

STOICHIOMETRIC CONTROL OF COCRYSTAL FORMATION BY SOLVENT FREE
CONTINUOUS COCRYSTALLISATION (SFCC)

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SUPPORTING INFORMATION

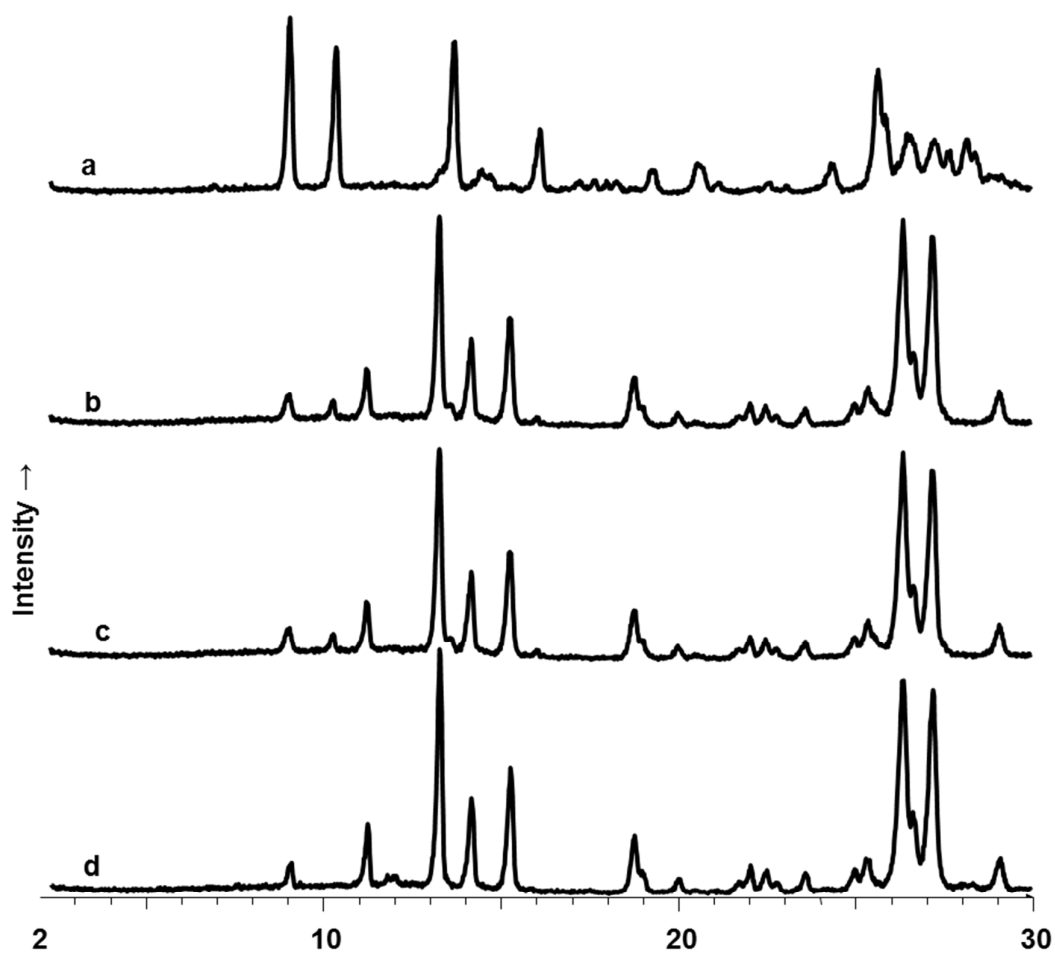


Figure1. PXRD patterns of 2:1 co-crystals from 1:1 caffeine: maleic acid co-crystals processed at different temperature profiles (a) 1:1 co-crystals with maleic acid processed at T110, (b) 1:1 co-crystals with maleic acid processed at T100, (c) 1:1 co-crystals with maleic acid processed at T190 and (d) Pure 1:1 caffeine; maleic acid co-crystals

