"DEVELOPMENT AND CHARACTERIZATION OF TELMISARTAN NANOSUSPENSION FOR THE TREATMENT OF HYPERTENSION"

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ABSTRACT

Nanosuspension is an emerging and promising approach for the increasing solubility and dissolution rate. The aim of this work was to develop Telmisartan nanosuspension with a view to enhance its dissolution and saturated solubility. Telmisartan, a poorly water soluble angiotensin receptor antagonist used as antihypertensive agent. Due to less bioavailability which is only 43% of Telmisartan, an attempt was made to develope and optimize nanosuspension formulation. Nanosuspension was prepared by emulsification method. In FTIR studies, it was observed that there was no interaction of drug and excipients in the final formulation. Various process and formulation parameters were screened like stirring speed, type of stabilizer & surfactant, concentration of stabilizer and surfactant. They were characterized for particle size, zeta potential, dissolution study. Two different stabilizers and three different surfactants were tried. Among them Poloxamer 188 & Tween 80 yielded nanosuspension with particle size in range of 150 – 350 nm. As per the screening study Poloxamer 188 & Tween 80 was selected for further study. Optimization of concentration of Poloxamer 188 & Tween 80 was carried out using 3^2 full factorial design. The optimized formula contained 3% Poloxamer 188 & 3% Tween 80. Saturation solubility of optimized batch F8 showed 16 times higher than that of pure drug. Moreover optimized batch F8 was found to be stable over a period of one month at 40 ±2°C/75±5% RH as per ICH guideline. The outcome of this study revealed the

immense potential of nanosuspension for delivery of Telmisartan by improving its saturation solubility and enhancement of dissolution rate.

Keywords: Telmisartan, Nanosuspension, Microemulsion as template method, Poloxamer 188, Tween 80, freeze dried.