

## ***In Situ Nasal Gel of Almotriptan***

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### **Abstract:**

Almotriptan is selective serotonin receptor agonists, used in the treatment of migraine. The aim of the study was to formulate nasal drug delivery system in the form of *in situ gel*, to deliver the drug from nose to brain and hence enhance its therapeutic efficacy. Two approaches namely, thermo-sensitive and ion induced approaches were used for preparation of *in situ gel*. Thermo reversible *in situ gel* containing Pluronic f-127 (18%w/v) and Carbopol 934(0.5%w/v) made by cold method gave the optimum results of clarity, pH(5), gelling temperature(37-38<sup>0</sup>C), gel strength(119 sec), Mucoadhesive force(756.05 dyne/cm<sup>2</sup>), drug content(98.10%), % cumulative drug release (87.83%in 8 hours) and had no cellular damage as indicated by histological study. The formulation was stable for 21 days in accelerated conditions. Ion induced *in situ gel* containing gellan gum (0.25%w/v) and HPMC E15(0.3%w/v) gave the optimum results of clarity, pH(5), gel strength(105 sec), Mucoadhesive force(815.25dyne/cm<sup>2</sup>), drug content(97.99%), % cumulative drug release (96.47%in 8 hours) and had no cellular damage as indicated by histological study. The formulation was stable for 14 days in accelerated conditions. ANOVA study for both formulation proved the all responses were significant. The *in situ gel* prepared by both the approaches showed compatible results, thermo-sensitive approach can be considered as more reliable approach because externally applied trigger for gelation and better stable. Therefore the thermo-sensitive will better approach as compared with ion induced approach. Thus *in situ gel* delivered via nasal route could be

promising approach for targeting almotriptan directly to brain for treatment of migraine.

**Keywords:** Nasal in situ gel, almotriptan , thermo-sensitive, ion-activated, Pluronic f-127, Carbopol 934, HPMC E15, control release.