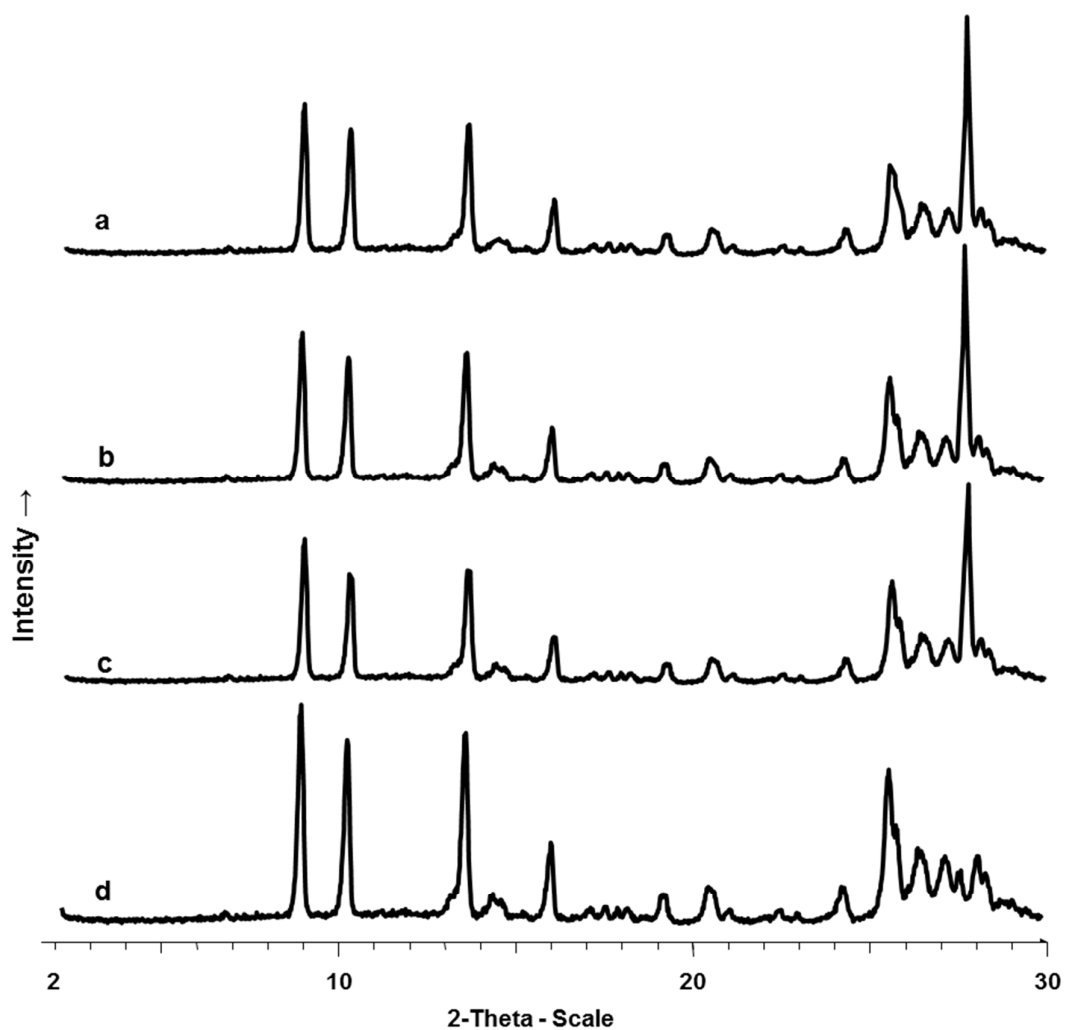


Figure2. PXRD patterns of 2:1 co-crystals with from 1:1 caffeine: maleic acid co-crystals processed at different temperature profiles (a) 2:1 co-crystals with maleic acid processed at T100, (b) 2:1 co-crystals with maleic acid processed at T110, (c) 2:1 co-crystals with maleic acid processed at T120 and (d) Pure 2:1 caffeine: maleic acid co-crystals

