Drug delivery system comprising gelatine nano-particles slowly releasing hardly-water soluble substances

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Paclitaxel (PTX)-loaded gelatin nanoparticles (NPs) were prepared, for the first time, by novel O/W/O emulsion with a single-step emulsion process accompanying solvent diffusion, in contrast to the conventional double-step emulsion processes. Linoleic acid was chosen among the natural fatty acids as the exterior medium for the single-step emulsion process accompanying solvent diffusion. The size of the PTX-loaded gelatin NPs prepared in this study was the smallest among the reported sizes of PTX-loaded gelatin NPs, which would contribute to the enhanced permeability and retention (EPR). In addition, TEM showed that the loaded PTX was located mostly inside the gelatin NPs unlike previous investigations. Accordingly, the conceptual model of the designed PTX-loaded gelatin nanoparticle was introduced.