Electronic Supplementary Information

Evaluation of Co-crystallization Outcomes of Multi-Component Adducts: Rapid Fabrication to Achieve Uniform Particle Size Distribution using Thermal Ink-Jet Printing

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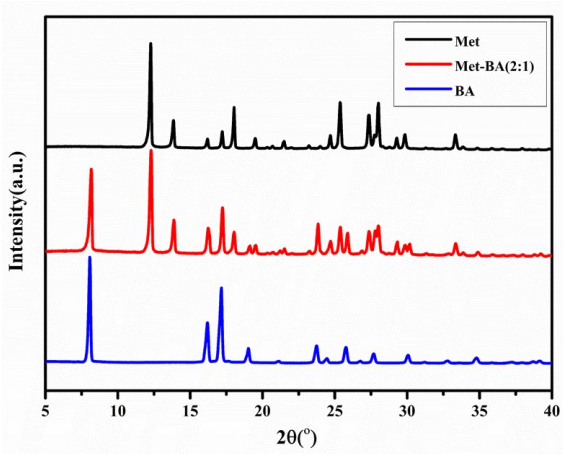
(a)



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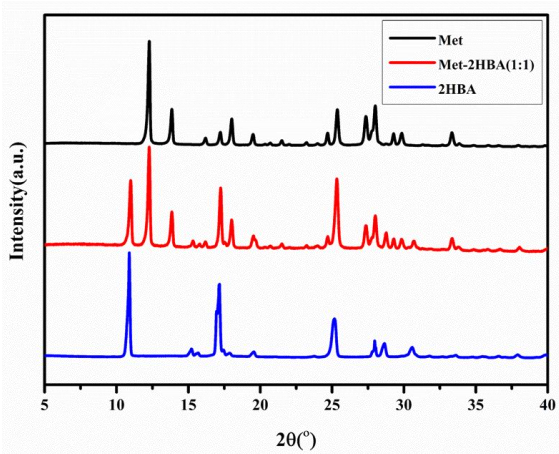

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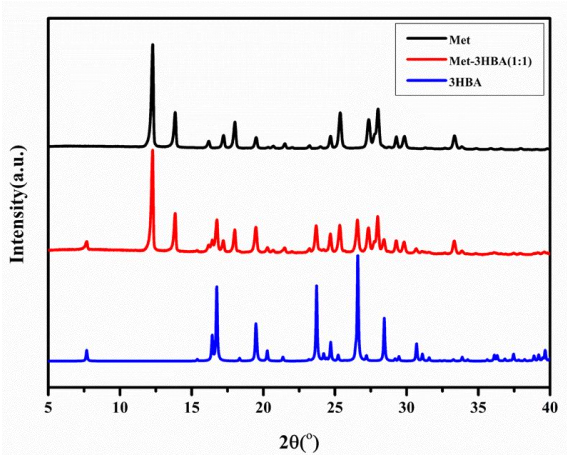
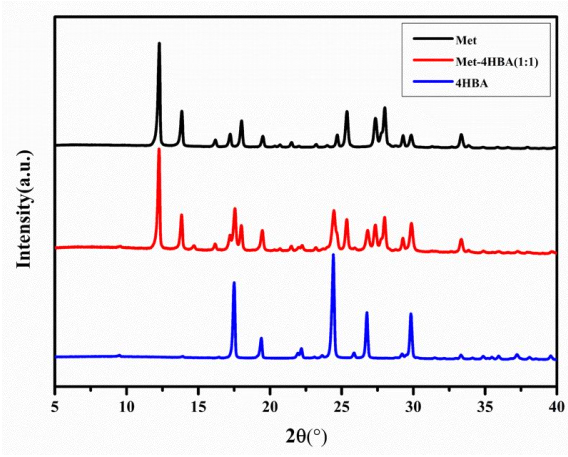


(d)



