

MULTICOMPONENT CRYSTALLIZATION OF KETOPROFEN- NICOTINAMIDE FOR IMPROVEMENT OF SOLUBILITY AND DISSOLUTION RATE

Yudi Wicaksono ^{a*}, Dwi Setyawan ^b, Siswandono Siswandono ^b

^a Faculty of Pharmacy, University of Jember, Jl. Kalimantan 37, Jember 68121, Indonesia

^b Faculty of Pharmacy, Airlangga University, Jl. Darmawangsa Dalam 4-6, Surabaya 60286, Indonesia

*e-mail: yudi.farmasi@unej.ac.id; phone: (+62 331) 324736; fax: (+62 331) 324736

Abstract. The study was aimed at increasing solubility and dissolution rate of ketoprofen by using multicomponent crystallization approach with nicotinamide as additional material. The preparation of multicomponent crystal was carried out by solvent evaporation method using 2-propanol as solvent. The characterization of multicomponent crystal was performed using powder X-ray diffraction (PXRD), Differential Scanning Calorimetry (DSC), Fourier Transform Infrared spectroscopy (FTIR) and Scanning Electron Microscopy (SEM). The results of characterization have confirmed formation of new crystalline phase of ketoprofen-nicotinamide as multicomponent crystal. The solubility and dissolution test showed that the ketoprofen-nicotinamide multicomponent crystal has solubility and dissolution rate significantly higher than the solubility and dissolution rate of the pure ketoprofen.

Keywords: ketoprofen, multicomponent crystal, solvent evaporation, solubility, dissolution rate.