

Figure S1. PXRD patterns of (A) ground curcumin (CUR) crystals; (B) ground mixtures (GMs) containing CUR and 10% hydroxypropyl cellulose (HPC); (C) GMs containing CUR and 25% HPC, and SDS; (D) GMs containing CUR and 50% HPC; (E) GMs containing CUR and 75% HPC; (F) GMs containing CUR and 90% HPC; (G) GMs containing CUR and sodium dodecyl sulfate (SDS), (H) GMs containing CUR, 10% HPC, and SDS; (I) GMs containing CUR, 25% HPC, and SDS; (J) GMs containing CUR, 50% HPC, and SDS; (K) GMs containing CUR, 75% HPC, and SDS; (L) GMs containing CUR, 90% HPC, and SDS.

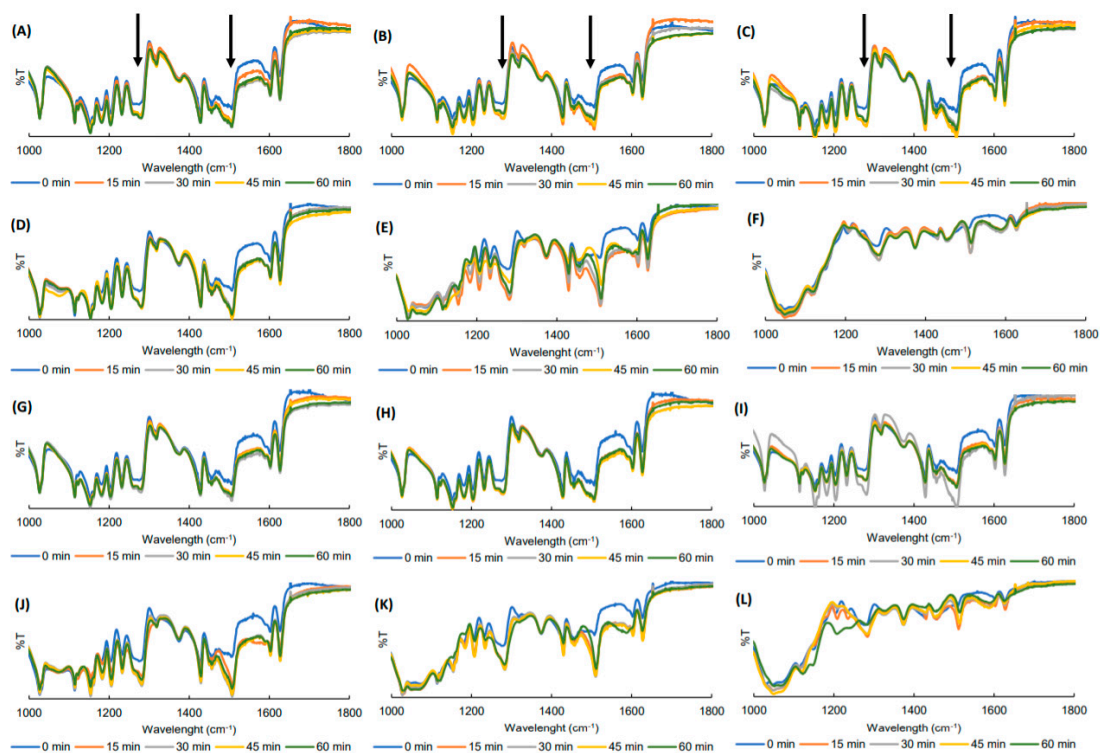


Figure S2. FTIR spectra of (A) ground curcumin (CUR) crystals; (B) ground mixtures (GMs) containing CUR and 10% hydroxypropyl cellulose (HPC); (C) GMs containing CUR and 25% HPC, and SDS; (D) GMs containing CUR and 50% HPC; (E) GMs containing CUR and 75% HPC; (F) GMs containing CUR and 90% HPC; (G) GMs containing CUR and sodium dodecyl sulfate (SDS), (H) GMs containing CUR, 10% HPC, and SDS; (I) GMs containing CUR, 25% HPC, and SDS; (J) GMs containing CUR, 50% HPC, and SDS; (K) GMs containing CUR, 75% HPC, and SDS; (L) GMs containing CUR, 90% HPC, and SDS.

