**List of Supplementary tables**

**Table 1: Solubility of LH in different lipids and surfactants**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Liquid lipids** | **Solubility of Drug (mg/ 2ml)** | **Solid Lipid** | **Solubility of Drug (mg/ 1 gm of lipid)** | **Surfactant & Co-surfactant** | **Solubility of Drug (mg/ 2ml)** |
| Cremophor EL | 5.6723 | Glyceryl Monostearate | 80 | Span 20 | 0.3088 |
| Labrafac | 0.5408 | Gelucire 50/13 | 74 | Span 80 | 3.1324 |
| Castor oil | 1.3512 | Compritol 888 ATO | 72 | Tween 20 | 0.3704 |
| Caproyl 90 | 0.8146 | Precirol ATO 5 | 60 | Tween80 | 7.7064 |
| Cremophor RH40 | 0.7607 | Cetyl Palmitate | 53 | -- | -- |
| Olive oil | 2.0659 | -- | -- | -- | -- |
| Trioleate | 6.9477 | -- | -- | -- | -- |
| Solutol HS15 | 0.8460 | -- | -- | -- | -- |
| Transcutol HP | 0.6266 | -- | -- | -- | -- |
| Oleic acid | 0.5674 | -- | -- | -- | -- |
| Isopropyl myristate | 0.4385 | -- | -- | -- | -- |
| PEG400 | 0.5892 | -- | -- | -- | -- |

**Table 2 : Response for Batch Optimization using BBD design**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Batch** | **Factor 1**  **A: Solid Lipid**  **(%)** | **Factor 2**  **B: Surfactant mix (%)** | **Factor 3**  **C: Sonication time (Min)** | **Response1**  **Particle size (nm)** | **Response 2**  **Entrapment**  **Efficiency (%)** |
| 1 | -1 | 0 | -1 | 53.08 | 92.97 |
| 2 | 0 | 1 | -1 | 102.7 | 95.77 |
| 3 | 0 | -1 | 1 | 159.5 | 92.73 |
| 4 | 1 | 0 | -1 | 162.99 | 96.33 |
| 5 | 1 | -1 | 0 | 139.1 | 94.8 |
| 6 | 1 | 1 | 0 | 31.04 | 94.08 |
| 7 | -1 | 1 | 0 | 41.71 | 88.27 |
| 8 | 0 | 1 | 1 | 90.7 | 87.24 |
| 9 | 1 | 0 | 1 | 46.43 | 93.8 |
| 10 | -1 | 0 | 1 | 31.35 | 87.94 |
| 11 | 0 | 0 | 0 | 55.02 | 89.89 |
| 12 | 0 | 0 | 0 | 55.02 | 90.7 |
| 13 | 0 | -1 | -1 | 168.38 | 92.47 |
| 14 | 0 | 0 | 0 | 55.02 | 90.64 |
| 15 | -1 | -1 | 0 | 77.89 | 88.22 |

**Table 3 : The drug release kinetics from LH-NLC formulation and Plain LH suspension**

|  |  |  |
| --- | --- | --- |
| Model name | LH-NLC | LH |
| R2 | | |
| Zero order | 0.8595 | 0.7481 |
| First Order | 0.4099 | 0.5057 |
| Higuchi | 0.9892 | 0.1284 |
| Korsemeyer Peppas | 0.9843 | 0.0932 |
| Hixon-Crowel | 0.8595 | 0.7481 |

**Table 4: Stability parameters of LH-NLC**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameters** | **Initial** | **1 month 40ºC/75%RH** | **3 months 40ºC/75%RH** | **6 months 40ºC/75%RH** |
| Particle size (nm) | 99.58 ±1.2 | 98.85 ± 0.2 | 128.3 ± 1.4 | 128.08 ± 0.8 |
| Poly dispersibility index | 0.355 ± 0.2 | 0.379 ±0.2 | 0.506 ±0.1 | 0.392 ±0.4 |
| Zeta potential (mv) | +18.8 ±0.2 | +20.6 ±0.6 | +19.5 ± 0.3 | +20.80 ±0.1 |
| Entrapment efficiency (%) | 96.7 ± 2.2 | 94.74 ±2.6 | 93.4 ±2.3 | 94.68 ±1.8 |
| Assay (%) | 103.8 ±0.7 | 99.04 ±0.2 | 96.2 ±0.2 | 94.05 ± 1.3 |