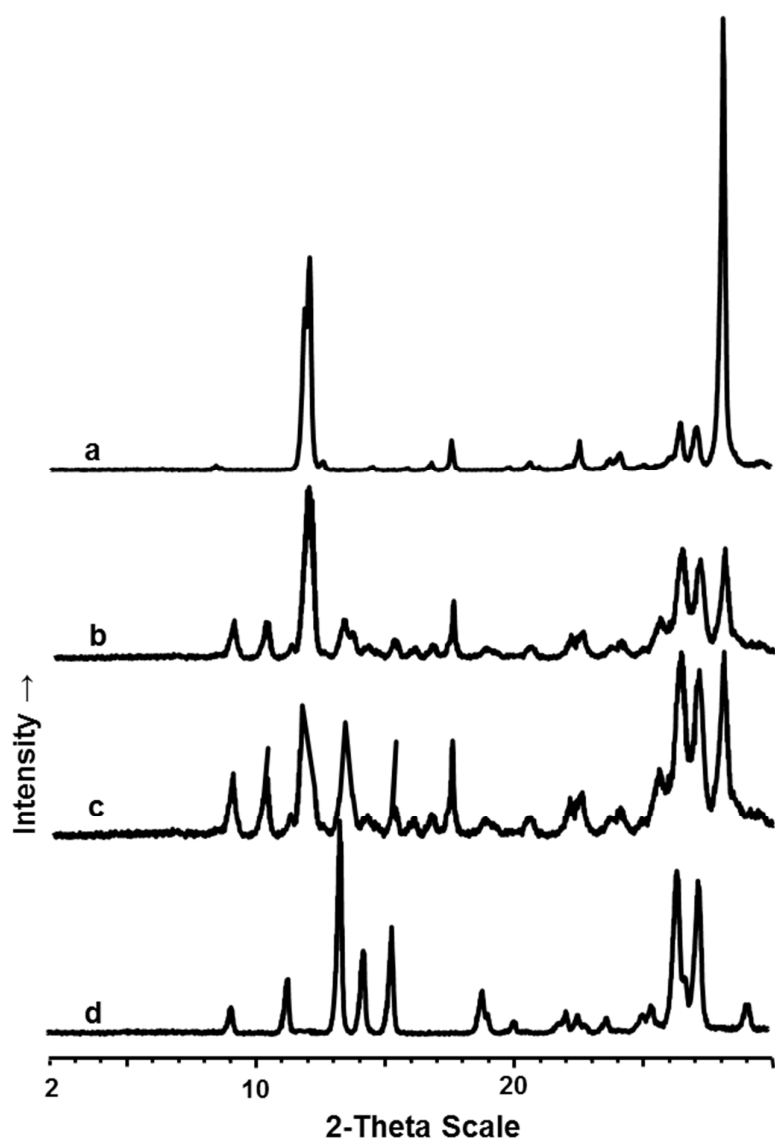


Figure 3. PXRD patterns of sample collected from different zone during extrusion of 1:1 co-crystals (a) sample collected from zones 2-4, (b) sample collected from zones 4-6, (c) sample collected from zones 6-8 and (d) samples collected from zones 8-10