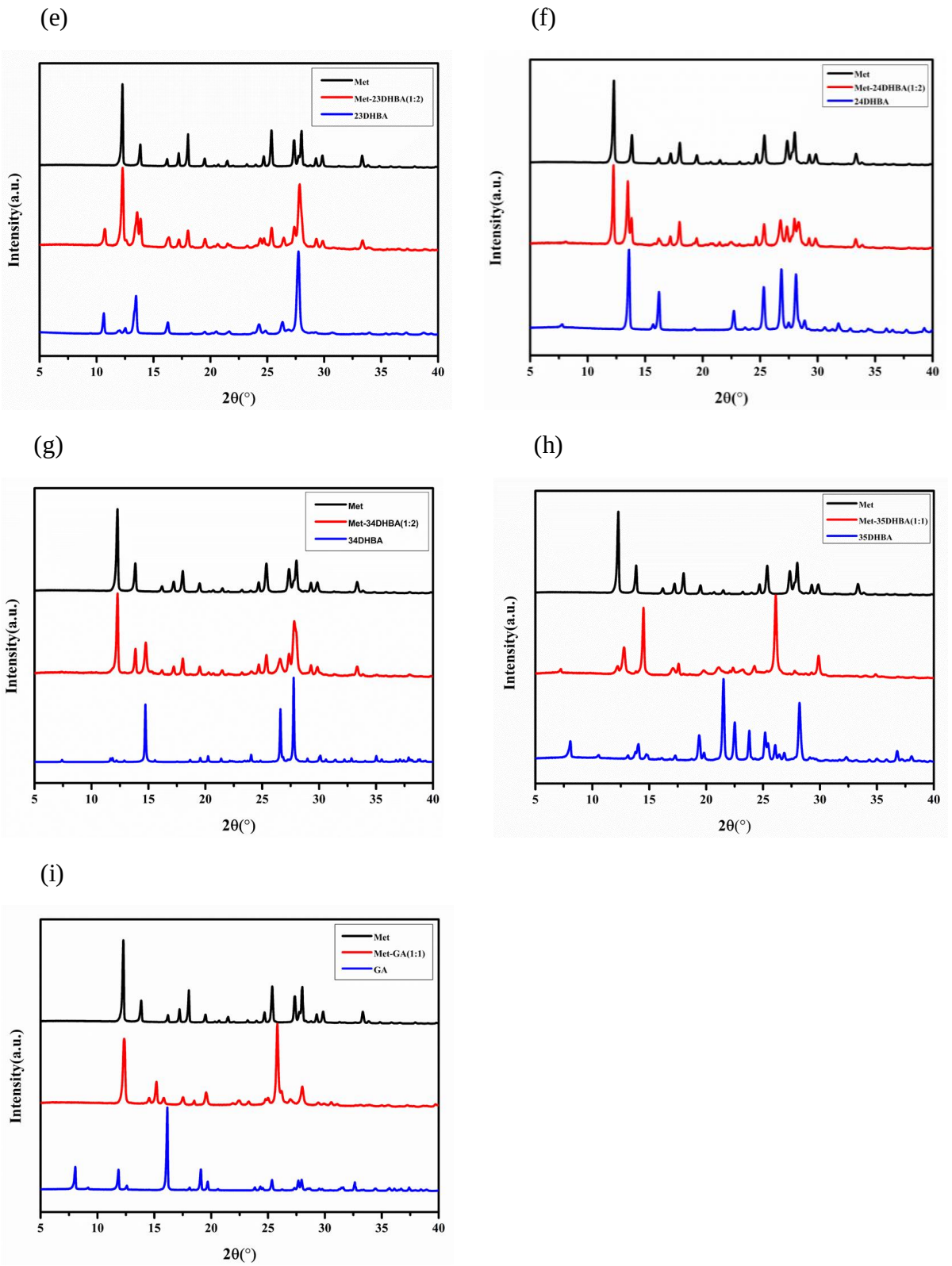
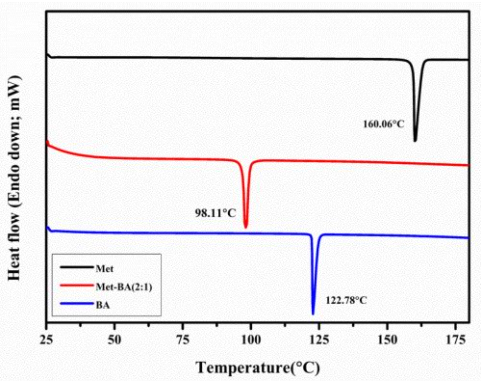
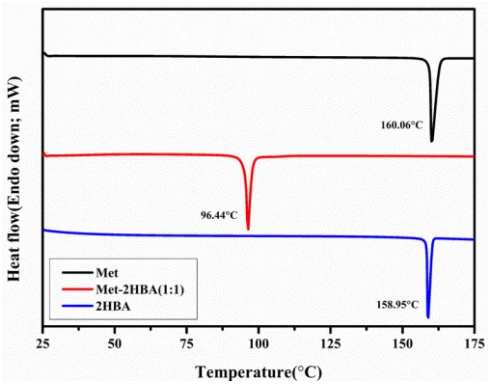


