DEVELOPMENT OF METFORMIN HYDROCHLORIDE SUSTAINED RELEASE TABLET

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Metformin hydrochloride (MH) is a binguanide, used to treat type 2 diabetes by oral administration as first line drug choice. MH is a hydrophilic drug, which facilitates glucose utilization by peripheral tissue and reduces glucose production in the liver. Objective of the study was to develop the formulation of MH sustained released tablet locally. Eight different formulations of MH sustained release tablet were developed one by one, according to the drug releasing property of previous formulation with MH, hydrophilic drug releasing polymers, maize starch and magnesium stearate through wet granulation method. Twenty tablets from each formulation were tested for uniformity of weight, friability, hardness, thickness and diameter according to British Pharmacopeia (BP) standard. *In-vitro* drug release studies were carried out according to United State Pharmacopeia (USP) standard. The sample was withdrawn at end of 1st, 2nd, 4th, 6th, 8th and 10th hours from medium of phosphate buffer (pH 6.8) in vessel of dissolution tester and released amount of drug measured through UV-visible spectrophotometer. Tablet assay was done through High Performance Liquid Chromatography (HPLC) according USP standard. The physical testing and tablet assay of all developed formulations complied with BP and USP standard. Drug releasing profile of four formulations out of eight complied USP standard limits. One formulation was the best formulation out of eight. All formulations had same amount of MH and they were manufactured according to the same procedure. However, drug releasing profile defers in each formulation due to combination and ratio of hydrophilic polymers. Finally, MH sustained release tablet was developed successfully through a series of trials. The combination and ratio of drug releasing polymers in formulation affect the drug releasing property of the tablet.

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