

[PE1-21] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

The Study of Stability of Oral Pharmaceutical Liquid Preparations I

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The available period of oral pharmaceutical liquid preparations was decided according to the study of the stability of unopened preparations. But if one reuses the drug after opening the sealed cap, the major components of the drug could change in quality. In addition, there isn't any accurate information about the available period of opened oral pharmaceutical liquid preparations. In this study, a long term test, an accelerated test and a microbial limit test are run with A (acetaminophen), B (L-carbocysteine) that are marketed and used frequently. Sample products are stored as the state of CLOSE (store it as initial marketed form, unopened) and the state of C/O (open and close cap regularly after opening it). The results from above two states are analyzed comparing with each other. The active substances of each product are assayed by HPLC method described in compendial monographs. In the long term test, there wasn't any significant change of active substances until 4 months. Syrups stored in each condition in the long term test didn't show any significant change in physical testing of pH, color, and odor. But in accelerated test, the change of active substances is greater than that in the long term test and is proportional to temperature. In the microbial limit test, any bacteria and fungi have not been observed until 3 months.

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Effects of Oriental medicine on Osteoporosis in Ovariectomized Rats

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This experiment study was carried out to prove the efficacy of Cheongpajeon(CPJ) extract in ovariectomized rats. 40 rats were divided into 4 groups, administrated saline after sham operation group(sham-op), administered saline after ovariectomy group(control), administered CPJ 1g/kg after ovariectomy group and administered Livial 0.042mg/kg after ovariectomy group(positive control). We examined the water extract of CPJ that is capable of affecting osteoblast proliferation using MG-63 and HOS-TE85. Dual energy X-ray absorptiometry(DEXA) had been used to measure the bone mineral density on the tibia that had been ovariectomized rat and sham-op group. Serum was collected for analysis of Ca and phosphorus. The results showed that body weight gain have significantly difference among groups. The Tibia BMD and BMC had significantly difference among the groups. These results suggest that CPJ has therapeutic effect on ovariectomized rats.

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Effect of Polyethylene Glycols on the Electroosmosis Through Skin

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Electroosmotic flux during iontophoresis originates due to the net negative charge of the current passing channel (pores) in skin at physiological pH (pH 7.4). Thus, the channel is permselective to cations, and this causes the convective solvent flow, from anode to cathode direction. This solvent flow facilitates the flux of cations (from anode), inhibits that of anions (from cathode), and enables the enhanced transport of neutral, polar solutes. In this work, we have investigated the effect of a series of polyethylene glycols (PEGs) with different molecular weights on the electroosmotic flow to get more detail understanding of this phenomena. The change in electroosmotic flow was studied using conventional in-vitro iontophoresis methodology. As a marker molecule for the direction and magnitude of electroosmotic flow, acetaminophen (AAP), a neutral molecule, was used. Anodal side was filled with aqueous solution of AAP and PEG. Diethylene glycol, tetraethylene glycol, hexaethylene glycol, PEG 400,

PEG 600, PEG 900, and PEG 1500 were studied. The results show that PEGs decreased the flux of AAP and thus the electroosmotic flow. This decrease in flux (electroosmotic flow) was larger as the molecular weight of PEG increased.

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Effect of Vehicles and Penetration Enhancers on the Percutaneous Absorption of Ketorolac Tromethamine across Hairless Mouse Skin

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The effects of vehicles and penetration enhancers on the in vitro permeation of ketorolac tromethamine (KT) across excised hairless mouse skins were investigated. Among pure vehicles examined, propylene glycol monolaurate (PGML) showed the highest permeation flux, which was 94.3 ± 17.3 mg/cm²/hr. Even though propylene glycol monocaprylate (PGMC) alone did not show high permeation rate, the skin permeability of KT was markedly increased by the addition of diethylene glycol monoethyl ether (DGME); the enhancement factors were 19.0 and 17.1 at 20 and 40 % of DGME, respectively. When DGME was added to PGML, the permeation fluxes were almost two times at 20-60% of DGME compared to PGMC alone. The combination of propylene glycol and oleyl alcohol enhanced the permeation fluxes dramatically compared to PG alone; however it failed to show significant enhancing effects compared to oleyl alcohol. In the study to investigate the effect of drug concentration on the permeation rate of KT, four pure vehicles (DGME, PGMC, PGML, isopropyl alcohol) and two binary co-solvents (DGME-PGMC, DGME-PGML) were employed. The permeation rates increased as the drug concentration increased in all vehicles used, and the dramatic increase in permeation rate was obtained when the drug concentration was higher than its solubility. For the effects of fatty acids on the permeation of KT, five fatty acids were added to propylene glycol (PG) at the concentrations of 1, 3, 5 and 10%-caprylic acid, capric acid, lauric acid, oleic acid, and linoleic acid. The penetration fluxes generally increased as the fatty acid concentration increased. The highest enhancing effect was attained with 10% of caprylic acid in PG; the permeation flux was 113.6 ± 17.5 mg/cm²/hr. The lag time of KT was reduced as the concentration of fatty acids decreased except for caprylic acid.

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Ultra-fine Grinding Mechanism of Pharmaceutical Additive by Stirred Ball Mill - Consideration of particle size distribution on ground nano-particle

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Recently, the need for ultra-fine particles, especially nano-sized particles has increased in the fields preparing raw powders such as pharmaceutical additive and high value added products in the Nano-Technology processes. Therefore, the research in ultra-fine grinding is very important, especially, in nanometer grinding. In the previous paper, a series of wet grinding experiments using grinding aids using a stirred ball mill have been performed on grinding rate constant based on grinding kinetics. In this study, firstly the relationship between the change of median diameter of products and the specific grinding consumption energy was discussed with the experimental factors such as the grinding ball size and the concentration of grinding aids using pharmaceutical additive powders such as CaCO₃ by the wet grinding process in a stirred ball mill. Secondly the production rate below particle size could be expressed as an exponential of un-ground fraction based on the rate process and the effect of above experimental factors on the grinding rate constant had examined with the change of particle size distribution of nano-particle size products.

[PE1-26] [2003-10-11 09:00 - 12:30 / Grand Ballroom Pre-function]

Investigation of transport of PEGylated salmon calcitonin through caco-2 cell monolayers

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