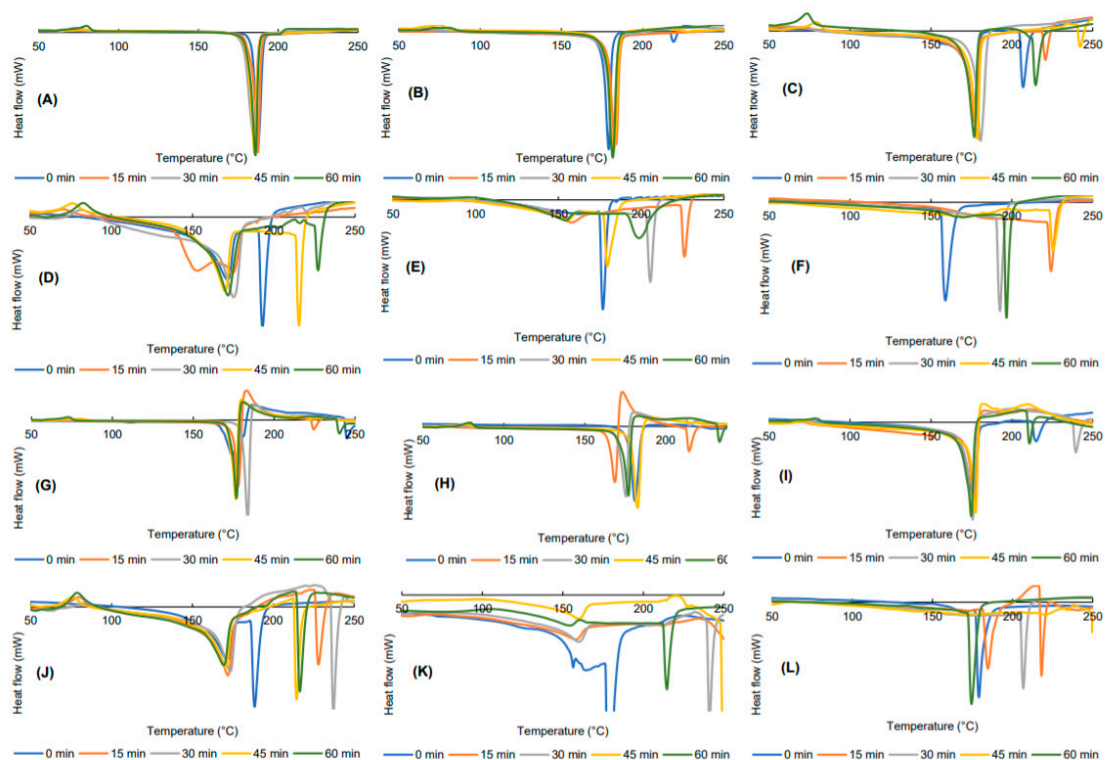


Figure S3. DSC curves of (A) ground curcumin (CUR) crystals; (B) ground mixtures (GMs) containing CUR and 10% hydroxypropyl cellulose (HPC); (C) GMs containing CUR and 25% HPC, and SDS; (D) GMs containing CUR and 50% HPC; (E) GMs containing CUR and 75% HPC; (F) GMs containing CUR and 90% HPC; (G) GMs containing CUR and sodium dodecyl sulfate (SDS), (H) GMs containing CUR, 10% HPC, and SDS; (I) GMs containing CUR, 25% HPC, and SDS; (J) GMs containing CUR, 50% HPC, and SDS; (K) GMs containing CUR, 75% HPC, and SDS; (L) GMs containing CUR, 90% HPC, and SDS.

