ABSTRACT

Feasibility of Developing Rutin in A Solid Dispersions System Using Poloxamer 188 Matrix with Freeze Drying Method

Literature Review

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Low solubility is one of the problems in pharmaceutics formulation. Flavonoid compounds have many pharmacology effect, including rutin, have Biopharmaceutical Classification Class II which is low solubility and high permeability. Low solubility can cause low dissolution rate. Poor solubility and low dissolution rate of the drugs often cause insufficient bioavailability. However, there is a technique that used to enhance the solubility of poorly soluble drugs called solid dispersions. This Literature Review aims to know the feasible of rutin in solid dispersions using hydrophilic matrix Poloxamer 188 with freeze drying method. The feasibility is analyzed from physical characteristics (crystallinity, thermal properties, and morphology) and drug release. A comprehensive study was defined to obtain data for physical characterization (PXRD, DSC, and SEM) and dissolution *in* vitro test of solid dispersions. Literatures were searched using seven keywords in database such as PubMed, ScienceDirect and Google Scholar. A total six literature were obtained. Analysis results shows change of crystallinity to amorphous state and enhancement of drug release of poor solubility drug in solid dispersion. These results are proportional to the increase of hydrophilic polymer ratio. PXRD shows a lower degree of crystallinity indicates changes to amorphous state. DSC/DTA thermograms shows a lower endothermic peaks with lower melting points confirmed by the finding results. SEM morphologies show changes to more porous and sphere. Dissolution *in vitro* test show enhancement of drug release.

Keywords: Flavonoids, Rutin, Poloxamer 188, Solid Dispersions, Feeze Drying