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Phenylpropanoids which are widely distributed in vegetable kingdom, have anti-inflammatory activity on carrageenan-induced rat paw edema. Their mechanisms are not clear. In this study, to find out their mechanism, effect of phenylpropanoids on phospholipase A2 (PLA2) activity were examed in the silica-induced [3H]arachidonic acid release in RAW 246.7 cells. Silica stimulated PLA2 activity in a dose dependent manner. Phenylpropanoids have dose-dependently decreased the [3H]arachidonic acid release in RAW 246.7 cells. Silica-induced PLA2 activity was significantly inhibited by sinapinic acid and quinic acid at a concentration of more than 10 μM, but was not affected by other phenylpropanoids, such as cinnamic acid, p-coumaric acid, caffeic acid, ferulic acid and chlorogenic acid at 100 μM. It shows that quinic acid has the most activity. Quinic acid and sinapinic acid at a concentration of 10 μM decrease significantly the [3H]arachidonic acid release in RAW 246.7 cells. These results indicated that the more has hydroxy group of benzene ring, the more has potent inhibitory activity of phospholipase A2 activity.

[PB2-3] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Inhibitory Action of Phenylpropanoids on Silica-induced Reactive Oxygen Species Generation in RAW 246.7 cells

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Silica which is a typical fibrogenic particles in many occupations including coal mining, quarrying and sandblasting induced acute inflammatory response and fibrosis in lung. we reported that structure-activity of phenylpropanoids on anti-inflammatory activity on carrageenan-induced rat paw edema. Their mechanisms are not clear. In this study, to find out their mechanism, effect of phenylpropanoids on reactive oxygen species (ROS) generation were examed in RAW 246.7 cells. Silica stimulated ROS generation in a dose dependent manner. Phenylpropanoids have dose-dependently decreased ROS generation in RAW 246.7 cells. It shows that chlorogenic acid has the most activity. Chlorogenic acid and caffeic acid at a concentration of 1 μM decrease significantly ROS generation, and also ferulic acid and sinapinic acid at a concentration of 10 μM decrease significantly ROS generation in RAW 246.7 cells. These result indicated that cinnamic and p-coumaric acid has not active, but the more has hydroxy group of benzene ring, the more has potent inhibitory activity of ROS generation.

[PB2-4] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Inhibitory Action of Cinnamic Acids Derivatives on Silica-induced Peroxynitrite Generation in RAW 246.7 Cells

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C6-C3 compound, cinnamic acid derivatives are widely distributed in vegetable kingdom. Recently, we reported that structure-activity of cinnamic acid derivatives on anti-asthmatic activity in the increase of specific airway resistance of ovalbumin-sensitized guinea pig and anti-inflammatory activity on carrageenan-induced rat paw edema, respectively. Their mechanisms are not clear. In this study, to find out their mechanism, effect of cinnamic acid derivatives on peroxynitrite (PON) generation were examined in RAW 246.7 cells. Silica stimulated PON generation in a dose dependent manner. Cinnamic acid derivatives have dose-dependently decreased PON generation in RAW 246.7 cells. It shows that ferulic acid has the most activity. Ferulic acid, caffeic acid and chlorogenic acid at a concentration of 1 μM decrease significantly PON generation, and also quinic acid, coumaric acid and sinapinic acid at a concentration of 10 μM decrease significantly PON generation in RAW 246.7 cells. These result indicated

that the more has hydroxy group of benzene ring, the more has potent inhibitory activity of ROS generation.

[PB2-5] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Inhibitory Activity of Scopoletin and Scoparone in Carageenan-and Arachidonic Acid-Induced Edema

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Coumarin derivatives are widely distributed in the vegetable kingdom. They have anti-tumor, anti-oxidant, anti-viral, anti-inflammatory. In this study, anti-inflammatory activity of scopoletin (7-hydroy-6-methoxy-2H-1-benzopyran-2-one), scopalone (6,7-dimethyl- coumarin) and coumarin were studied in the carageenan- and arachidonic acid - induced edema. Paw edema was determined by plethysmograph and ear edema was determined by microengineer's meter. Scopoletin and coumatin purchased from Sigma company and scopalone was purchased from Aldrich company. Coumarin derivatives have dose-dependently anti-inflammatory activity with the following order of potency : scopalone > scopoletin > coumarin. It shows that scopalone and scopoletin at a dose of 25 mg/kg have significant anti-inflammatory activity in the model of carageenan-induced paw edema and arachidonic acid-induced ear edema. These results indicated that the more has hydroxy group of benzene ring, the more has potency inhibitory activity of anti-inflammation, and methylation in 7-hydroxy group of benzene introduced lesser active.

[PB2-6] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Single and One Month-oral Toxicity of Combination of Gingko Biloba and Selegiline

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Selegiline(SE) is a anti-Parkinsonism agent and Gingko bilova extract (GBE) has active blood circulation. In this experiment, to develop the combination drug for osteoporosis at a ratio of 1 : 24 of SE and GBE, single and one month-oral toxicity of combination drug of SE and GBE were studied in rats. In the single oral toxicity at a combination dose of 3.13, 6.25, 12.5, 25, 50, 100, 200, 400, 800 mg/kg base on SE, respectively, LD50 was 180.95 mg/kg for SE and 4.34 g/kg for GBE. in male rat, and LD50 was 309.08 mg/kg for SE and 7.41 g/kg for GBE in female rat. No significant weight gain, food consumption and urine analysis were shown. In one month oral toxicity at a ration of combination dose of 3.3, 10, 33.3 mg/kg of SE and 79.2 240, 799.2 mg/kg of GBE. Only one female rat with combination administration of 33.3 of SE and 799.2 mg/kg of GBE died. Significant weight gain, food consumption and urine analysis are not found. and also significant clinical findings are not shown. Eye, urine, hematological and biochemical parameters were not significantly changed. Combination of SE and GBE at a dose of 33.3 and 799.2 mg/kg and that is more toxic in male than female rat.

[PB2-7] [10/18/2001 (Thr) 14:00 - 17:00 / Hall D]

Expression of Proteinase-Activated Receptor-2 on Intestinal Mast Cells in Ulcerative Colitis