Figure S1. Powder Pattern of all Metronidazole combinations. (a) **Met-BA** (b) **Met-2HBA** (c) **Met-3HBA** (d) **Met-4HBA** (e) **Met-23DHBA** (f) **Met-24DHBA** (g) **Met-34DHBA** (h) **Met-35DHBA** (i) **Met-GA.**

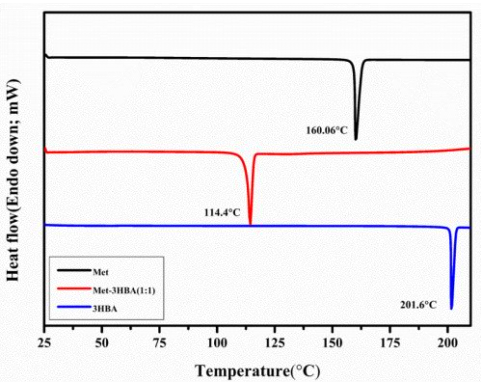
(a)


Heat flow (Endo down; mW)
Temperature(°C)
160.06°C
98.11°C
122.78°C
Met
Met-BA(2:1)
BA

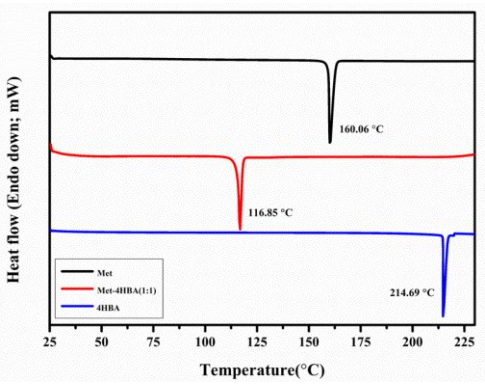
(b)


Heat flow(Endo down; mW)
Temperature(°C)
160.06°C
96.44°C
158.95°C
Met
Met-2HBA(1:1)
2HBA

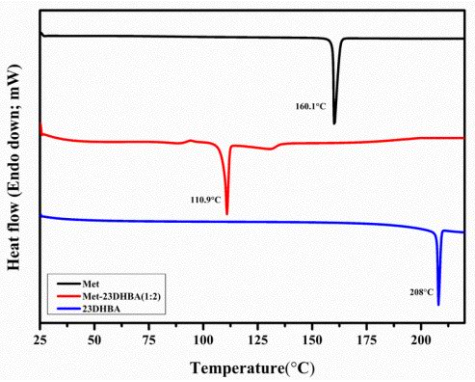
(c)


Heat flow(Endo down; mW)
Temperature(°C)
160.06°C
114.4°C
201.6°C
Met
Met-3HBA(1:1)
3HBA

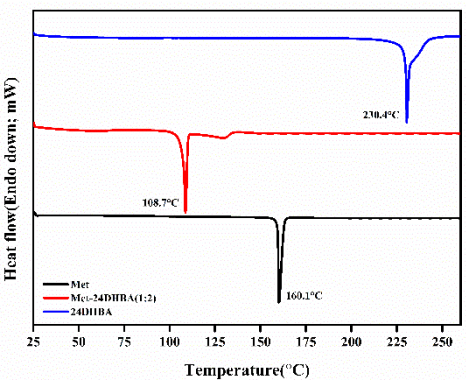
(d)


Heat flow (Endo down; mW)
Temperature(°C)
160.06 °C
116.85 °C
214.69 °C
Met
Met-4HBA(1:1)
4HBA

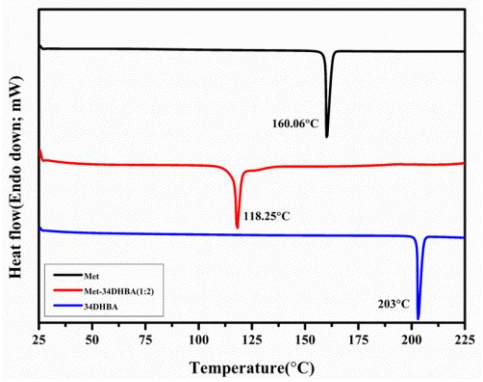
(e)


