

free microspheres was only formed when EA was used as a organic solvent and showed nice spherical microspheres although surfaces was still rough. Protein contents was lower than our expectations and reason of low protein contents was thought to the easier formation of water channel and pores. Protein release kinetics showed burst release until 2 days and after that sustained release pattern was showed.

[PE1-3] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Preparation of polymeric nanoparticles from hydrophobically modified pullulan for hydrophobic drug carrier

Kim In-Sook[○], Kim Sung-Ho

조선대학교 약학대학 약품생물화학연구소

For the development of a biocompatible nano-scale drug carrier, hydrophilic polysaccharide pullulan was hydrophobized by the conjugation with fatty acid. The synthesized polymers were characterized by the measurements of fourier transform infrared (FT-IR) spectroscopy and ¹H-nuclear magnetic resonance (NMR) spectroscopy. In aqueous solution, hydrophobically modified pullulan was self-assembled and structured into the core-shell type nanoparticles. The self-assembling characteristics of the hydrophobically modified pullulan were confirmed by the measurement of fluorescence spectroscopy. Critical association concentration (CAC) was calculated by the intensity ratios of the excitation spectra with various concentrations of nanoparticle suspension. Morphologies of the nanoparticles were observed by the transmission electron microscope (TEM). Particle size distribution was measured by photon correlation spectroscopy (PCS). By the control of the amount of fatty acid, the hydrophobicity changes of the polymers were measured by x-ray diffractometer. The possibility as hydrophobic drug carrier was evaluated with a model drug in vitro.

[PE1-4] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

New Formulation of Vitamin A Transdermal Therapeutic System

Han JinWoo[○], Lee Dong Hwan, Lee KeeMyoung, Park EunSeok, Chi SangCheol

성균관대학교

Retinol is widely used for skin care, the improvement of the appearance of aging, photo-damaged or oxidatively stressed skin, and especially for the improvement of the appearance of wrinkled skin. Retinol, however, is extremely sensitive to atmospheric oxygen, and easily decomposed by exposure to air. Retinol is commonly formulated as the ointments or creams for cosmetic preparations. However, they have several disadvantages, such as chemical and thermal instability, skin irritation, inflammation by vehicles. In order to reduce these disadvantages, especially, to enhance the stability of retinol in the preparation, it was formulated as the matrix patch using hydrophilic polymer matrix.

PEG 400 and glycerin (50/50) were used as plasticizers in the preparation of retinol patches. The effects of plasticizers concentrations on adhesive force of retinol matrix patch were evaluated using peel adhesion and loop tack. The carbomer matrix containing a total of 2.0-4.0% plasticizers represented the strongest adhesion force. And the effects of hydrophilic polymers on release of retinol were evaluated using Franz diffusion cells fitted with cupropane membrane. The release of retinol from carbomer matrix followed Higuchi's equation. Retinol in N-AA1 matrix showed the highest release profiles among various hydrophilic polymeric matrix. The effects of stabilizers on stability of retinol were also evaluated at accelerated condition. The degradation of retinol in carbomer matrix followed the Arrhenius equation of first order kinetics. The combination of BHA/BHT was the stabilizer of choice and their effect was concentration dependent. PEG 400/Glycerin (50/50) was the best plasticizers to improve the stability of retinol in carbomer matrix and their effect was also concentration dependent.

[PE1-5] [10/18/2002 (Fri) 13:30 – 16:30 / Hall C]

Preparation and Evaluation of Methacrylate copolymer Microspheres of Piroxicam