**Table S1:** A Summary, of preparation and characterization of CEONE and CS/CEONE Systems

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Nanoemulsion | Phases Ratio | Aqueous Phase | Size  (nm) | PDI | Zeta Potential (mV) | pH | Conductivity (mS) |
| CEONE | Oily: Aqueous Phase  1: 2 | Water | 86 ± 3 | 0.121 ± 0.011 | -21.73 ± 2.11 | 5.60 ± 0.06 | 0.14 ± 0.02 |
| CS/CEONE | 0.1 % Chitosan solution | 49 ± 4 | 0.099 ± 0.009 | 27.31 ± 3.04 | 5.03 ± 0.03 | 0.16 ± 0.03 |

**Table S2:** Summary of physical, stability characteristics of CEONE and CS/CEONE Systems for four weeks of duration

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Time | Size (nm) | | PDI | | Zeta Potential (mV) | | pH | | Conductivity (mS) | |
| **CEONE** | **CS/CEO NE** | **CEONE** | **CS/CEONE** | **CEONE** | **CS/CEONE** | **CEONE** | **CS/CEONE** | **CEONE** | **CS/CEONE** |
| Day 1 | 86 ± 3 | 49 ± 4 | 0.121 ± 0.011 | 0.099 ± 0.009 | -21.73 ± 2.11 | 27.31 ± 3.04 | 5.60 ± 0.06 | 5.03 ± 0.03 | 0.14 ± 0.02 | 0.16 ± 0.03 |
| Day 2 | 86 ± 4 | 48 ± 3 | 0.120 ± 0.010 | 0.101 ± 0.010 | -21.69 ± 2.14 | 27.33 ± 3.00 | 5.59 ± 0.05 | 5.05 ± 0.05 | 0.14 ± 0.01 | 0.15 ± 0.04 |
| Day 3 | 85 ± 6 | 49 ± 3 | 0.122 ± 0.010 | 0.101 ± 0.011 | -21.70 ± 2.15 | 27.35 ± 3.00 | 5.59 ± 0.07 | 5.04 ± 0.04 | 0.13 ± 0.02 | 0.15 ± 0.04 |
| Day 4 | 87 ± 5 | 50 ± 4 | 0.122 ± 0.011 | 0.103 ± 0.011 | -21.74 ± 2.17 | 27.41 ± 3.10 | 5.61 ± 0.05 | 5.05 ± 0.06 | 0.14 ± 0.03 | 0.15 ± 0.05 |
| Day 5 | 87 ± 6 | 51 ± 4 | 0.121 ± 0.011 | 0.099 ± 0.009 | -21.73 ± 2.11 | 27.36 ± 3.04 | 5.61 ± 0.07 | 5.03 ± 0.04 | 0.14 ± 0.02 | 0.16 ± 0.03 |
| Day 6 | 86 ± 3 | 51 ± 3 | 0.120 ± 0.014 | 0.102 ± 0.012 | -21.74 ± 2.09 | 27.31 ± 3.03 | 5.60 ± 0.07 | 5.04 ± 0.03 | 0.14 ± 0.03 | 0.15 ± 0.03 |
| Day 7 | 88 ± 5 | 52 ± 4 | 0.121 ± 0.012 | 0.101 ± 0.008 | -21.70 ± 2.13 | 27.30 ± 3.11 | 5.62 ± 0.06 | 5.03 ± 0.04 | 0.14 ± 0.05 | 0.15 ± 0.02 |
| Day 10 | 91 ± 5 | 54 ± 6 | 0.125 ± 0.015 | 0.100 ± 0.006 | -21.72 ± 2.08 | 27.33 ± 3.09 | 5.60 ± 0.09 | 5.04 ± 0.07 | 0.13 ± 0.06 | 0.16 ± 0.05 |
| Day 14 | 95 ± 7 | 54 ± 7 | 0.131 ± 0.016 | 0.105 ± 0.010 | -21.73 ± 2.11 | 27.31 ± 3.04 | 5.60 ± 0.06 | 5.03 ± 0.03 | 0.14 ± 0.02 | 0.16 ± 0.02 |
| Day 17 | 99 ± 11 | 55 ± 4 | 0.142 ± 0.021 | 0.104 ± 0.008 | -21.71 ± 2.09 | 27.32 ± 3.06 | 5.60 ± 0.06 | 5.04 ± 0.04 | 0.14 ± 0.03 | 0.15 ± 0.04 |
| Day 21 | 107 ± 14 | 57 ± 7 | 0.150 ± 0.029 | 0.109 ± 0.013 | -21.71 ± 2.11 | 27.31 ± 3.07 | 5.63 ± 0.05 | 5.04 ± 0.03 | 0.14 ± 0.02 | 0.15 ± 0.03 |
| Day 24 | 115 ± 19 | 59 ± 6 | 0.159 ± 0.033 | 0.111 ± 0.012 | -21.72 ± 2.13 | 27.33 ± 3.05 | 5.61 ± 0.06 | 5.04 ± 0.04 | 0.14 ± 0.05 | 0.16 ± 0.04 |
| Day 28 | 128 ± 3 | 61 ± 7 | 0.166 ± 0.041 | 0.113 ± 0.015 | -21.73 ± 2.07 | 27.32 ± 3.04 | 5.60 ± 0.06 | 5.03 ± 0.06 | 0.14 ± 0.04 | 0.16 ± 0.05 |