

EFFECT OF MILLING PROCESS ON PHYSICAL CHARACTERISTICS OF FENOFIBRATE

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Keywords: fenofibrate, ball mills, milling rate, particle size reduction.

ABSTRACT

Particle size is one of the most important characteristics of active drug substance that affects solubility and bioavailability. Fenofibrate, as a class II drug based on biopharmaceutical classification system, which has poor aqueous solubility has been chosen to be drug model of particle size reduction. Fenofibrate was mixed with mannitol as stabilizer with the ratio 1:9 in physical mixture form. The size reduction was conducted by a ball mill, with the milling rate of 100, 200 and 300 rpm, respectively. Characterization of the solid dispersion was analyzed by organoleptic and instrumental methods. The instrumental tools used were Fourier Transform Infrared Spectroscopy (FTIR) and Differential Scanning Calorimetry (DSC) which showed that there were no changes in the fenofibrate molecule during the milling process. Scanning Electron Microscope results showed that fenofibrate-mannitol produced non-spherical forms. Milling rate improvement produced smaller size of particles with rough morphology that decreased the flow properties. Based on the solubility test and reflected in UV/Vis spectra, it showed that particle size reduction with 200 rpm milling rate determined 3 times higher absorbance value compared with pure fenofibrate.



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PHARMACEUTICAL NANOTECHNOLOGY CONFERENCE 2017

Friday, 21st July 2017 (First Day)

Time	Schedule	Speaker	Place	Moderator
08.00 - 09.00	Registration		PF 6.1	
09.00 - 09.30	Opening ceremony		PF 6.1	
09.30 - 09.45	Coffee break		PF 5	
09.45 - 10.45	Nano is Too Big	Prof. Yashwant Pathak (University of South Florida, USA)	PF 6.1	Nina Dewi O, M.Farm., Apt (UBAYA)
10.45 - 11.00	Oral Presentation (session 1)	Johan S (School of Technobiology)	PF 6.1	Nina Dewi O, M.Farm., Apt (UBAYA)
11.00 - 13.00	Break (Lunch)		Poster exhibition (PF 6.1); PF 5 (Lunch)	
13.00 - 14.00	Chitosan - TPP Nanoparticles and The Implementations on Antibacterial Drug Delivery	Associate Prof. Dr. Haliza Katas (Centre for Drug Delivery Research-Universiti Kebangsaan Malaysia)	PF 6.1	Moderator : Dr. Tommy Julianto Bustami Effendi (Universiti Teknologi Mara)/Aditya Trias P M.Si., Apt
14.00 - 15.00	Nanotechnology in topical medication and skin care products	Dr. Tommy Julianto Bustami Effendi (Universiti Teknologi Mara)	PF 6.1	Moderator : Associate Prof. Dr. Haliza Katas (Centre for Drug Delivery Research-Universiti Kebangsaan Malaysia)/Gabriela Eugresya M.Si., Apt
15.00 - 15.30	Coffee break and Poster exhibition		PF 5 (coffee break) and PF 6.1 (Poster exhibition)	
15.30 - 16.30	Nanocrystal for Enhancement of Oral Bioavailability of Poorly Water-Soluble Drugs	Prof. Varaporn Junyaprasert (University of Mahidol, Thailand)	PF 6.1	Moderator : Agnes Nuniek W, M.Si., Apt (UBAYA)

Saturday, 22nd July 2017 (Second day)

Time	Schedule	Speaker	Place	Moderator
08.00 - 09.00	Registration		PF 6.1	
09.00 -10.00	Nanomedicine based nanoparticle for Neurological Disorders	Prof. Jagad Kanwar (Deakin University, Australia)	PF 6.1	Dr. Christina Avanti, MS.,Apt (UBAYA)
10.00 -13.00	Coffee break, poster presentation		PF 6 and PF 5	MC
10.30 -11.00	PT. Hilab Sciencetama	Supplier	PF 6.1	MC
11.00 -12.00	Development of Oral Delivery Solid Dispersion Nanoparticle Using Ultrasonic Spray Drying Method	Dr. Christina Avanti, MS.,Apt (University of Surabaya, Indonesia)	PF 6.1	Prof. Jagad Kanwar (Deakin University, Australia)/Ike Diah R M.Farm-Klin., Apt
12.00 -13.00	Lunch		PF 5	
13.00-14.00	Oral presentation (session 2)	1. Rini Hamsidi, S.Farm., M.Farm., Apt (Halu Oleo University) 2. Dr. Farida Suhud, M.Si., Apt (UBAYA) 3. Aditya Trias, M.Si., Apt (UBAYA) 4. Karina Citra Rani, M.Farm., Apt (UBAYA)	PF 6.1	Nina Dewi O, M.Farm., Apt
14.00 - 15.00	Application of Nanoparticles on Herbal Products	Nurul Taufiqurohman M.Eng., Ph.D (LIPI, Indonesia and Precident of Masyarakat Nano Indonesia)	PF 6.1	Dr. Kartini, M.Si., Apt
15.00 - 15.30	Coffee break		PF 5	
15.30 -16.00	Closing	Closing ceremony	PF 6.1	MC