

Electronic Supplementary Information for

Preparation and Recrystallization of Amorphous L-Glutamic Acid

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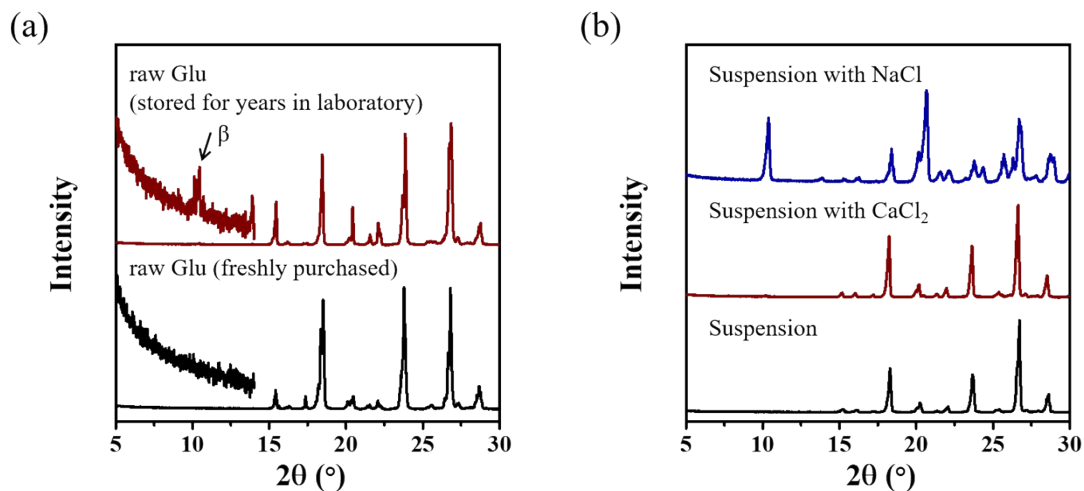


Figure S1. (a) PXRD patterns of the freshly purchased raw Glu and raw Glu after being stored for years. It is noticed that the stored raw Glu contains trace β polymorph, which is easy to be ignored without magnification. (b) PXRD patterns of the overnight suspension product of freshly purchased raw Glu in pure water, $10 \text{ mg} \cdot \text{ml}^{-1}$ NaCl, and CaCl₂ aqueous solution. The suspension product in pure water maintained α polymorph, and the product with NaCl became a mixture in which β polymorph is the main polymorph.

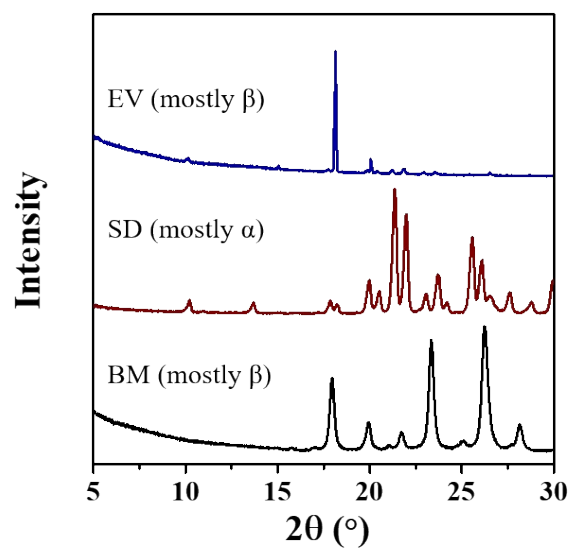


Figure S2. PXR D patterns of the ball milled product of raw Glu, spray drying product of Glu aqueous solution, and evaporation product of Glu aqueous solution.

