addition of tea before showed the better antimutagenic result.

In antimicronucleus formation study, the oral effective dose of tea in inhibiting the induction of micronucleus formation in mouse polychromatic erythrocytes by CP which was given intraperitoneally (ip.) ≥ 4 g/kg. Such inhibitory effect was significant when the mutagen was given ≥ 12 hr after the administration of tea. The other mutagens, namely, AFB₁, BP, and MC which were injected ip. 24 hr after feeding 5 g/kg of local tea were reduced their micronucleus formation activity because the significant reduction of micronucleated erythrocytes caused by these mutagens was observed ($p < 0.05$). Similarly to the anti-mutagenicity, the better antimicronucleus effect was detected when tea was given before the application of the mutagen.

In antineoplastic study, the cytotoxic effect of local tea on P388 cells (mouse lymphocytic leukemia cells) was performed. It was shown that 100 $\mu\text{g/ml}$ of tea had the strong cytotoxic effect upon such cells. The ED₅₀ of tea upon P388 cells *in vitro* was 79 $\mu\text{g/ml}$.