〔J. Soc. Powder Technol., **29**, 455-460 (1992)〕 [Lab. of Pharm. Engineering]

Changes in Controlled-Release Function of Pulverized Low-Substituted Hydroxypropylcellulose by Wet Granulation.

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Pulverized L-HPC (low-substitued hydroxypropylcellulose, LH41) is used as a controlled-release matrix filler, depending on the L-HPC particles in drugs were facilitated by wet granulation to improve their availabilities for practical uses. Controlled-release functions of the L-HPC were reserved through granulation with ethanol, whereas they were lost during granulation with water. The difference in the controlled release functions of agglomerated L-HPC were explained in terms of their swelling properties, depending on the type of solvent used for the granulation.

〔Int. J. Pharm., **86**, 25-33 (1992)〕 [Lab. of Pharm. Eingineering]

Improvement of Photostability of Ubidecarenone in the Formulation of a Novel Powdered Dosage Form Termed Redispersible Dry Emulsion.

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Ubidecarenone, which has low photostability and is poorly absorbed in the intestine, was formulated into a novel powdered dosage form designated as a redispersible dry emulsion. In preparing the system, an oily solution containing the drug and a colorant emulsified in an aqueous solution of a surfactant (Pluronic F-68) was spray-dried with a suitable excipient. The resultant dry emulsion particles have good flow properties and readily release the oily droplets to form stable emulsion on rehydration. The redispersibility, *i.e.*, the conversion to the original emulsion from the dry emulsion form, was found to be closely related to the viscosity of the oily carrier. The photostability of the drug dissolved in the oily carriers was much improved in the presence of colorants. The kinetics data for photolytic degradation of the drug in the dry emulsion particle were analyzed to clarify the effect of the amount of excipient and colorant on the photostability of the drug in the particle.

〔Chem. Pharm. Bull., **40**, 3030-3035 (1992)〕 [Lab. of Pharm. Engineering]

Particle Design of Tolbutamide by the Spherical Crystallization Technique. V. Improvement of Dissolution and Bioavailability of Direct Compressed Tablets Prepared Using Tolbutamide Agglomerated Crystals.

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Tolbutamide (TBM) agglomerated crystals were prepared by three spherical crystallization techniques, the solvent change (SC) method, neutralization (NT) method and quasi-emulsion solvent diffusion (QESD) method (SC-A, SC-B, NT and QESD agglomerated crystals), followed by mixture with a disintegrating agent and a lubricant (physical mixtures), and then tableting by the direct compression method. Unagglomerated TBM original crystals (bulk) were treated in the same manner. The dissolution rate and bioavailability of TBM from the physical mixtures and tablets were evaluated to look for a correlation between the *in vitro* dissolution profile and *in vivo* bioavailability. The TBM dissolution rate from the physical mixtures and tablets increased in the order of bulk≦QESD<SC-A<SC-B<NT in direct proportion to an increase in the specific surface area of the agglomerated crystals and bulk. A linear relationship could be established between the specific surface area and 75 % dissolution time (T75).