The inhibitory effects of (1R,9S)- and (1S,9R)-enantiomers of β-hydrastine (BHS) on dopamine biosynthesis in PC12 cells were investigated. (1R,9S)-BHS decreased the intracellular dopamine content with the IC_{50} value of 14.3 μM at 24 h, but (1S,9R)-BHS did not. In these conditions, (1R,9S)-BHS inhibited TH activity mainly in a concentration-dependent manner (33% inhibition at 20 μM) and decreased TH mRNA level. (1R,9S)-BHS at 10-50 μM also reduced the intracellular cyclic AMP level and Ca^{2+} concentration. In addition, treatment of L-DOPA at 20-50 μM for 24 h increased the intracellular dopamine content to 198-251% compared with the control value in PC12 cells, however, the increase in dopamine levels induced by L-DOPA was significantly reduced when L-DOPA (20-50 μM) was associated with (1R,9S)-BHS (10-50 μM). These results indicate that (1R,9S)-BHS, but not (1S,9R)-BHS, inhibited dopamine biosynthesis and L-DOPA-induced increase in dopamine content, in part, through the inhibition of TH activity and TH gene expression in PC12 cells: thus, (1R,9S)-BHS proved to have a function to regulate dopamine biosynthesis.

[PA1-29] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Inhibitory Effects on Dopamine Biosynthsis and Protective Effect on L-DOPA-induced Neurotoxicity of liriodenine in PC12 cells

Jin Chunmei°, Lee Jae Joon, Yin ShouYu, Kim Yu Mi, Yang You Jong, Ryu Si Yong, Lee Myung Koo

College of Pharmacy,and Research Center of Bioresource and Health,Chungbuk National University, San 48, Kaeshin-Dong, Heungduk-Ku, Cheongju 361-763, Republic of Korea;Korea Research Institute of Chemical Technology, Taejeon 305-606, Republic of Korea

The effects of liriodenine, an aporphine isoquinoline alkaloid, on dopamine biosynthesis and L-DOPA-induced neurotoxicity in PC12 cells were investigated. Treatment of PC12 cells with liriodenine at 10 μM showed 33.6% inhibition of dopamine content decreased at 3 h and reached a minimal level at 12 h after the exposure to liriodenine at 10 μM. Under these conditions, tyrosine hydroxylase (TH) and aromatic amino acid decarboxylase (AADC) activities were also reduced inhibited at 10 μM of liriodenine by 10.1% and 20.2% relative to control, respectively. However, TH mRNA level was not altered by liriodenine treatment. Intracellular level of cAMP and $[Ca^{2+}]i$ were also decreased by liriodenine at 10 μM. Liriodenine induced a time- and concentration- dependent decrease in cell viability. Liriodenine at non-cytotoxic concentration (10 μM) significantly inhibited L-DOPA-induced the decrease in cell viability. These results suggest that liriodenine contributes partially to the decrease in dopamine biosynthesis and L-DOPA-induced increase in dopamine content by inhibition of TH and AADC activities in PC12 cells, which may be due to inhibition of cAMP production and $[Ca^{2+}]i$. In addition, liriodenine may attenuate decrease the L-DOPA-induced death of PC12 cells.

[PA1-30] [04/17/2003 (Thr) 14:00 - 17:00 / Hall P]

Antimicrobial and Antioxidative Activities of Cornis fructus Extracts

Chun HyunJa, Choi WonHyung°, Lee JeongHo, Lee InA, Lee JiSu, Baek SeungHwa

Division of Natural Science, 1Department of Herbal Rresources and 2third Medicine, Professional Graduate School of Oriental Medicine, Wonkwang University, Iksan, 570-750, Korea