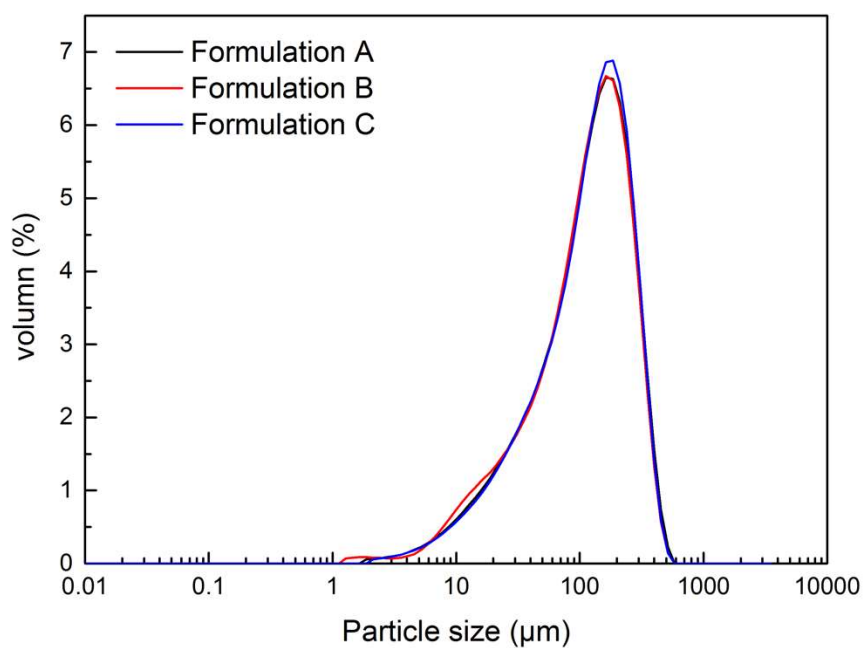
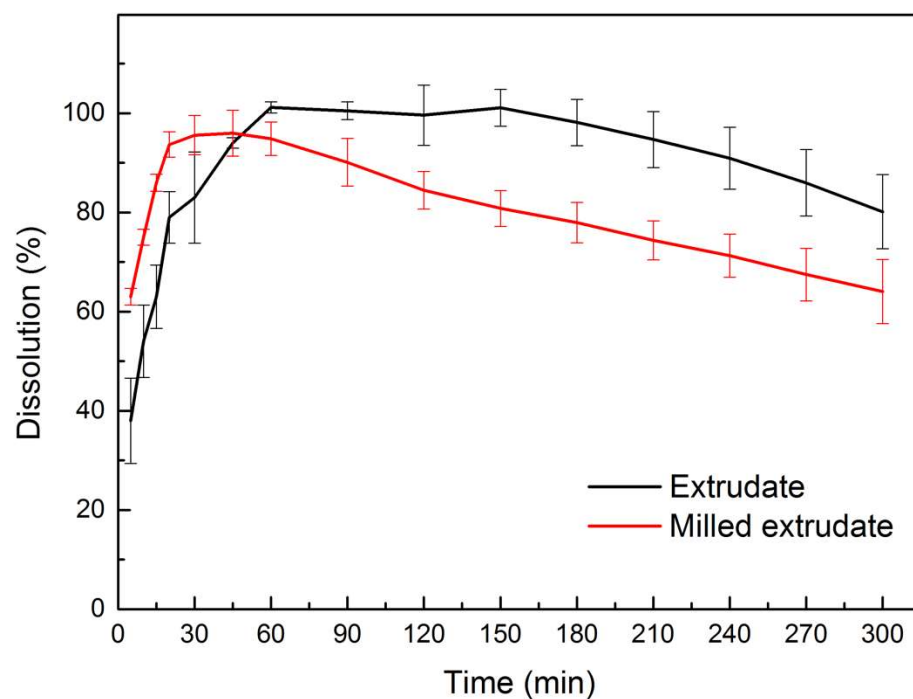


