

ABSTRACT

CHARACTERIZATION OF PHYSICAL PROPERTIES AND SOLUBILITY OF QUERCETIN – SOYBEAN PHOSPHATIDYLCHOLINE COMPLEX SYSTEM

Rr. Firdha Adhria Chaniago

Quercetin is a natural flavonoid with a high antioxidant activity which can be used as hepatoprotector. The low solubility of quercetin in water inhibits its absorption in GIT channel. In order to increase the solubility and bioavailability, phospholipid quercetin-SPC (Q-SPC) complex system was made using solvent evaporation method with molar ratios of 1:1 and 2:1. Physical mixtures with the same molar ratios were also made as comparison. The complex obtained was characterized using Differential Thermal Analysis (DTA), X-Ray Diffraction (XRD), Scanning Electron Microscope (SEM), Fourier Transform Infrared Spectroscopy (FTIR) and solubility test. Based on SEM analysis, the Q-SPC showed an agglomerate structure with the presence of cavities and film surface covering the system. Furthermore, the XRD, DTA and IR results confirmed the formation of phospholipid. Solubility of quercetin in Q-SPC 1:1 and Q-SPC 2:1 complex increased from 3,13 ppm to 26,66 ppm and 14,95 ppm, respectively. These results show that the phospholipid complex using SPC could improve the physical properties of quercetin as well as its solubility.

Keywords: Quercetin, soybean phosphatidylcholine, phospholipid complex, solvent evaporation, physical properties, solubility