Heat flow (Endo down; mW)
Temperature(°C)
160.1°C
110.9°C
208°C
Met
Met-23DHBA(1:2)
23DHBA

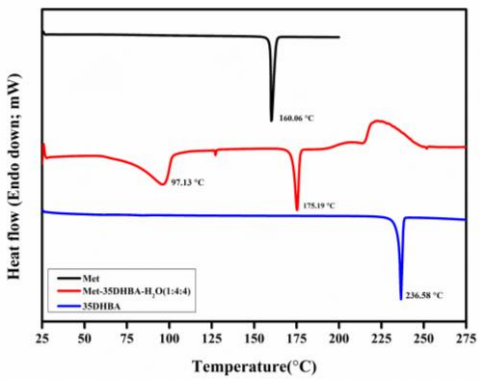
(f)


Heat flow(Endo down; mW)
Temperature(°C)
230.4°C
108.7°C
160.1°C
Met
Met-24DHBA(1:2)
24DHBA

(g)



(h)



(i)

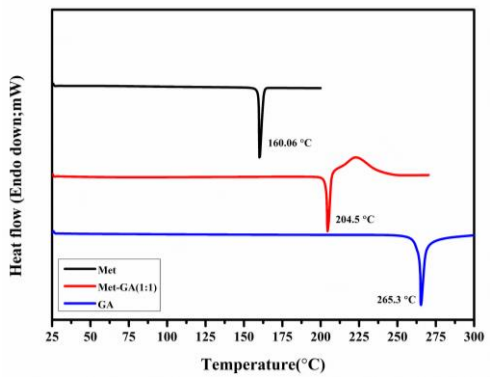
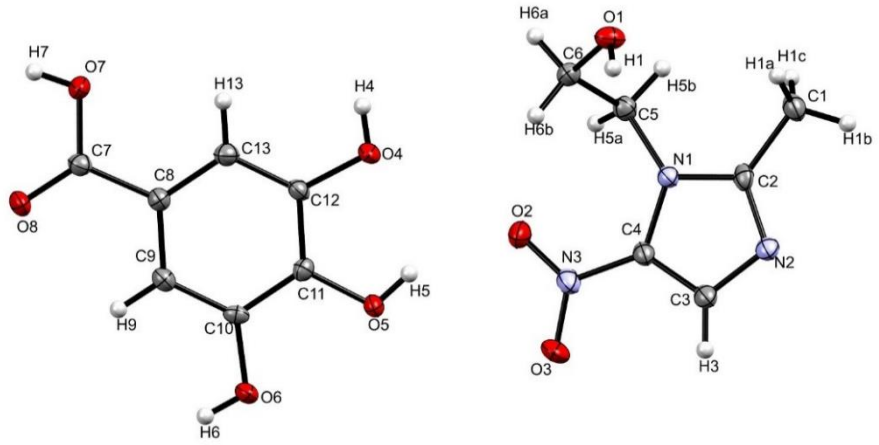


Figure S2. DSC thermograms of all Metronidazole combinations. (a) **Met-BA** (b) **Met-2HBA** (c) **Met-3HBA** (d) **Met-4HBA** (e) **Met-23DHBA** (f) **Met-24DHBA** (g) **Met-34DHBA** (h) **Met-35DHBA** (i) **Met-GA.**

(a)



(b)