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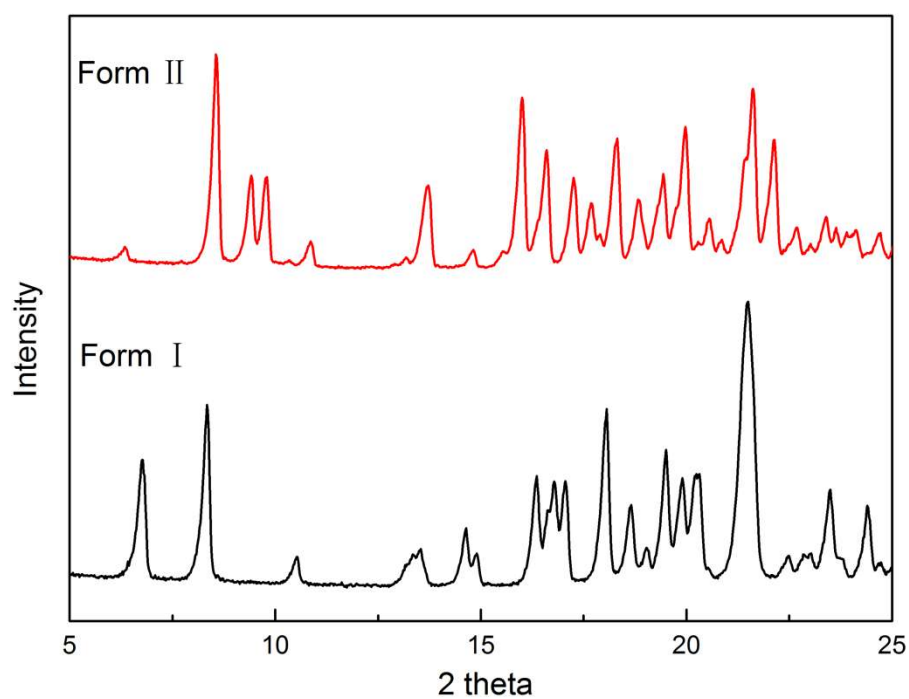
## Supplemental figures:



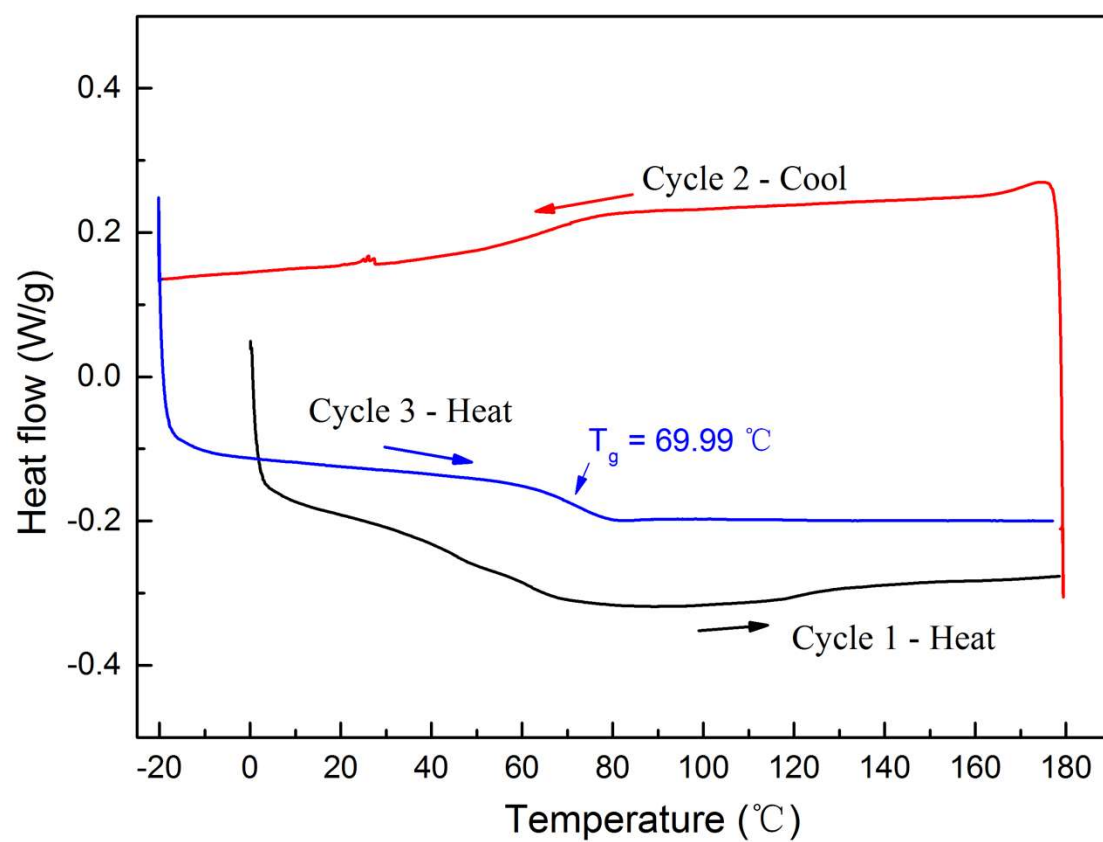
**Figure S1.** The particle size distributions of milled extrudates were measured by laser diffraction measurement (Mastersizer 3000, Malvern Instruments, UK) via the dry dispersion method following standard test procedures.



