ABSTRACT

Solidification Methods of Nanosuspension Literature Review

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Poor dissolution and solubility rate are primary causes that could hindrace the development of a new drug substance particularly for oral route. Nanosuspension is one of the available approaches to increase drug dissolution and solubility rates. However, nanosuspensions is available in the form of liquid dispersion and this might cause stability problem as well as influence patient acceptability. Nanosuspension solidification is the solution to overcome the problem. Several nanosuspension solidification methods that can be applied are spray drying, freeze drying, spray granulation, fluid bed coating, and extrusion-spheronization. This study was aimed to evaluate the most general method used in nanosuspension solidification and to determine the advantages and disadvantages of each a solidification method. Based on those, a most suitable solidification method of nanosuspension can be chosen. This study was conducted using the scoping review approach with articles obtained from two databases. There were 49 articles used in the review writing comprising 19 articles of the spray drying method, 12 articles of the freeze drying method, 7 articles of the spray granulation method, 8 articles of the fluid bed coating method, and 3 articles of the extrusion-spheronization method that chosen from the established criteria.

This scoping review study shows that spray drying is the most common method in solidification. Other methods, such as freeze drying, Spray granulation, fluid bed coating, and extrusion-spheronization, might also be used as alternatives in conducting solidification by considering the advantages and disadvantages of each method.

Keywords : Nanosuspension, Nanosuspension Solidification, Spray Drying, Freeze Drying, Spray Granulation, Fluid Bed Coating, and Extrusion-spheronization.