

5<sup>th</sup> International Conference and Exhibition on

# Pharmaceutics & Novel Drug Delivery Systems

March 16-18, 2015 Crowne Plaza, Dubai, UAE

## Preparation and characterization of Efavirenz nanosuspension for solubility and dissolution rate enhancement

Solanki Hardik, Venkatanaidu Kirri and Ruchi Chawla

Indian Institute of Technology (Banaras Hindu University), India

The aim of this study was preparation, optimization and characterization of Efavirenz nanosuspension for dissolution velocity and saturation solubility enhancement to reduce dose amount for pediatric patient. Drug excipient compatibility was checked by FTIR, DSC and XRD studies which supported the drug excipient compatibility. Nano suspension was prepared by using Nano-precipitation (solvent anti solvent method) using PVPK30 (stearic stabilizer) and sodium lauryl sulphate (electrostatic stabilizer). SEM images for optimized batch exhibited smooth surface. *In vitro* dissolution studies showed release of 75.27%, 39.61% and 23.07% from nanosuspension, micronized powder and physical mixture (drug, PVP K-30 and SLS) respectively in 60 minutes indicating enhancement of the dissolution rate in efavirenz nanosuspension. The saturation solubility studies with lyophilized nanosuspension (LNS), micronized powder and physical mixture was found to be  $256 \pm 0.5$  µg/ml,  $31.60 \pm 0.9$  µg/ml and  $17.39 \pm 0.98$  µg/ml respectively in 24 hours indicating improvement in saturation solubility. The study demonstrates that efavirenz nanosuspension can help to improve the dissolution rate and saturation solubility, which can help to reduce dose of drug in pediatric patients.

### Biography

Hardik Solanki, a post graduate fellow, Indian Institute of Technology (Banaras Hindu University), India. His current area of research is Nano technology based drug delivery system. Before joining as postgraduate fellow, he had completed bachelor in pharmacy from Gujarat Technological University (GTU) with first class. He has qualified GPAT-2013 with All India Rank 69. He has received financial assistance, from MHRD, Government of India for his post-graduation research work.

[sh.navnital.phe13@itbhu.ac.in](mailto:sh.navnital.phe13@itbhu.ac.in)