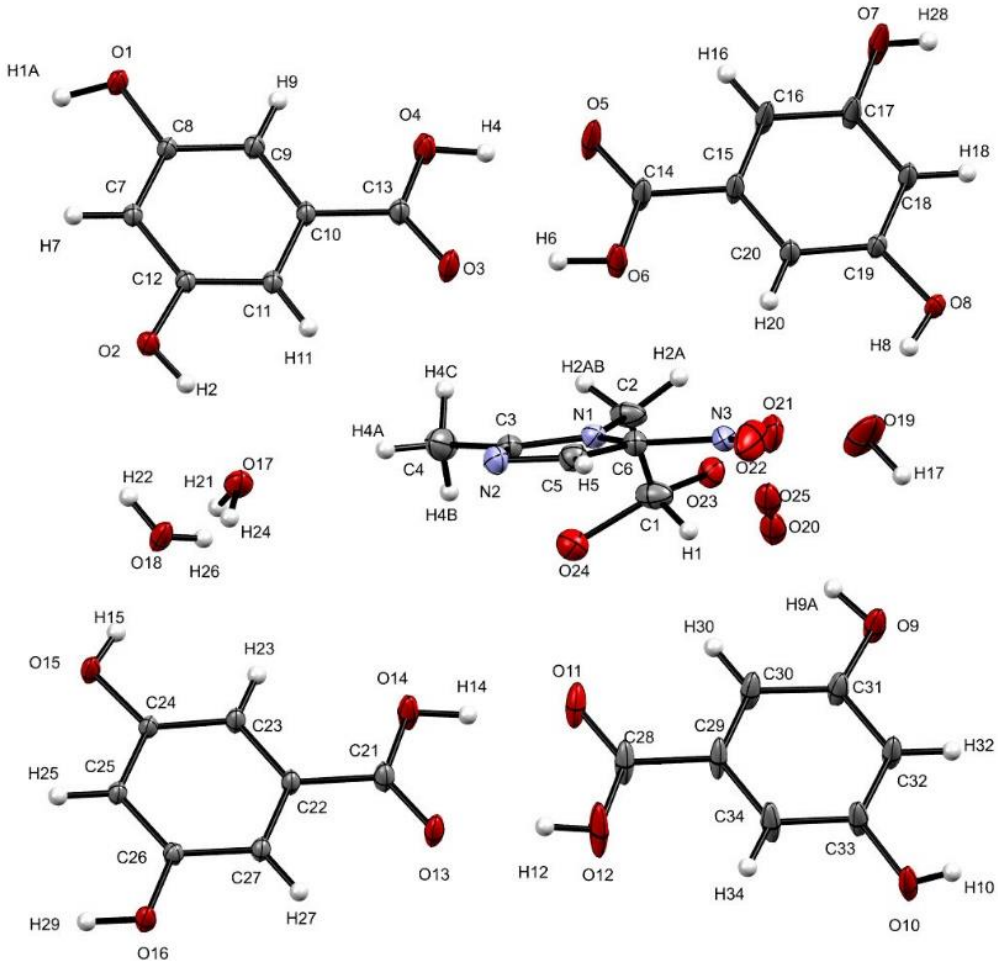
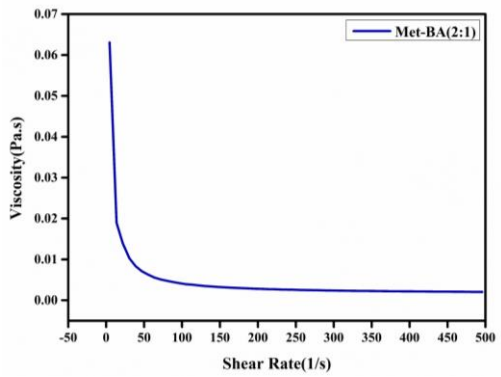
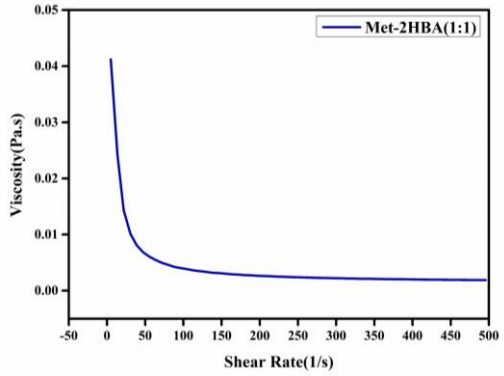


Figure S3. ORTEP Diagrams of (a) **Met-GA** and (b) **Met-35DHBA** tetrahydrate Cocrystals.

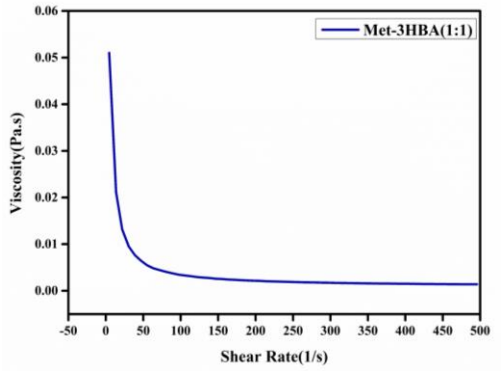
(a)


Met-BA(2:1)
Viscosity(Pa.s)
Shear Rate(1/s)

