Inhibition of rat intestinal Cl^- secretion by 4,5-dimethylresorcinol

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＜和文タイトル＞

4,5-ジメチルレゾルシノールによるラット腸の塩素イオン分泌の阻害

[Abstract]

Wood creosote, a mixture of phenolic compounds, inhibits enterotoxin-induced intestinal fluid secretion, suggesting that one of its constituents suppresses transepithelial Cl^- secretion from the intestinal mucosa. To identify an active constituent in wood creosote that inhibits intestinal Cl^- secretion through Cl^- channels, we first examined its effect on Cl^- secretion using a cultured cell line transfected with complementary DNA encoding a Cl^- channel and a Cl^- -sensitive fluorescent dye. We next assayed chromatographic fractions of wood creosote for the inhibitory activity on Cl^- secretion using a Ussing chamber. We found that 4,5-dimethylresorcinol, identified by gas chromatography-mass spectrometry, inhibited intestinal Cl^- secretion dose-dependently when added to a serosal, but not mucosal, surface of rat jejunum, a half-inhibitory concentration being 3.8 μg/ml (28 μmol/l). It was strongly suggested that this effect was due to inhibition of Cl^- channels.