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Development of Lipid Architectonics for Improving Efficacy and Ameliorating the Oral Bioavailability of Elvitegravir

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Abstract : Aim: The objective of research undertaken is analytical method validation (HPLC method) of an anti-HIV drug Elvitegravir (EVG). Additionally carrying out the forced degradation studies of the drug under different stress conditions to determine its stability. It is envisaged in order to determine the suitable technique for drug estimation, which would be employed in further research. Furthermore, comparative pharmacokinetic profile of the drug from lipid architectonics and drug suspension would be obtained post oral administration. Method: Lipid Architectonics (LA) of EVR was formulated using probe sonication technique and optimized using QbD (Box-Behnken design). For the estimation of drug during further analysis HPLC method has been validation on the parameters (Linearity, Precision, Accuracy, Robustness) and Limit of Detection (LOD) and Limit of Quantification (LOQ) has been determined. Furthermore, HPLC quantification of forced degradation studies was carried out under different stress conditions (acid induced, base induced, oxidative, photolytic and thermal). For pharmacokinetic (PK) study, Albino Wistar rats were used weighing between 200-250g. Different formulations were given per oral route, and blood was collected at designated time intervals. A plasma concentration profile over time was plotted from which the following parameters were determined:

Keywords : AIDS, Elvitegravir, HPLC, nanostructured lipid carriers, pharmacokinetics
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