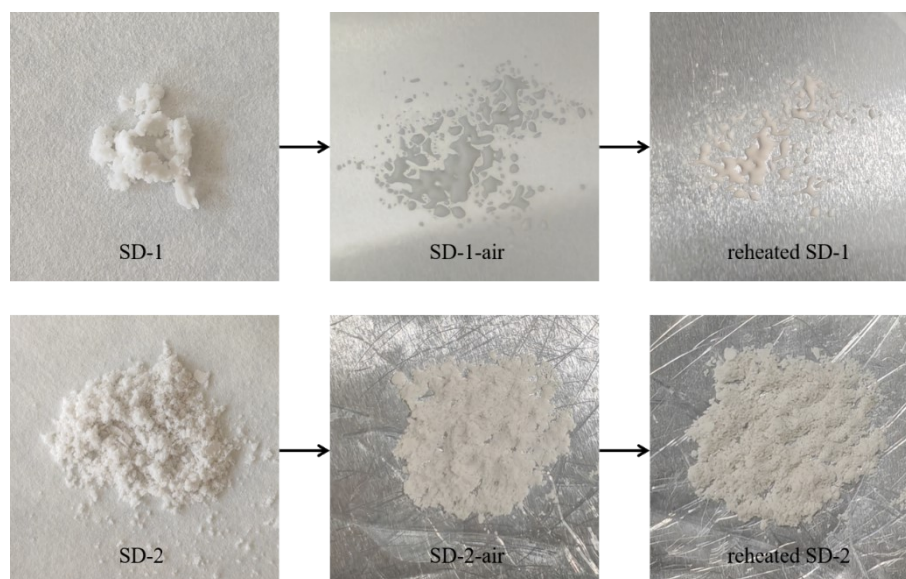


Figure S3. Optical images of (upon) SD-1, hydrophilic SD-1 kept in air (room temperature, humidity ~60%) overnight and reheated SD-1 (hydrophilic SD-1 was heated at 100 °C for three hours), and (down) SD-2, hydrophilic SD-2 and reheated SD-2.

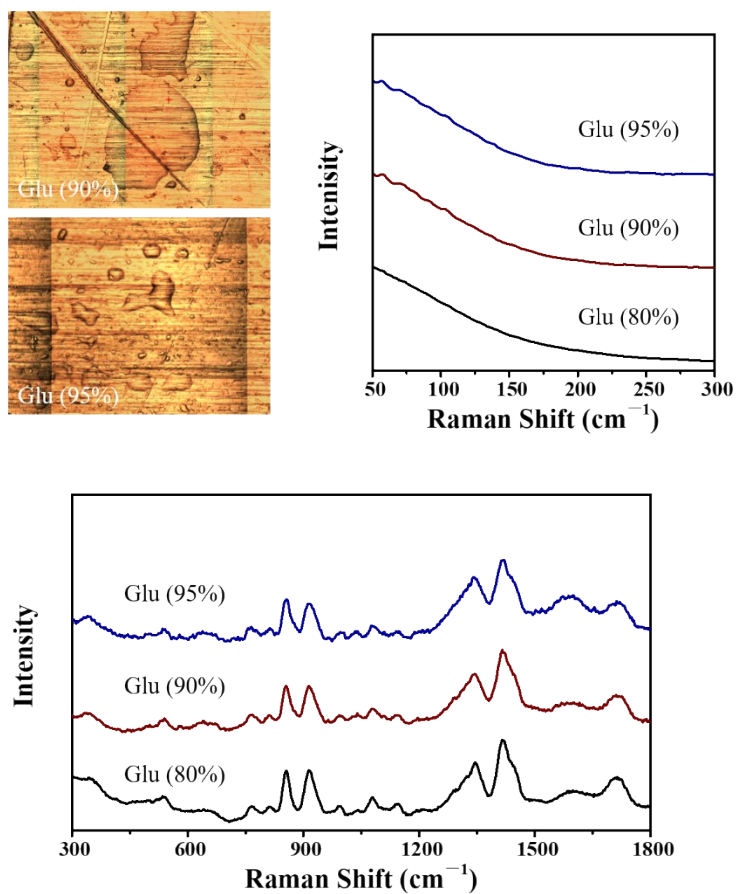


Figure S4. Optical images, low-frequency and mid-frequency Raman spectra of the evaporated amorphous product with higher mole ratios of Glu and CaCl₂. The Glu contents are 80, 90 and 95 wt.%.

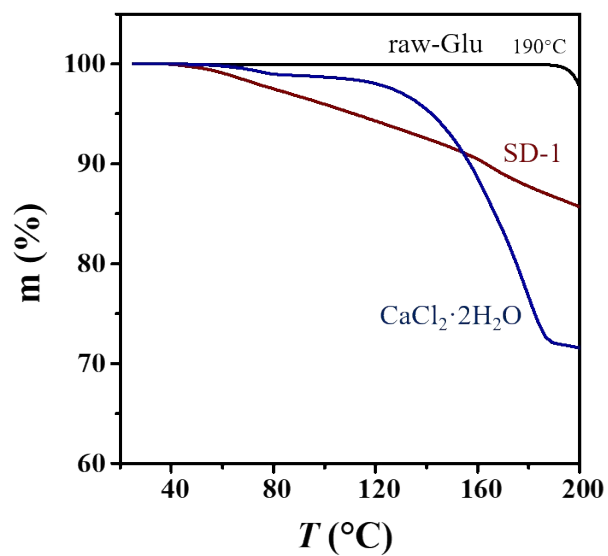


Figure S5. TG curves of raw-Glu, $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$ and SD-1 (N_2 , $10 \text{ K} \cdot \text{min}^{-1}$). The TG curve of SD-1 shows a continuous process of water loss.