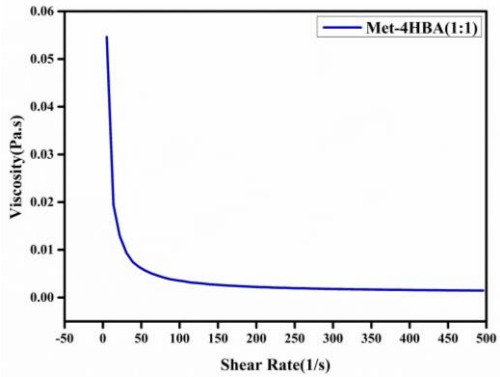
(b)


Met-2HBA(1:1)
Viscosity(Pa.s)
Shear Rate(1/s)

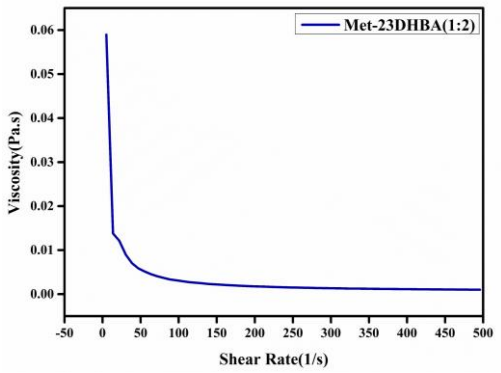
(c)


Met-3HBA(1:1)
Viscosity(Pa.s)
Shear Rate(1/s)

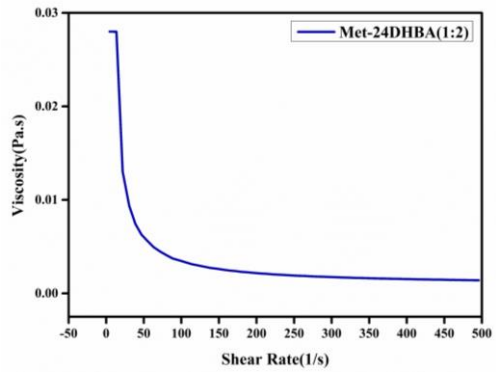
(d)


Met-4HBA(1:1)
Viscosity(Pa.s)
Shear Rate(1/s)

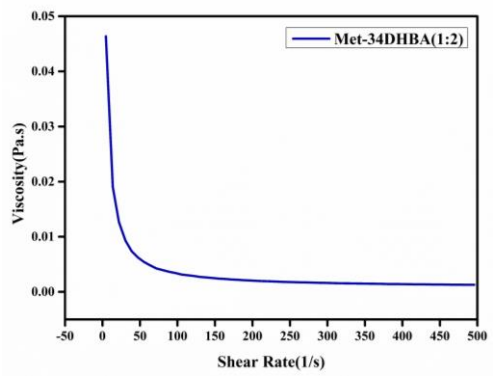
(e)


Met-23DHBA(1:2)
Viscosity(Pa.s)
Shear Rate(1/s)

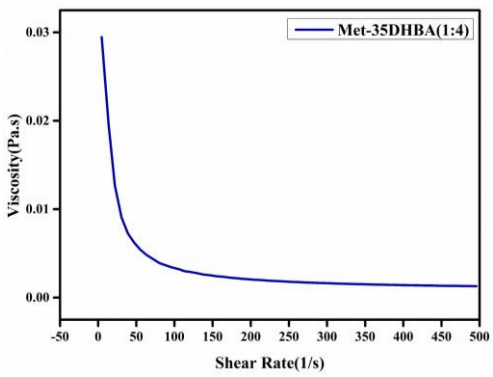
(f)


Met-24DHBA(1:2)
Viscosity(Pa.s)
Shear Rate(1/s)

(g)



(h)



(i)

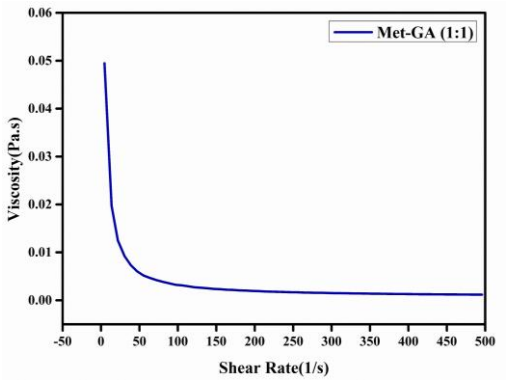


Figure S4. Viscosity measurements of all Metronidazole combinations. (a) **Met-BA** (b) **Met-2HBA** (c) **Met-3HBA** (d) **Met-4HBA** (e) **Met-23DHBA** (f) **Met-24DHBA** (g) **Met-34DHBA** (h) **Met-35DHBA** (i) **Met-GA.**

