essential oil of AGR impressively inhibited the activity of γ-aminobutyric acid (GABA) transaminase, a degradating enzyme for GABA as inhalation period is lengthened. The GABA level was significantly increased and glutamate content was significantly decreased in mouse brain by the preinhalation of an essential oil. Above results suggest that anticonvulsive effect of an essential oil of AGR is originated by the enhancement of GABA level in the mouse brain, because convulsion depends partially on GABA concentration which can be properly preserved by inhibiting GABA transaminase. Moreover, fragrance inhalation progressively prolonged the pentobarbital-induced sleeping time as inhalation time is lengthened. Ten hour inhalation corresponded almost to the effect (145% increase) of oral administration (60 mg/kg). This sedative effect after inhalation or oral administration of the essential oil suggests that the essential oil of AGR may act on the CNS via the GABAergic system. The inhibitory activity of preinhalation of an essential oil on lipid peroxidation, which is attributable to the anticonvulsive action, also supported above results, confirming and extending our previous reports on the CNS inhibitory effects of AGR

[PD3-9] [04/18/2003 (Fri) 13:30 - 16:30 / Hall P]

Effect of bioconversioned ginseng and its butanol fraction on adenine-induced renal failure in rats

Shin Yong-Wook°, Choi Hyuck-Jai, Park Jong-Eun, [1]Kim Dong-Hyun, Kim Nam Jae

East-West Medical Research Institute and [1]College of Pharmacy, Kyung-Hee University

To elucidate the effect of bioconversioned ginseng(Sun ginseng) and its butanol fraction on adenine-induced renal failure, rats were fed *ad libitum* on diet containing 0.75% adenine for 20 days to induce renal failure, and bioconversioned ginseng was orally administrated during the feeding period. On days 10 and 20, BUN, Creatinine, Ca and P contents were analyzed in serum and urine, and on days 20, blood pressure, heart pulse and relative kidney weight were measured. In conclusion, those parameters had significant changes in the both bioconversioned ginseng and its butanol fraction treated groups on comparison with nontreated groups.

[PD3-10] [04/18/2003 (Fri) 13:30 - 16:30 / Hall P]

INDUCTION OF GROWTH HORMONE RELEASE BY GLYCYRRHIZAE RADIX

Jung DaeYoung, Lee HoYoung, Ha Hyekyung, Jung DaYoung, Yang HaRu, Lee JeHyun, Kang SamSik, Kim Chungsook°

Department of Herbal Pharmaceutical Development, Korea Institute of Oriental Medicine;Department of Oriental Pharmaceutical Science, Kyung Hee University;Natural Products Research Institute, Seoul National University

The aim of this study was designed to determine the induction of rat growth hormone(rGH) by extracts of a popular herb, Glycyrrhizae radix(GR), roots of *Glycyrrhiza glabra* $_{\text{Linne}}$, and *Glycyrrhiza uralensis* $_{\text{Fischer}}$. *In vitro* study was carried out using primary rat pituitary cell culture for 3 days and then was treated with methanol extract corresponding to 1 mg of dried weight of herb per 1 ml of culture solution. The supernatant was recovered and induced rGH level was evaluated by RIA method. Its major components - glycyrrhizin, glycyrrhetinic acid, isoliquiritigenin, formononetin, liquiritigenin, liquiritigenic acid, and glabrolide which were isolated and purified from GR - were tested in 10 μg/ml following above methods. In results, the herbal extract increased rGH level up to 2.87±0.7 fold ($p<0.05$) comparing to that of basal level and

fractions of n-hexane and ethyl acetate induced rGH level up to 3.63±1.28 fold ($p<0.01$) and 1.86±0.23 fold ($p<0.05$) of the basal level, respectively. Unfortunately, most the components used above did not induce the release of rGH in the culture. *In vivo* study, T_{max} was 10 min after administration of 10 μg/kg of rGHRH however T_{max} of GR was 30 min and the peak height not significant. Further studies using other natural products are in progress. (supported by a grant, #PF 002201-01, from Plant Diversity Research Center of 21st Century Frontier Research Program, Korea)

Poster Presentations - Field D4. Analytical Chemistry

[PD4-1] [04/18/2003 (Fri) 13:30 - 16:30 / Hall P]

Simultaneous determination of nalbuphine and methamphetamine in drug abuser's urine

Park MeeJung°, Choi WhaKyung, Choi SangKil, Son HaengJa, Lim MiAe, Chung HeeSun

Dept of Forensic science, National Institute of Scientific Investigation

Because people who take more than two drugs have increases, a simple and sensitive method for the simultaneous analysis of amphetamine, methamphetamine and nalbuphine in urine was developed. After alkalinization of the urine samples with 6 N-NaOH, the analytes were extracted using ethyl acetate, derivatized with MSTFA : TSIM : TMCS (= 100 : 2 : 5) prior to gas chromatography-mass spectrometry(GC-MS) analysis with selected ion monitoring. Ions 116, 131, 191 for amphetamine-TMS, 130, 91, 206 for methamphetamine-TMS and 573, 428, 518 for nalbuphine-TMS were selected respectively. The first of the ions listed for each compound were used for quantification. Methoxyphenamine was used as the internal standard. Recoveries were higher than 90% for three drugs and limits of detection were 5, 10 and 20 ng/ml for amphetamine, methamphetamine and nalbuphine, respectively. The cut-off level were set at 250 ng/ml for amphetamine and methamphetamine, and 50 ng/ml for nalbuphine. The method was linear from 50 ng/ml up to 1 μg/ml for all analytes. All of these data recommend the applicability of the method for simultaneous analysis of methamphetamine and nalbuphine in urine samples.

[PD4-2] [04/18/2003 (Fri) 13:30 - 16:30 / Hall P]

Chiral separation of β-agonists after derivatization with a new chiral derivatization agent, GATC

Min Kyeong Il°, Ko Mi Young, Kim Kyeong Ho

College of Pharmacy, Kangwon National University

Several β-agonists were investigated for the possible separation of the enantiomers by reversed-phase high-performance liquid chromatography after derivatization with a new chiral derivatization agent, GATC. The derivatization proceeded quantitatively within 1 h at room temperature. The corresponding diastereomers were well resolved an ODS column with acetonitrile-acetate buffers a mobile phase and monitored at UV 254nm. The optimization of the