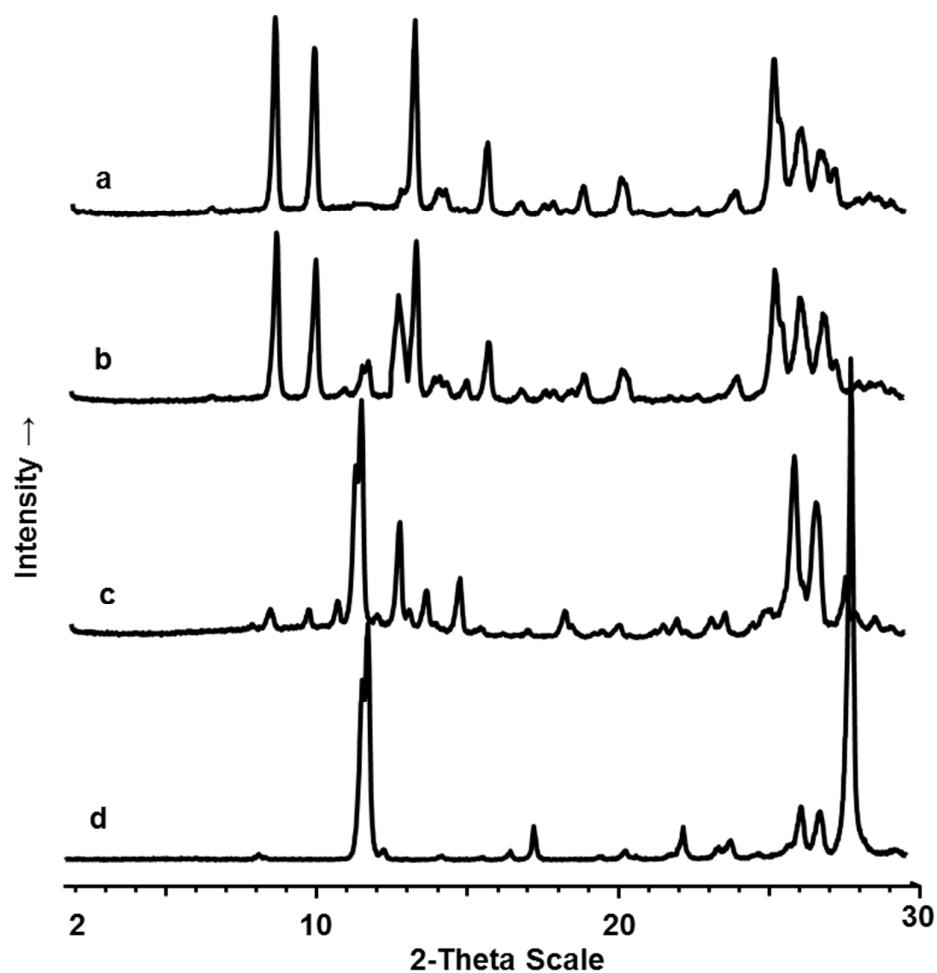


Figure 4. PXRD patterns of sample collected from different zone during extrusion of 2:1 co-crystals (a) samples collected from zones 2-4, (b) samples collected from zones 4-6, (c) samples collected from zones 6-8 and (d) samples collected from zones 8-10

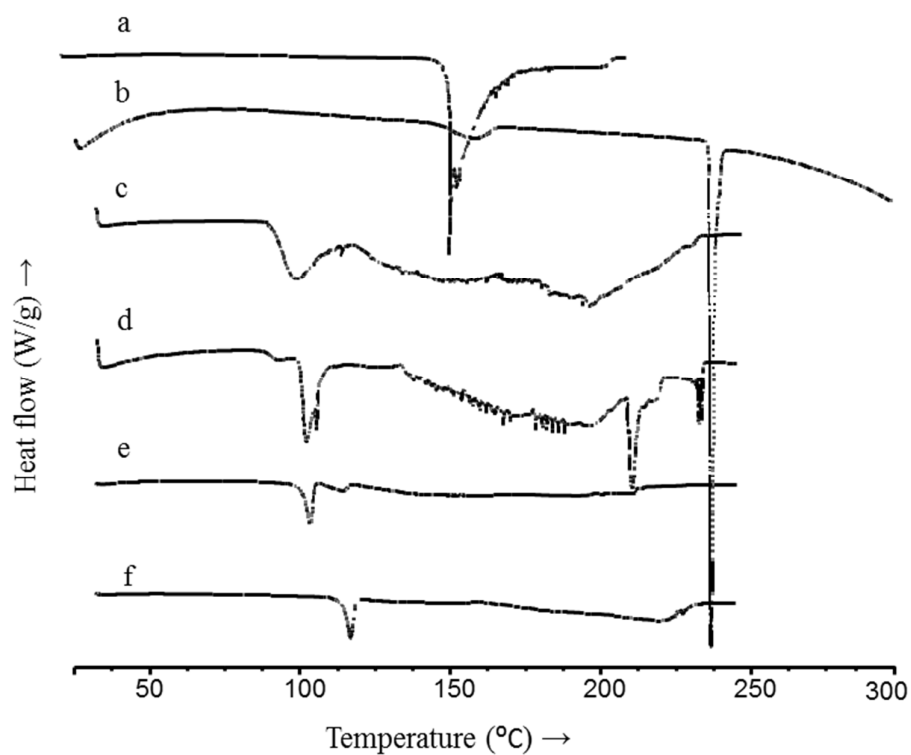


Figure 5.DSC thermograms for (a) maleic acid, (b) anhydrous β -caffeine, (c) physical mixture (1:1), and (d) physical mixture (2:1), (e) caffeine/maleic acid 1:1 co-crystals and (f) caffeine/maleic acid 2:1 co-crystals

Table 1. Temperature profiles across the different zones of the extruder barrel

Code	Zone 10	Zone 9	Zone 8	Zone 7	Zone 6	Zone 5	Zone 4	Zone 3	Zone 2
T90	50	70	90	80	70	55	40	35	25
T100	50	80	100	90	80	55	40	35	25
T105	50	90	105	100	80	55	40	35	25
T110	60	100	110	100	80	60	40	35	25
T120	90	110	120	110	100	90	75	35	25

Table 2: Co-crystallisation experimental detail showing resultant products

Batch code	Gram/batch		Temp. Coding	Screw Speed	Product (major + minor)
	Caffeine	Maleic acid			
Caf:Mal (1:1)	194	116	T100	10	CC
			T90	10	CC + Caffeine
			T80	10	Caffeine + CC
Caf:Mal (2:1)	388	116	T110	10	CC
			T105	10	CC + Caffeine
			T100	10	Caffeine + CC