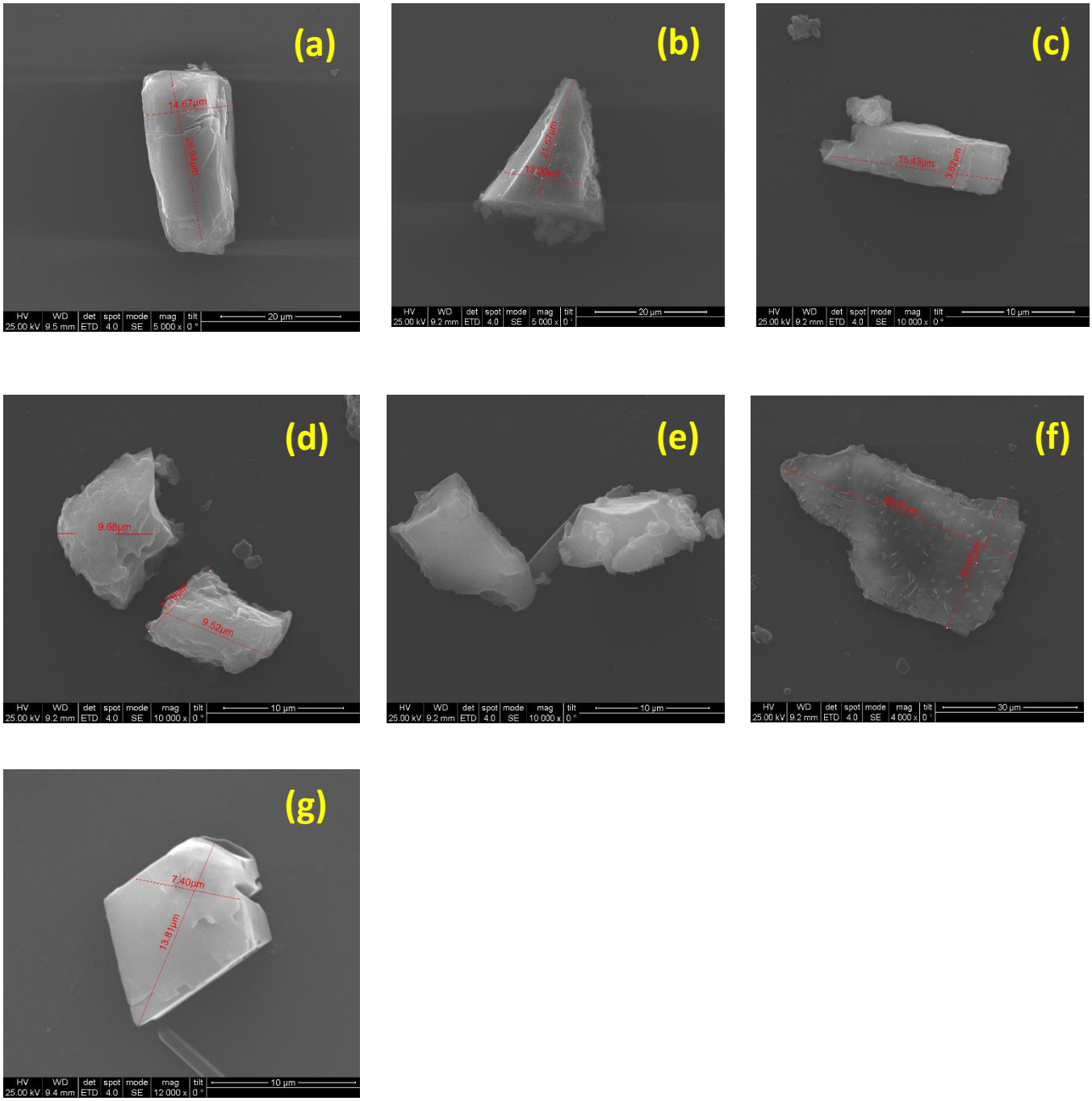


Figure S5. SEM Images of (a) **Met-BA** (b) **Met-2HBA** (c) **Met-3HBA** (d) **Met-4HBA** (e) **Met-23DHBA** (f) **Met-24DHBA** (g) **Met-34DHBA**

Eutectic combinations produced by printing technique.