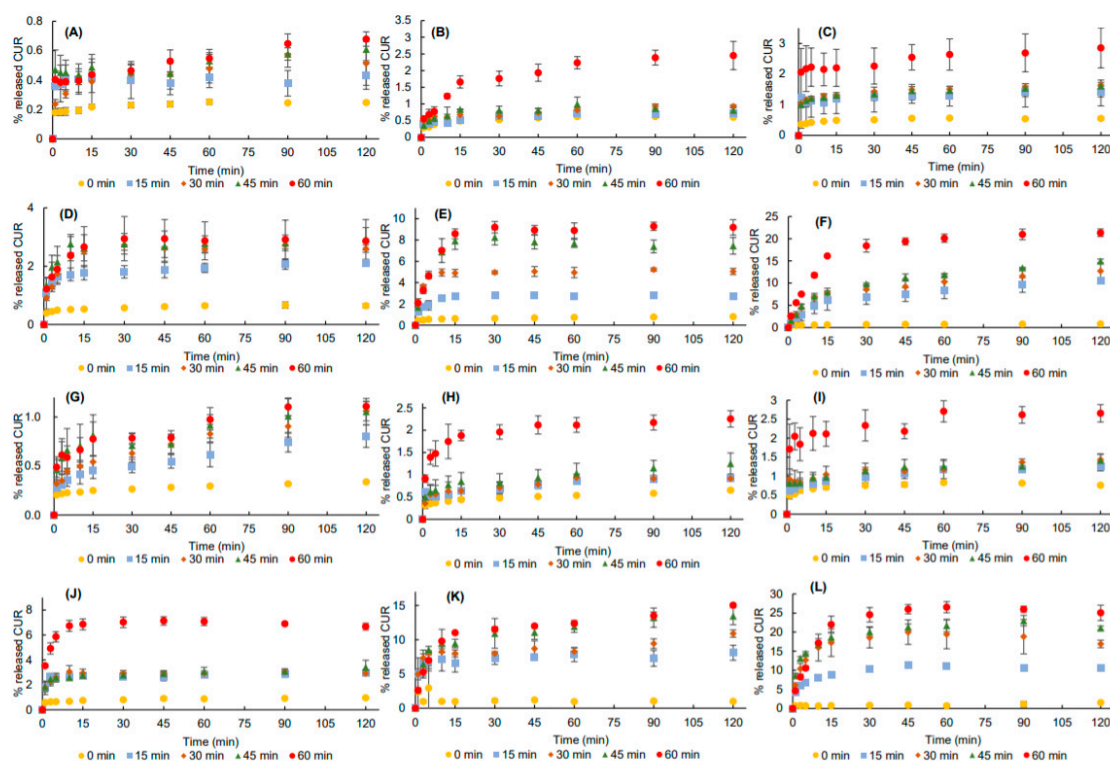


Figure S4. Dissolution profiles of (A) ground curcumin (CUR) crystals; (B) ground mixtures (GMs) containing CUR and 10% hydroxypropyl cellulose (HPC); (C) GMs containing CUR and 25% HPC, and SDS; (D) GMs containing CUR and 50% HPC; (E) GMs containing CUR and 75% HPC; (F) GMs containing CUR and 90% HPC; (G) GMs containing CUR and sodium dodecyl sulfate (SDS), (H) GMs containing CUR, 10% HPC, and SDS; (I) GMs containing CUR, 25% HPC, and SDS; (J) GMs containing CUR, 50% HPC, and SDS; (K) GMs containing CUR, 75% HPC, and SDS; (L) GMs containing CUR, 90% HPC, and SDS.

