

Supplementary data

Table S1. Recipe for preparing buffers for pH shift dissolution studies.

Components	Molecular formulae	Mol. Wt. (g/mol)	molarity (M)	Amount	Final volume
Hydrochloric acid (HCl)-Potassium Chloride (KCl) buffer (*pH 2, 0.1M)					
hydrochloric acid (1N)	HCl	36.46	0.02	15 mL	750 mL
potassium chloride	KCl	74.55	0.10	5.591 g	
Phosphate buffer (*pH 6.5, 0.1M)					
sodium phosphate dibasic	Na ₂ HPO ₄	141.96	0.049	6.260 g	150 mL
sodium phosphate monobasic monohydrate	NaH ₂ PO ₄ .H ₂ O	137.99	0.051	6.334 g	
Total Volume (final)					900 mL

*Adjust final pH using hydrochloric acid (HCl) or sodium hydroxide (NaOH)

Table S2. Tablet weights used for the dissolution studies.

Formulation composition	Tablet weight (mg)	Amount of drug (as per the drug content)
20% ibuprofen-HPMC-AS HG (20% infill)	176.4	35.28
	182.3	36.46
	179.8	35.96
20% ibuprofen-HPMC-AS HG (40% infill)	228.7	45.74
	226.4	45.28
	232.6	46.52
20% ibuprofen-HPMC-AS HG (60% infill)	286.9	57.38
	285.4	57.08
	277.6	55.52
20% ibuprofen-HPMC-AS HG (80% infill)	334.2	66.84
	336.6	67.32
	332.1	66.42
20% ibuprofen-HPMC-AS MG (20% infill)	185.6	37.12
	182.7	36.54
	188.9	37.78
20% ibuprofen-HPMC-AS MG (40% infill)	235.0	47
	233.1	46.62
	235.6	47.12
20% ibuprofen-HPMC-AS MG (60% infill)	291.7	58.34
	288.8	57.76
	293.4	58.68
20% ibuprofen-HPMC-AS MG (80% infill)	339.1	67.82
	350.6	70.12
	354.7	70.94
20% ibuprofen-HPMC-AS LG (20% infill)	136.2	27.24
	144.7	28.94
	131.6	26.32
20% ibuprofen-HPMC-AS LG (40% infill)	212.5	42.5
	212.7	42.54
	215.4	43.08

20% ibuprofen-HPMC-AS	277.3	55.46
LG (60% infill)	285.1	57.02
	288.9	57.78
20% ibuprofen-HPMC-AS	330.7	66.14
LG (80% infill)	325.4	65.08
	325.2	65.04