Thermogravimetric Analysis

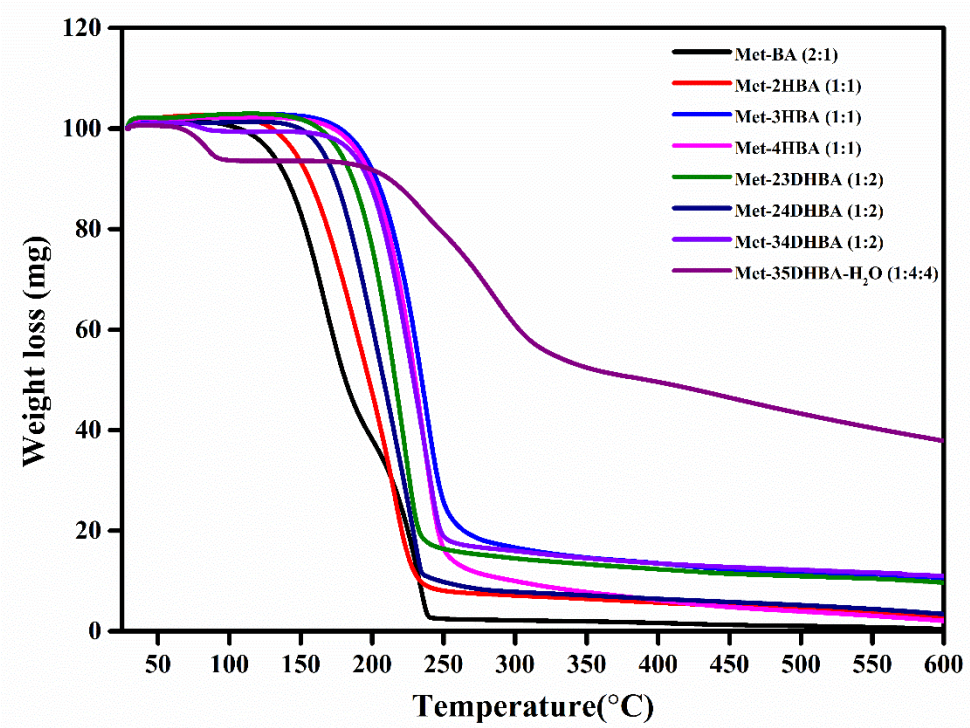


Figure S6. TGA of (a) **Met-BA** (b) **Met-2HBA** (c) **Met-3HBA** (d) **Met-4HBA** (e) **Met-23DHBA** (f) **Met-24DHBA** (g) **Met-34DHBA** (h) **Met-35DHBA** combinations.

Table S1. Calculation of Ohnesorge Number

Compound	Density (Kg/m^3)	Viscosity ($x\ 10^{-3}$ Pa.S)	Surface Tension ($x\ 10^{-3}$ N/m)	Nozzle Diameter ($x\ 10^{-5}$ m)	Ohnesorge Number (Oh)	Z (1/Oh)
Met-BA	856.4	63	26.1	22	0.90	1.11
Met-2HBA	856.4	41	27.2	22	0.57	1.75
Met-3HBA	856.4	51	26.3	22	0.73	1.38
Met-4HBA	856.4	55	27.7	22	0.76	1.31
Met-23DHBA	856.4	59	25.6	22	0.85	1.18
Met-24DHBA	856.4	28	26.6	22	0.40	2.53
Met-34DHBA	856.4	46	27.2	22	0.65	1.56
Met-35DHBA	856.4	30	27.6	22	0.42	2.41
Met-GA	856.4	50	27.0	22	0.70	1.43

Table S2. Method conditions for Malvern Mastersizer 2000 with Hydro 2000μP sample dispersion unit setup.

Pump Rate	2000 RPM
Vibration Time	30 seconds
Vibration Power	25%
Obscuration Filter	On
Lower Obscuration Limit	5
Upper Obscuration Limit	25
Time Out Period	45 seconds
Refractive Index	1.39
Absorption	0-1
Measurement Time	40 seconds
Background Time	40 seconds
Number of Cycles	1
Vibration Type	Pre-Measurement