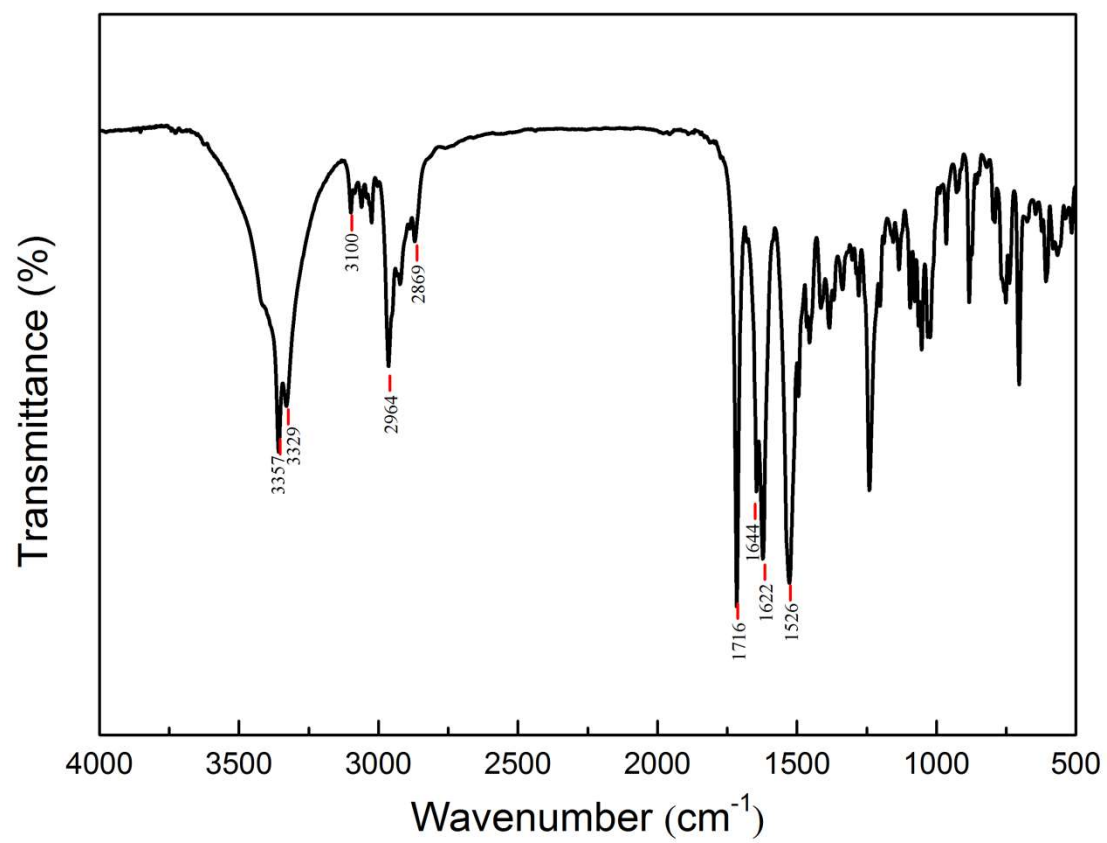
**Figure S2.** The dissolution of the ritonavir ASD formulation without the addition of Span 20 in the 900 ml aqueous medium using USP dissolution apparatus II.



**Figure S3.** The PXRD of ritonavir Form I and Form II.



**Figure S4.** The DSC of ritonavir ternary ASD formulations prepared by solvent evaporation.



**Figure S5.** The infrared spectrum of ritonavir Form II.

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**Supplemental tables:****Table S1.** PDI index of the particle size determination (mean  $\pm$  SD, n = 3).

Formulations		PDI index
physical mixtures		$0.93 \pm 0.115$
extrudates	Formulation A	$0.12 \pm 0.043$
	Formulation B	$0.12 \pm 0.014$
	Formulation C	$0.13 \pm 0.015$
milled extrudates	Formulation A	$0.21 \pm 0.049$
	Formulation B	$0.17 \pm 0.024$
	Formulation C	$0.18 \pm 0.022$