



Development of Orodispersible Tablet using *Lepidium Sativum* Seed Mucilage as Natural Super disintegrant

Rita N. Wadetwar* , Chetan M. Chauhan

Department of Pharmaceutical Sciences, Rashtrasant Tukadoji Maharaj, Nagpur University, Amravati Road, Nagpur-440 033. (India)

Abstract : Orodispersible tablets (ODTs) disintegrate or dissolve immediately on the patients' tongue or buccal mucosa. This drug delivery system is suitable for drugs undergoing low bioavailability and high first pass metabolism. It reduces dosing frequency, and thereby reduce the side effects and also makes the dosage form more cost-effective. In this study, extraction of mucilage from *Lepidium sativum* Linn seeds was investigated as a natural superdisintegrant in orodispersible tablets. The model drug chosen was Promethazine HCl, an antiemetic drug. Mucilage was isolated from *Lepidium sativum* Linn seeds and was evaluated for physicochemical characterization. Drug-excipient compatibility studies were performed by FT-IR and DSC. Promethazine HCl ODTs were prepared separately using different concentrations of (8%, 10%, 12% and 15% w/w) of isolated mucilage from *Lepidium sativum* Linn seeds (natural) and Crosscarmellose sodium (synthetic) as superdisintegrants by direct compression method. Different pre- and post compression parameters were studied. The stability studies were performed on optimized formulation F3. The dispersion time and in vitro drug release of the formulation F3 were compared with marketed orodispersible tablets of Promethazine HCl. The characterization and *in-vitro* release profile of prepared ODTs showed that the formulated Promethazine HCL tablet F3 containing 12% mucilage was effective, and suitable than marketed tablet because it has better dispersion time 29 sec and maximum % cumulative drug release i.e. 98.87%. Hence, batch F3 was considered optimized formulation. The present work revealed that isolated mucilage from *Lepidium sativum* Linn seeds has a good potential to enhance *In vitro* dispersion time and *In vitro* drug release of ODT of Promethazine HCl. Also mucilage of *Lepidium sativum* Linn seeds is better than synthetic superdisintegrants because of low cost, natural origin, less side-effect, bioacceptable, renewable source, local availability and better patient compliance.

Keywords : Promethazine hydrochloride, *Lepidium sativum*, superdisintegrant, orodispersible tablet.