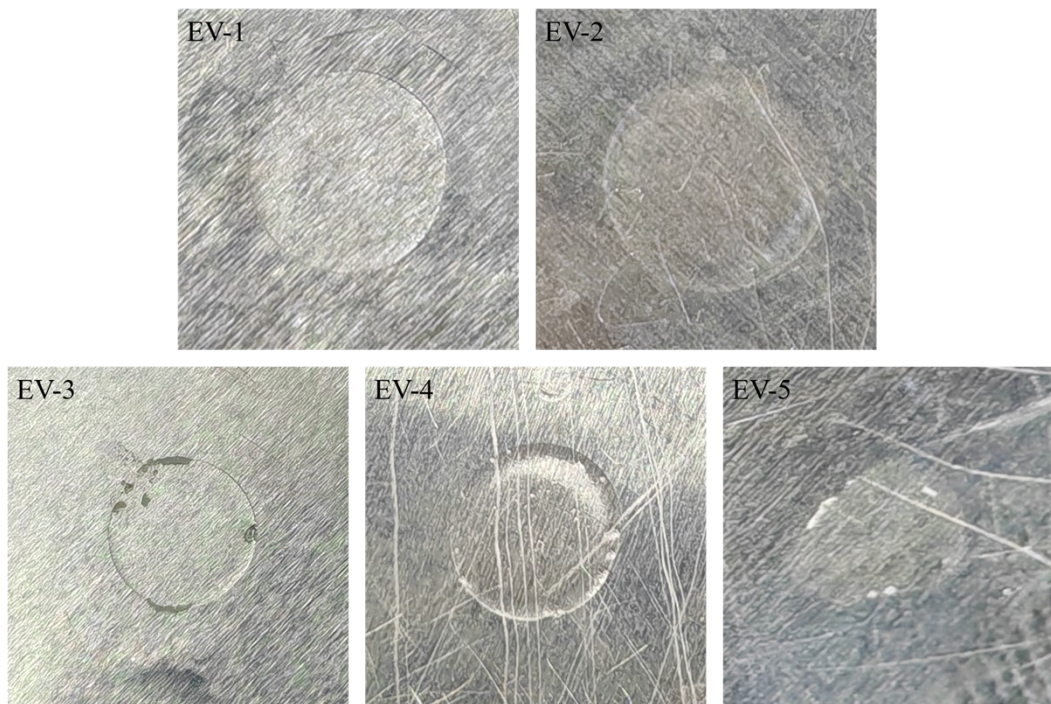


Figure S6. Optical images of EV-1 to EV-5 with a smaller evaporation volume of $50 \mu\text{l}$ at $100 \text{ }^\circ\text{C}$.

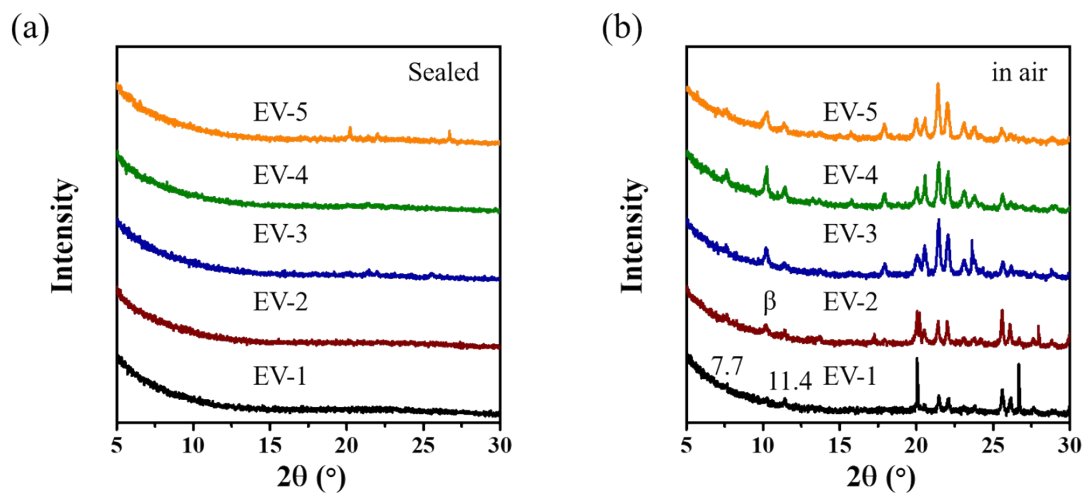


Figure S7. PXRD patterns of EV-1 to EV-5 kept (a) in a sealed environment for 7 days, and (b) in air overnight.

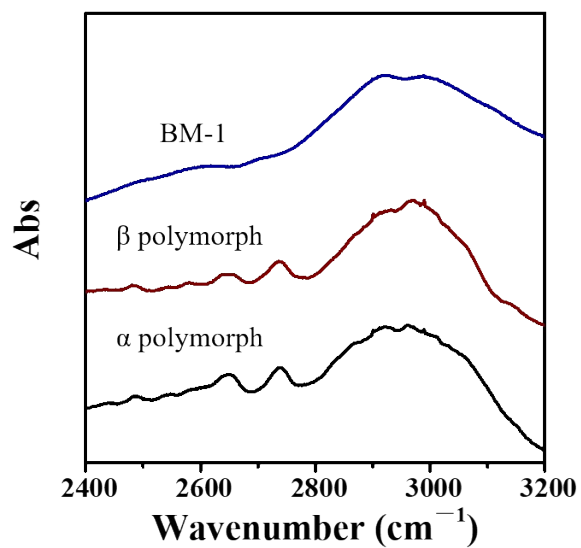


Figure S8. IR spectra of α polymorph, β polymorphs and BM-1 in the high-frequency region.

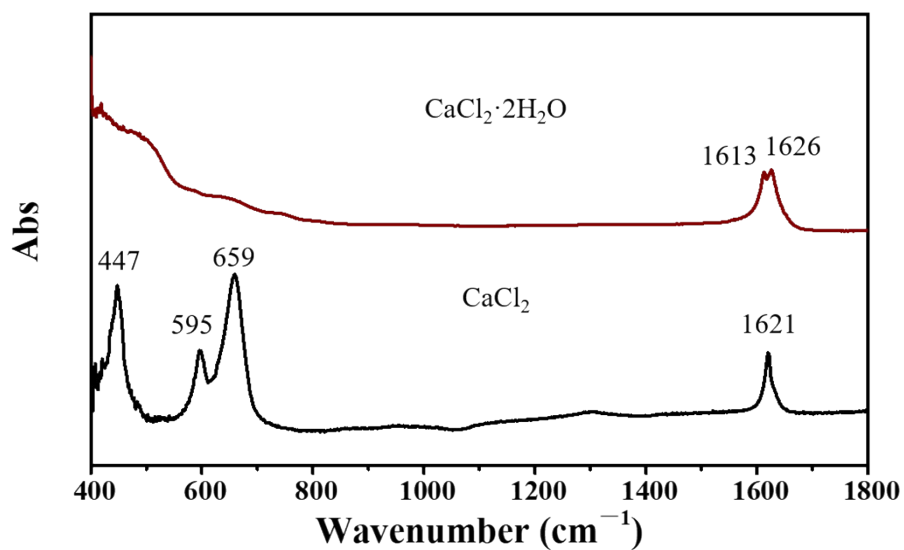


Figure S9. IR spectra of CaCl₂ and CaCl₂·2H₂O in the range of 400-1800 cm⁻¹.

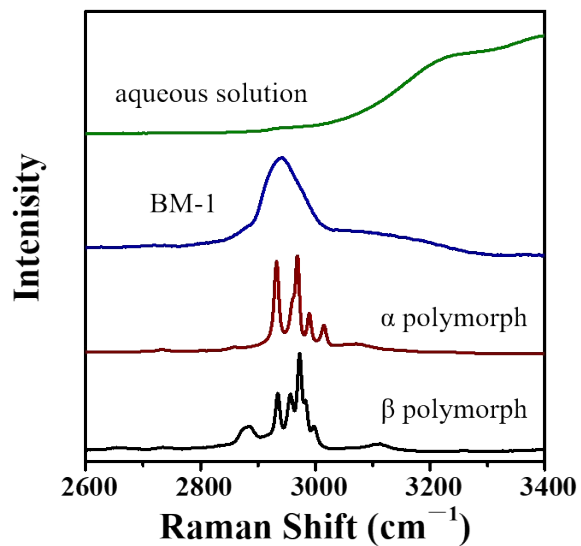


Figure S10. High-frequency Raman spectra of α polymorph, β polymorph, BM-1, and Glu aqueous solution.

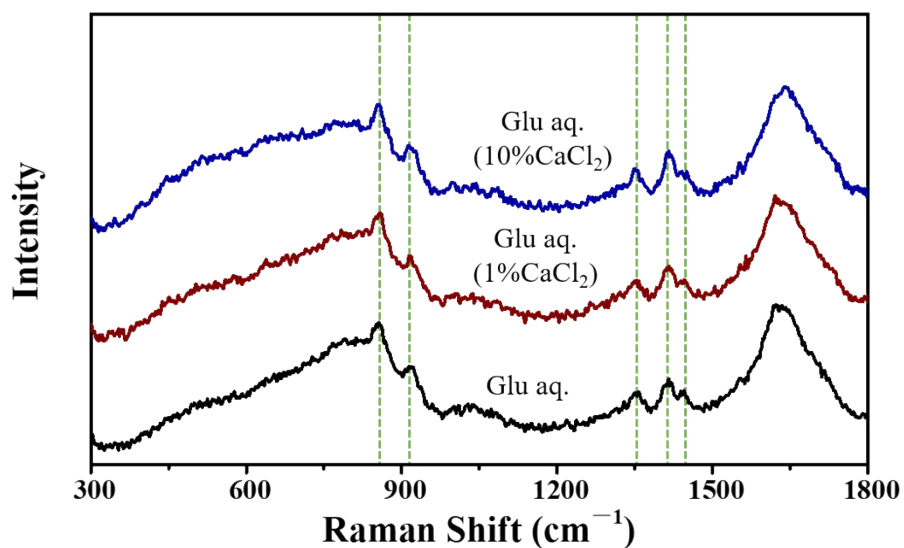


Figure S11. Mid-frequency Raman spectra of saturated Glu aqueous solution, 1% CaCl₂ aqueous solution, and 10% CaCl₂ aqueous solution.

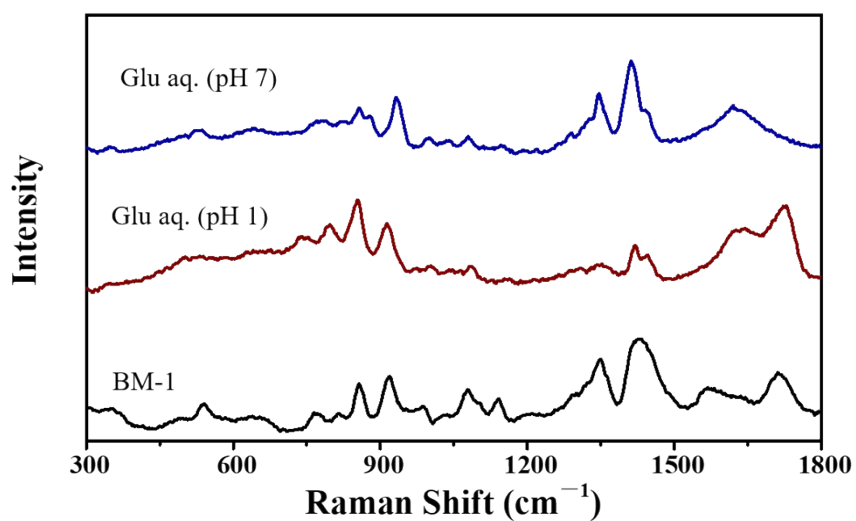


Figure S12. Mid-frequency Raman spectra of BM-1, 10% Glu in the pH 1 solution and pH 7 solution.

Table S1. Typical mid-frequency Raman bands in the range of 300-1800 cm^{-1} of Glu samples.

11 bands of BM-1 were chosen for comparison. AQ and BM-1 are as reference.

AQ	BM-1	pH 1	pH 7
	540		
	765		
812	816	796	
856	857	853	857
915	919	915	938
	987		
	1079		
	1141		
1352	1350		
1414	1432	1419	1412
		1620	1620
	1712	1724	