Table S1. Inputs and output data of design of experiment

| | Factor 1 | Factor 2 | Factor 3 | Response | | Factor 1 | Factor 2 | Factor 3 | Response |
|-----|----------|---------------------|-----------------|----------|-----|----------|---------------------|-----------------|----------|
| Run | HPC (%) | Grinding time (min) | Presence of SDS | DE (%) | Run | HPC (%) | Grinding time (min) | Presence of SDS | DE (%) |
| 1 | 10 | 30 | 0 | 0.78 | 31 | 25 | 30 | 0 | 1.47 |
| 2 | 0 | 15 | 0 | 0.40 | 32 | 25 | 45 | 1 | 1.20 |
| 3 | 75 | 60 | 1 | 12.16 | 33 | 90 | 60 | 1 | 23.97 |
| 4 | 10 | 15 | 0 | 2.69 | 34 | 0 | 30 | 0 | 0.47 |

| | | | | | | | | | |
|----|----|----|---|-------|----|----|----|---|-------|
| 5 | 50 | 45 | 0 | 2.72 | 35 | 75 | 15 | 0 | 0.64 |
| 6 | 0 | 45 | 0 | 0.52 | 36 | 10 | 60 | 0 | 2.02 |
| 7 | 0 | 60 | 0 | 0.55 | 37 | 50 | 60 | 0 | 2.78 |
| 8 | 90 | 15 | 1 | 10.24 | 38 | 90 | 15 | 0 | 7.92 |
| 9 | 10 | 45 | 1 | 1.00 | 39 | 0 | 45 | 1 | 0.87 |
| 10 | 75 | 45 | 0 | 7.39 | 40 | 10 | 30 | 1 | 0.81 |
| 11 | 90 | 60 | 0 | 18.59 | 41 | 25 | 30 | 1 | 1.20 |
| 12 | 10 | 60 | 1 | 2.04 | 42 | 25 | 60 | 1 | 2.43 |
| 13 | 75 | 60 | 0 | 8.62 | 43 | 50 | 15 | 1 | 2.77 |
| 14 | 25 | 45 | 0 | 1.44 | 44 | 50 | 30 | 1 | 2.90 |
| 15 | 50 | 30 | 0 | 2.55 | 45 | 75 | 15 | 1 | 7.35 |
| 16 | 90 | 45 | 0 | 11.25 | 46 | 75 | 30 | 1 | 8.79 |
| 17 | 75 | 30 | 0 | 4.95 | 47 | 75 | 45 | 1 | 11.54 |
| 18 | 90 | 30 | 0 | 9.76 | 48 | 90 | 45 | 1 | 20.64 |
| 19 | 10 | 45 | 0 | 0.83 | 49 | 0 | 0 | 0 | 0.23 |
| 20 | 50 | 45 | 1 | 2.96 | 50 | 10 | 0 | 0 | 0.53 |
| 21 | 90 | 30 | 1 | 17.99 | 51 | 25 | 0 | 0 | 0.54 |
| 22 | 0 | 15 | 1 | 0.61 | 52 | 50 | 0 | 0 | 0.61 |
| 23 | 25 | 60 | 0 | 2.53 | 53 | 75 | 0 | 0 | 0.69 |
| 24 | 25 | 15 | 0 | 1.31 | 54 | 90 | 0 | 0 | 0.72 |
| 25 | 0 | 30 | 1 | 0.77 | 55 | 0 | 0 | 1 | 0.29 |
| 26 | 0 | 60 | 1 | 0.92 | 56 | 10 | 0 | 1 | 0.53 |
| 27 | 10 | 15 | 1 | 0.79 | 57 | 25 | 0 | 1 | 0.77 |
| 28 | 50 | 15 | 0 | 1.91 | 58 | 50 | 0 | 1 | 0.85 |
| 29 | 25 | 15 | 1 | 1.08 | 59 | 75 | 0 | 1 | 1.10 |
| 30 | 50 | 60 | 1 | 6.80 | 60 | 90 | 0 | 1 | 0.95 |

HPC, Hydroxypropyl cellulose; SDS, Sodium dodecyl sulfate; DE, Dissolution efficiency