pancreatin (pH 6.8), cumulative release rate of diltiazem was almost 90 % in 24 hr, but in simulated gastric fluid TS without pepsin (pH 1.2), its cumulative release rate was almost 60 %. And stirring rate and dissolution apparatus did not affect release rate of diltiazem. Diltiazem tablets with three different in vitro release profiles were administered to four dogs. The slower dissolution rate of tablets were, the more bioavailability decreased. And Cmax (ng/mL), Tmax (hr), and AUC (ng·hr/mL) decreased. A significant relationship between MDT 70 and AUC was found (R2=0.94). It can be possible to predict in vivo kinetics of drug through dissolution test in certain conditions. And development and application of various dissolution test are required.

[PE1-15] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Formation of nano-particles of slightly soluble medicines by planetary ball milling:(III) Co-grinding effect of Ursodeoxycholic acid and surfactants

Chung HY°1, Choi WS1,2,

1. Department of Pharmaceutical Manufacturing, College of Pharmacy, 2. Interdisciplinary Program in Powder Technology, Graduate School, Pusan National University

Dry co-grinding of Ursodeoxycholic acid(UDCA) and surfactants(①Sodium lauryl sulfate, ②Polyvinyl alchol, ③Methyl cellulose) was carried out using a planetary ball mill for its nano-particle sized of UDCA. Purpose of this experiment is to improve bioability of poorly water-soluble drugs.
320 g of zirconium oxide balls of 2 mm diameter and 12~13.5 g of UDCA mixed with 1.5~3 g surfactants(①Sodium lauryl sulfate, ②Polyvinyl alchol, ③methyl cellulose) were loaded into a 372 ㎖ zirconium pot and ground at 112 r.p.m.
Mastersizer(Malvern, U.K) and Image-Bora(Bora Software, Korea) to measure the particle size were used. The powder X-ray diffraction patterns were measured at room temperature with a X-ray diffractometer.
These results indicate that the addition of various surfactants to UDCA leads to form finer particles than the powder ground without any additives.

[PE1-16] [04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3]]

Pharmacokinetics of 2, 4-Dihydroxybenzaldehyde and 3, 4-Dihydroxybenzaldehyde, Constituents of Gastrodia elata, in Rats

Lee SH°, Quan QZ, Choi HG, Rhee JD and Yong CS

College of Pharmacy, Yeungnam University

The pharmacokinetics of 3, 4-dihydroxybenzaldehyde(3, 4-HBA), 2, 3-dihydroxy- benzaldehyde (2,3-HBA), constituents of Gastrodia elata(GE), were investigated in rats. GE is an oriental medicinal herb which has been used traditionally for the treatment of various brain disease including convulsion and epilepsy. Male S.D. rats were cannulated in the femoral vein and artery, bile duct and ureter. After i.v administration of 3, 4-HBA and 2, 4-HBA to rats, the concentrations of 3, 4-HBA and 2, 4-HBA in plasma, bile and urine were analyzed by a validated HPLC. Pharmacokinetic parameter values of Cmax, Tmax, AUC, t1/2 and clearance were determined. The AUCs of 3, 4-HBA and 2, 4-HBA were 562.1 and 661.9ug min/ml, respectively. Elimination half lives were 5.0 and 37.6min for 3, 4-HBA and 2, 4-HBA, respectively. MRT of 3, 4-HBA and 2, 4-HBA were 6.0 and 7.3min. Urinary and biliary excretion fraction were small. The data suggest that most of 3, 4-HBA and 2, 4-HBA were eliminated through metabolism. To develop better anticonvulsants, derivatives of HBA with longer biological half-lives should be designed.