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Comparison of Dissolution and Pharmacokinetics of Vildagliptin Modified Release Tablets

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Abstract : The main aim of proposed work was to develop vildagliptin matrix tablets (Modified release dosage form) for the treatment of the Type 2 diabetes. Modified release formulation is the drug delivery system that is designed to achieve a prolonged therapeutic effect by continuously releasing medication over an extended period of time after administration of single dose. One of the biggest drawbacks of using vildagliptin is its biological half-life of ~2 hours, so it is rapidly eliminated from the body. Owing to the shorter half-lives of vildagliptin, it is suggested that patients need to be adhered rigorously to the dosing interval and that it should be administered in two doses of 50mg per day. Since vildagliptin follows a linear pharmacokinetics across 25mg -200mg (25mg,50mg, 100mg, 200mg). Here an attempt has been made to kinetically calculate the effective dissolution profile (*in vitro*) for the above mentioned four strengths that will be equally effective *in vivo* based on the severity of the subject. Calculation part consists of Loading dose and maintenance dose calculation concept. To support the data for the *in vivo* behavior, comparison has been done with a patented osmotic tablet of the same.

Key words : Loading Dose, Maintenance Dose, Volume of Distribution, Clearance, Plasma concentration, Linear Kinetics.

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