fraction.

[PA1-26] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Anti-obesity and Hypolipidemic Action of Leaves of Mulberry(Morus alba L.)

1Kim SY, 1Cho KH, 1Suk K, 1Hur JY, 1Park JY, 2Kim AJ, 3 Lim K and 1Kim H

1Depart. of Herbal Pharmacology, Graduate School of East-West Medical Science, Kyunghee Uni., Hoegi-Dong, Tongdaemoon-Ku, Seoul 130-701, Korea;2 Depart.of Food and Nutrition, Hyejeon College, 350-800, Korea; 3 Woosuk Univ., Chonbuk 565-701,Korea

Leaves of mulberry (Morus alba L.) have been traditionally reported to have anti-obesity effects in Oriental medicine. The present study was undertaken to investigate whether the obesity of obese Zucker (fa/fa) rats can be ameliorated by the oral administration of methanol extracts of mulberry leaves.
The weight of the whole body and adipose tissue, food intake, uncoupling protein-2 (UCP2) expression, and plasma levels of triglyceride, LDL, HDL, and insulin were measured in obese Zucker rats administered with methanol extracts of mulberry leaves (125 mg/kg, twice daily) for 3 weeks. These were then compared with those of control group administered with physiological saline solution.
Obese Zucker rats treated with methanol extracts of mulberry leaves, compared with those administrated with saline, weighed significantly less, and had lower liver weight. Animals that received methanol extracts of mulberry leaves showed less food consumption than those administered with saline. Also, extracts of mulberry leaves enhanced the expression UCP2 in brown adipose tissue (BAT) and liver, while decreasing plasma levels of cholesterol and triglyceride.
Oral administration of methanol extracts of mulberry leaves for 3 weeks has been shown to exert anti-obesity and hypolipidemic effects in obese Zucker rats. The extracts not only increased UCP2 expression in BAT and liver, but also reduced food intake and plasma levels of cholesterol and triglyceride, which contributed to mitigation of obesity. These results suggest that leaves of mulberry may be used as an effective crude drug for the treatment of obesity.

[PA1-27] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

The mechanism of ceramide-induced circular smooth muscle cells contraction in feline esophagus.

Shin CY°, Lee YP, Yim SH, Lee TS, Lee NI, Huh IH and Sohn UD

Department of Pharmacology, College of Pharmacy,Chung Ang University, Seoul 156-756, Republic of Korea

It has been shown that C_2-ceramide (C_2) plays a role in mediating contraction of ileal rabbit. In this study, we have investigated the mechanism of C_2 -induced circular smooth muscle cell contraction in feline esophagus. C_2 produced contraction of smooth muscle cells isolated by enzymatic digestion,peaked at 30sec and reached the maximal response at 10^{-7} M. C_2-induced contraction was inhibited by PLC inhibitor, neomycin, not by PLA_2 inhibitor,DEDA and not by PLD inhibitor, pCMB. We investigated that whether protein kinase C (PKC) or protein tyrosine kinase (PTK) pathway involved in the contraction by C_2. H-7, chelerythrine (PKC inhibitors) and genistein (PTK inhibitor) inhibited C_2-induced contraction. PKCεantibody inhibited the contraction by C_2. To examine which MAP kinases is involved in ceramide-induced contraction, specific MAP kinase inhibitors (MEK inhibitor, PD98059, and p38 MAP kinase inhibitor, SB202191) are used. Preincubation of PD98059 blocked the contraction induced by C_2 in a concentration dependent

manner. C_2 induced an increase in the intensity of the detection bands identified by immunological methods as MAP kinase monoclonal p44/p42 peptides. Preincubation of PD98059 induced a decrease in the intensity of the detection bands as compared with C_2 stimulated cells. In conclusion, ceramide-induced circular muscle cells contraction is mediated via PKC-, PTK- and MAP Kinase - dependent pathway in feline esophagus.

[PA1-28] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Effects of hemin on the cyclooxygenase in the primary cultured hypothalamic cells

Lee HU°, Park HY, Park C, Lee SY

Lab. of Pharmacology, College of Pharmacy, Sungkyunkwan University

Endogenous carbon monoxide (CO) shares with nitric oxide (NO) a role as a putative neural messenger in the brain. Both gases are believed to modulate CNS function via an increase in cytoplasmic cGMP concentrations secondary to the activation of soluble guanylate cyclase. Recently CO and NO was proposed as a possible mediator of febrile response in hypothalamus. In hypothalamus, the soluble guanylate cyclase is almost undetectable and the prostaglandin E (PGE) is well known as a final mediator of febrile response. Thus, we investigated the agents, which can modulate the heme oxygenase (HO) system, on cyclooxygenase (COX) in the rat primary cultured hypothalamic cells. PGE2 released from primary cultured hypothalamic cells was taken as a marker of COX activity. PGE2 concentration was measured with ELISA kits. Hemin evoked an increase in PGE2 release from hypothalamic cells, and this effect is blocked by ZnPP IX (an inhibitor of HO) and indomethacin (an inhibitor of COX). Also, hemin induced inducible form of HO (HO-1). These results suggest that CO arising from heme via metabolism by heme oxygenase may mediate the febrile response via the activation of COX in hypothalamus.

[PA1-29] [10/19/2000 (Thr) 10:00 - 11:00 / [Hall B]]

Effects of Heme oxygenase induction on the rat aortic contractility

Park HY°, Lee SY

Lab. of Pharmacology, College of Pharmacy, Sungkyunkwan University

Carbon monoxide has very similar characters in biological action with nitric oxide. CO increases in cytoplasmic cGMP concentrations secondary to the activation of soluble guanylate cyclase. The heme oxygenase, a CO-producing enzyme. was detected in the aortic tissues. However, despite many efforts were done, the effects of endogenous CO on vascular tissues have not been characterized. In the present study, we examined the effects of induction of heme oxygenase on the aortic contractility in rats. The pretreatment of aortic ring with hemin, a potent inducer of heme oxygenase, for 2 hours significantly suppressed the contractile response to phenylephrine both and this effect was independent on the presence of endothelium. ZnPP IX blocked the reduction of contractile response to phenylephrine by the pretreatment with hemin. The contractile response to phenylephrine in the hemin-pretreated aortic ring was significantly increased in the presence of methylene blue, a inhibitor of guanylate cyclase. These results suggest that the pretreatment with hemin induced heme oxygenase in smooth muscle and the carbon monoxide generated by induced heme oxygenase acts as a relaxant factor in the aorta.