

Article

Response Surface Methodology for Optimization of Buspirone Hydrochloride-Loaded In Situ Gel for Pediatric Anxiety

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Supplementary Materials

Table S1. Results of ANOVA test for viscosity and % drug released after 6 h of *in-situ* forming gels.

| Regression | Df | SS | MS | F value | Sig F (P value) | FLOF | Sig FLOF |
|---------------------------|----|-----------|---------|---------|-----------------|---------|----------|
| Viscosity | 16 | 12,057855 | 75,3616 | 590 | 0.0000 | 30.6491 | 0.1375 |
| % drug released after 6 h | 16 | 6731 | 420.7 | 346.3 | 0.0000 | 0.8361 | 0.5964 |

ANOVA indicates analysis of variance; Df, degrees of freedom; SS, sum of squares; MS, mean of squares; F, Fischer's ratio, $P < 0.05$ level.

Table S2. Pharmacokinetics parameters after oral administration of BH in various formulations.

| Parameters | Formulation | | |
|----------------------------------------------------------|------------------|-------------------|--------------------------------|
| | BH solution | Marketed tablet | <i>In-situ</i> gel Formulation |
| C_{max} (ng/ml) | 384.82 ± 35.48 | 350.36* ± 33.22 | 200.95* ± 19.43 |
| T_{max} (h) | 1.00 ± 0.04 | 2.00* ± 0.27 | 4.00* ± 0.30 |
| K_{el} (h ⁻¹) | 0.20 ± 0.02 | 0.18* ± 0.01 | 0.10* ± 0.00 |
| $t_{1/2}$ (h) | 3.55 ± 0.34 | 3.86* ± 0.39 | 6.53* ± 0.59 |
| AUC_{0-24} (ng.ml ⁻¹ .h) | 1350.87 ± 136.05 | 1646.30* ± 155.77 | 2041.19* ± 200.16 |
| $AUC_{0-\infty}$ (ng.ml ⁻¹ .h) | 1357.84 ± 132.69 | 1682.03* ± 164.22 | 2258.13* ± 212.19 |
| $AUMC_{0-\infty}$ (ng.ml ⁻¹ .h ²) | 5042.51 ± 488.77 | 8738.63* ± 845.54 | 22686.76* ± 2266.77 |
| MRT (h) | 3.71 ± 0.29 | 5.20* ± 0.54 | 10.05* ± 0.99 |
| Relative bioavailability | ----- | ----- | 151.10 |

(*) the mean difference is significant at $P < 0.05$ level. Each result is the mean of 3 determinations ± S.D.