

# Development of a spontaneous emulsification technique using porous polymer particles

**Eiichi Toorisaka**

*Graduate School of Science & Technology for Innovation, Yamaguchi University*

A spontaneous emulsification method using porous polymer particles was used for the preparation of fine emulsions. Porous water-soluble polymer particles were prepared from EUDRAGIT® L100 by the spray freeze-drying technique and could absorb soybean oil via capillary action. When the particles were added to phosphate buffer, emulsification proceeded rapidly with the dissolution of the polymer. The addition of hydrophilic surfactants to soybean oil promoted the reduction of emulsion particle size. Furthermore, the addition of NaCl or mannitol to the polymer particles contributed to the enhancement of the emulsion micronization and emulsification rate. It is expected that this emulsification method would be used in the development of cosmetics in the future.