분류번호	III-P-16

Effects of Ginseng Total Saponin on Morphine-induced Alterations in Brain Opioid and Dopamine Receptors

A.-Y. Kim° S.-Y. Lee, Y.-R. Kim, G.-S. Yoo, D.-K. Lim, K.W. Oh[1] and K.-M. Kim

College of Pharmacy, Chonnam National University, Kwang-Ju, Korea

[1]College of Pharmacy, Chungbuk National University, Cheongju, Korea

Several behavioral studies have suggested that ginseng total saponin (GTS) antagonizes morphine actions. Based on these observations, we conducted biochemical studies to elucidate the cellular mechanism of GTS actions. Morphine hydrochloride (10 mg/kg, sc) and/or GTS (400 mg/kg, oral) were administered to mice for 14 consecutive days. Ligand binding studies were conducted from striatal membranes. For opioid receptors, morphine increased the affinity but decreased the maximal binding sites for ^{3}H naloxone. GTS partially recovered it. In case of dopamine receptors, morphine increased affinity and maximal binding sites for ^{3}H spiperone, and GTS partially blocked it. These results suggest that morphine affects cellular events by modulating opioid receptors and that opioid receptors interact with dopamine receptors to change the mental status. GTS could be helpful for the treatment of morphine-induced mental disorders.

To conduct more systemic studies for the morphine tolerance and dependence, we re-cloned mouse δ_2-opioid receptor, which plays an important role in morphine dependence, by RT-PCR. To make δ_2-opioid receptor-specific antibodies, C-terminal part of cloned δ_2-opioid receptor was bacterial expressed in the fusion protein with glutathione-S-transferase, and injected into mice. In immunoblotting, produced antibodies specifically recognized δ_2-opioid receptors expressed in COS-7 cells. These antibodies and cDNAs will be invaluable tools to study the cellular mechanism of morphine dependence and tolerance.