

13th International Conference and Exhibition on

Nanomedicine and Pharmaceutical Nanotechnology

July 24-25, 2017 | Rome, Italy

A physicochemical study on the preservation of nanoparticles

Seitaro Kamiya, Kabashima Tsutomu and Kenichiro Nakashima
Nagasaki International University, Japan

The importance of nanoparticle formulation is increasingly recognized in supporting pharmaceuticals development. Thus, maintaining a constant state in nanoparticles is an important major issue. A method involving lyophilization with the addition of saccharides can be used to maintain the state of nanoparticles. In drugs; however, this method has not been sufficiently discussed. In this study, trisaccharides, tetrasaccharides, and pentasaccharides were added to the nanoparticle suspensions, followed by rehydration of the samples, which had been either dried normally or freeze-dried. The particle diameter size after rehydration at that time was then measured. In addition, each saccharide was measured using a powder X-ray diffractometer and differential scanning calorimetry (DSC) device. We studied the association between the nanoparticles aggregation and the crystal form of saccharides and their mechanisms by using the obtained results of the data of particle size, powder X-ray pattern, and DSC curves. The diameter of the nanoparticles was maintained when it was freeze-dried, while particle aggregation occurred when normal dried samples were used. In addition, crystallinity crystalline saccharide was not observed in the freeze-dried group but was in the normal dried group.

Biography

Seitaro Kamiya has his expertise in evaluation and passion in improving the pharmaceuticals and pharmaceutical technology. He focuses on increasing the efficiency of powder solidification of the nanoparticles and demonstrating the association between nanoparticles and saccharides. In addition, his chief concern is to elucidate the mechanism of association between nanoparticles and carriers.

kamiya@niu.ac.jp

Notes: