Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting Information

Piezochromism and Anomalous Near-Infrared Luminescence Evolution of $BaCuSi_4O_{10}$ and $BaCuSi_2O_6$ via Pressure-Induced Phase Transition

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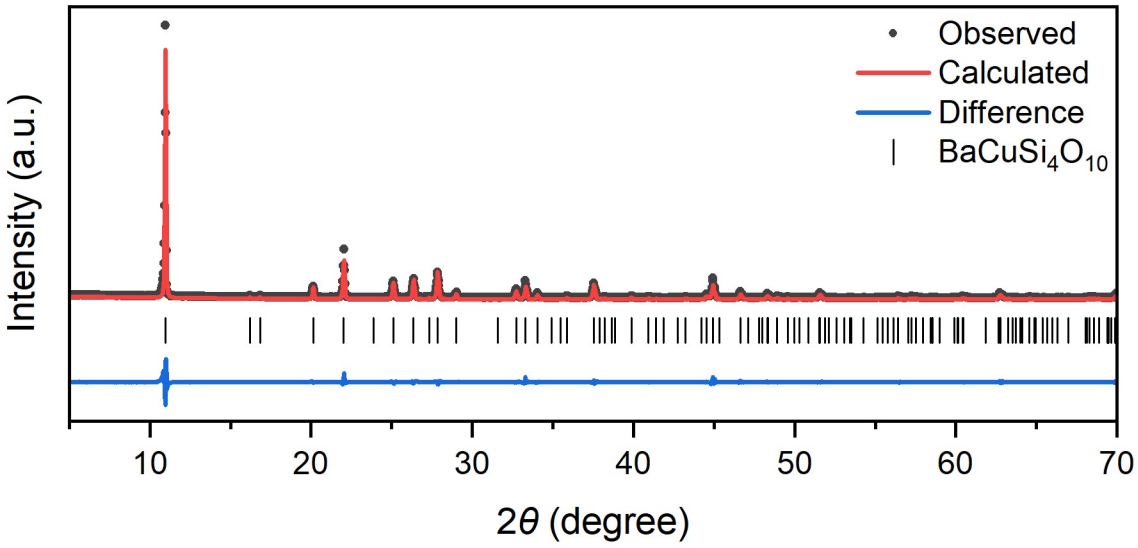

Figure S1. Rietveld refinement results of $BaCuSi_4O_{10}$ powder XRD patterns at ambient condition.

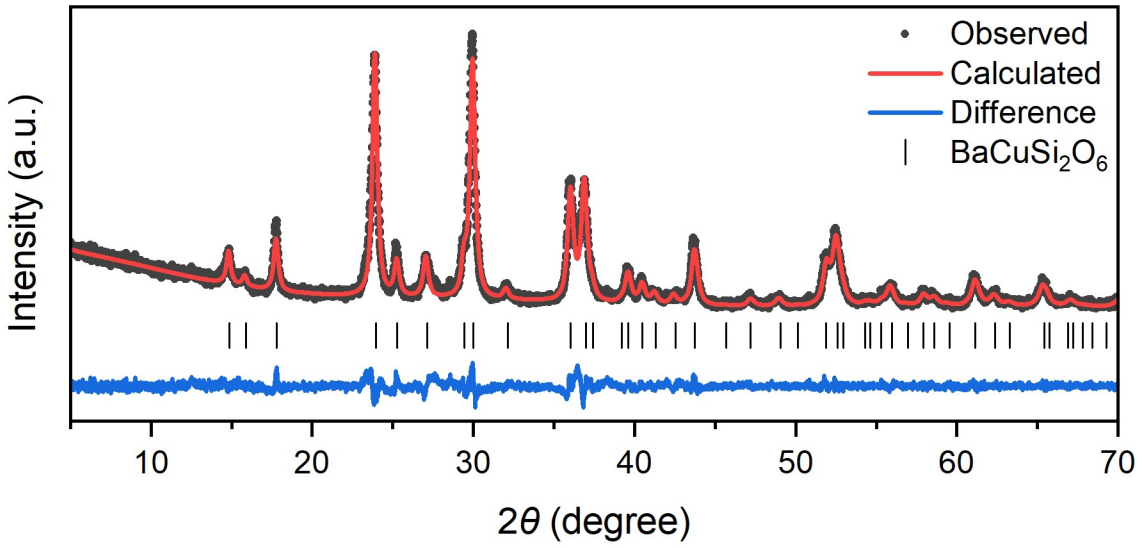

Figure S2. Rietveld refinement results of $BaCuSi_2O_6$ powder XRD patterns at ambient condition.

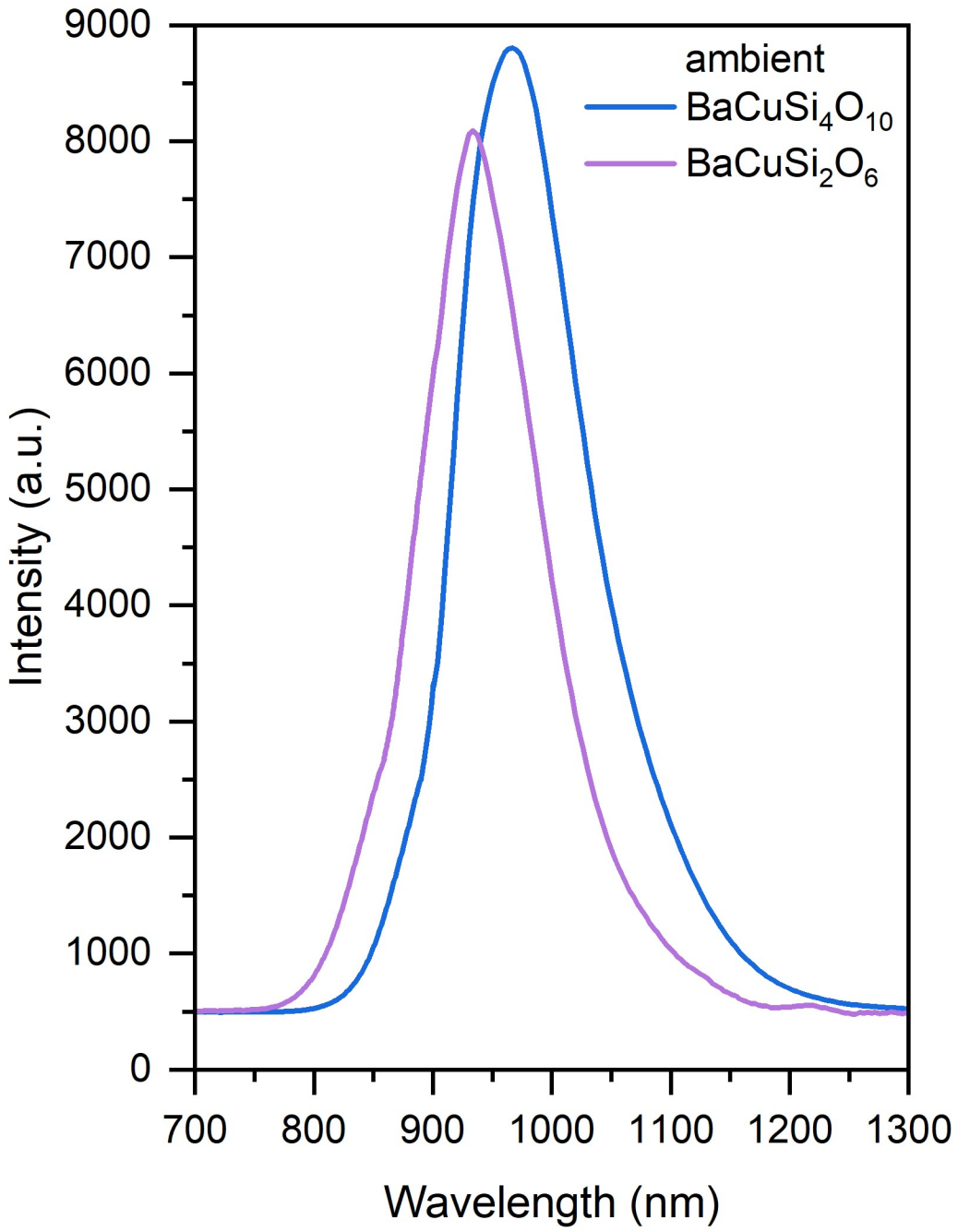

Figure S3. NIR emission spectra of $BaCuSi_4O_{10}$ and $BaCuSi_2O_6$ at ambient condition.

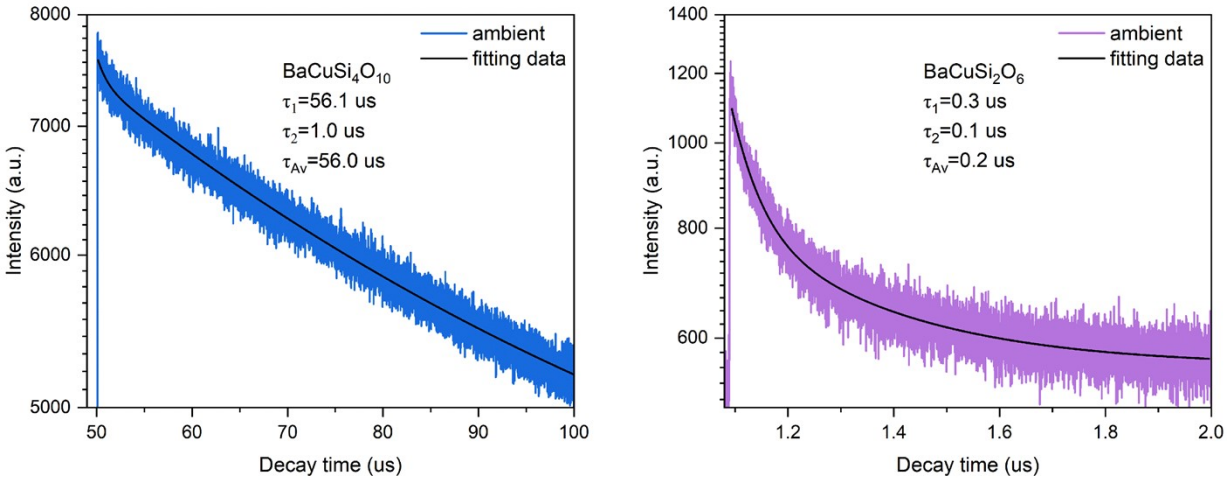

Figure S4. The decay time of $BaCuSi_4O_{10}$ and $BaCuSi_2O_6$ at ambient condition.

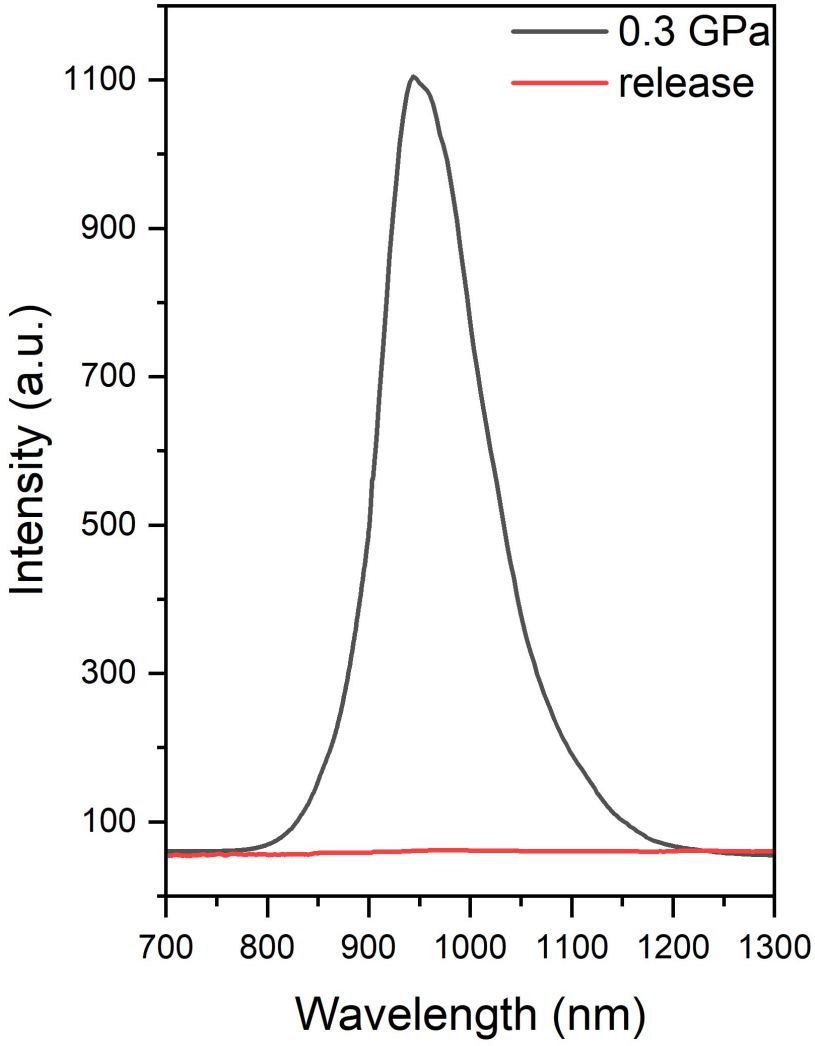

Figure S5. NIR emission spectra of $BaCuSi_4O_{10}$ at 0.3 GPa and after pressure release.

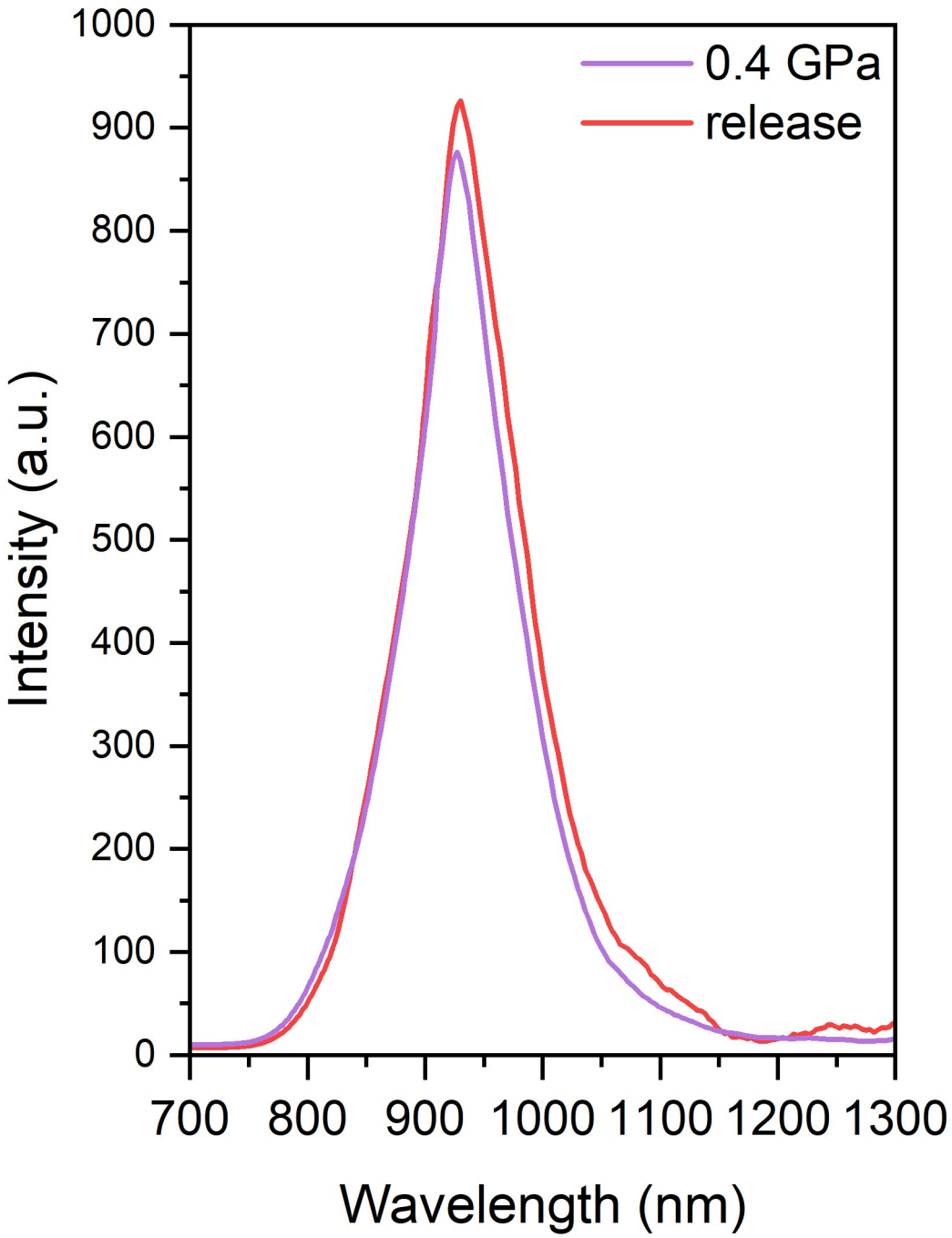

Figure S6. NIR emission spectra of $BaCuSi_2O_6$ at 0.4 GPa and after pressure release.

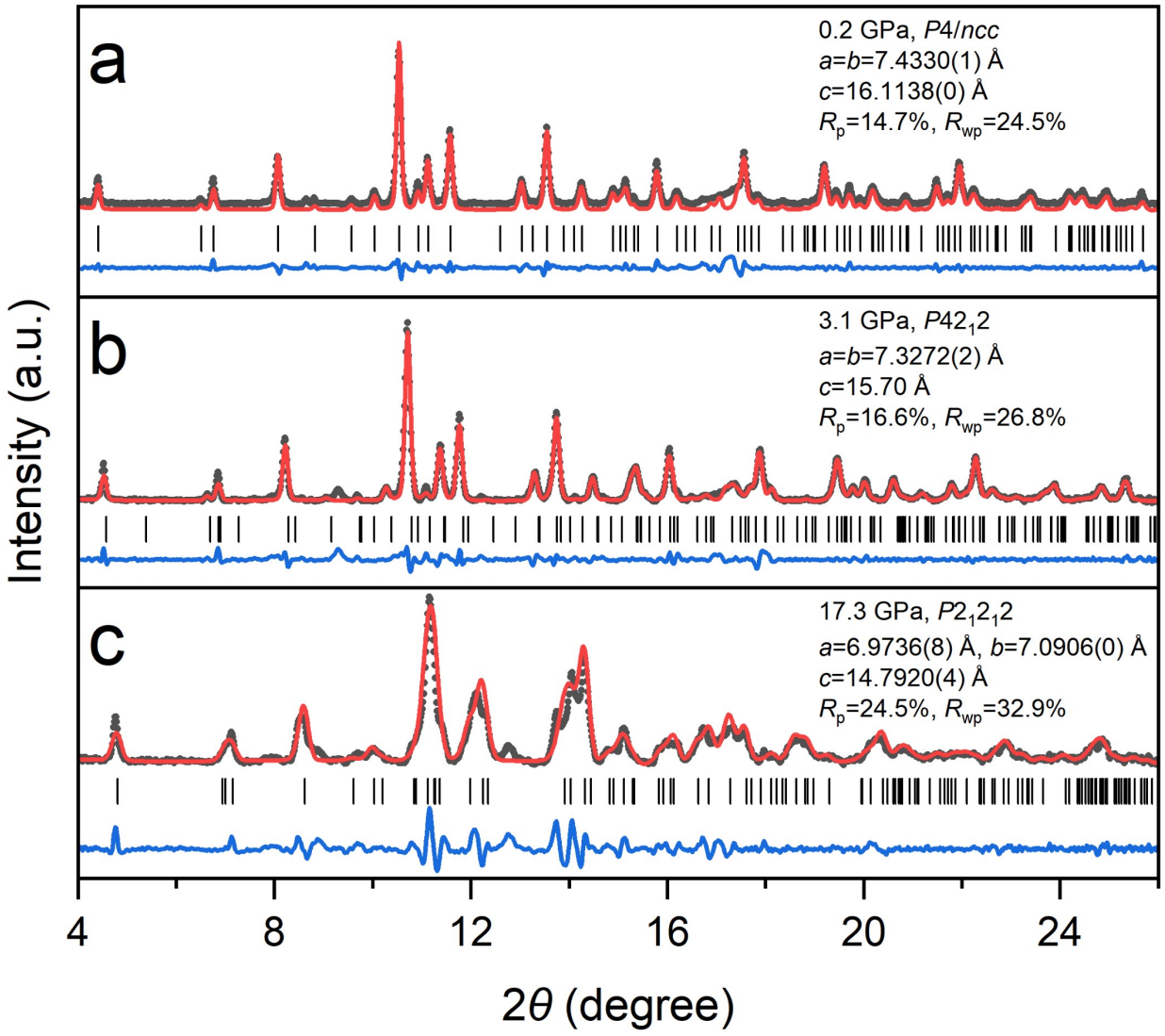

Figure S7. LeBail fitting results of $BaCuSi_4O_{10}$ at (a) 0.2 GPa, (b) 3.1 GPa, and (c) 17.3 GPa.

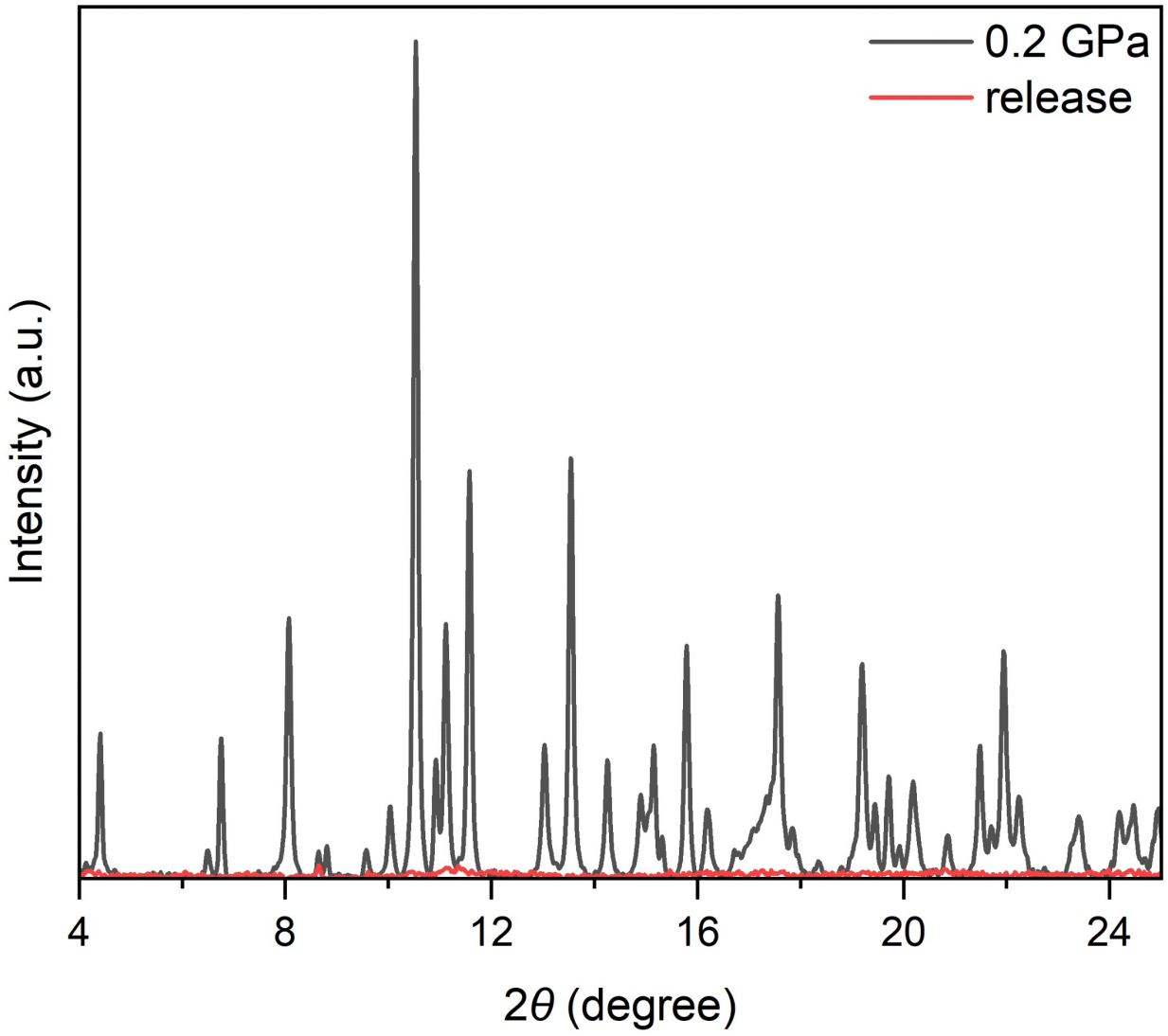

Figure S8. XRD patterns of $BaCuSi_4O_{10}$ at 0.2 GPa and after pressure release.

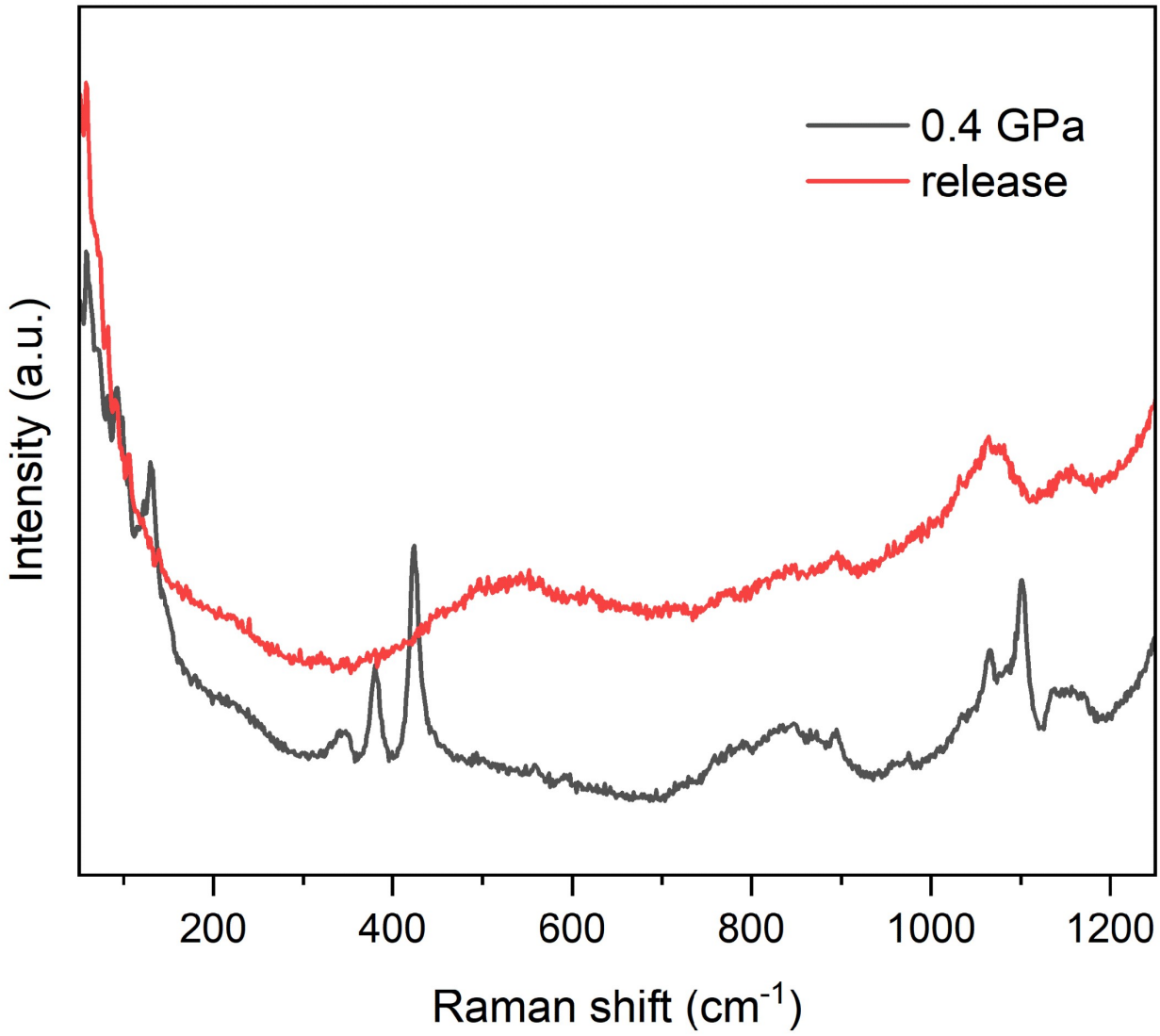

Figure S9. The Raman spectra of $BaCuSi_4O_{10}$ at 0.4 GPa and after pressure release.

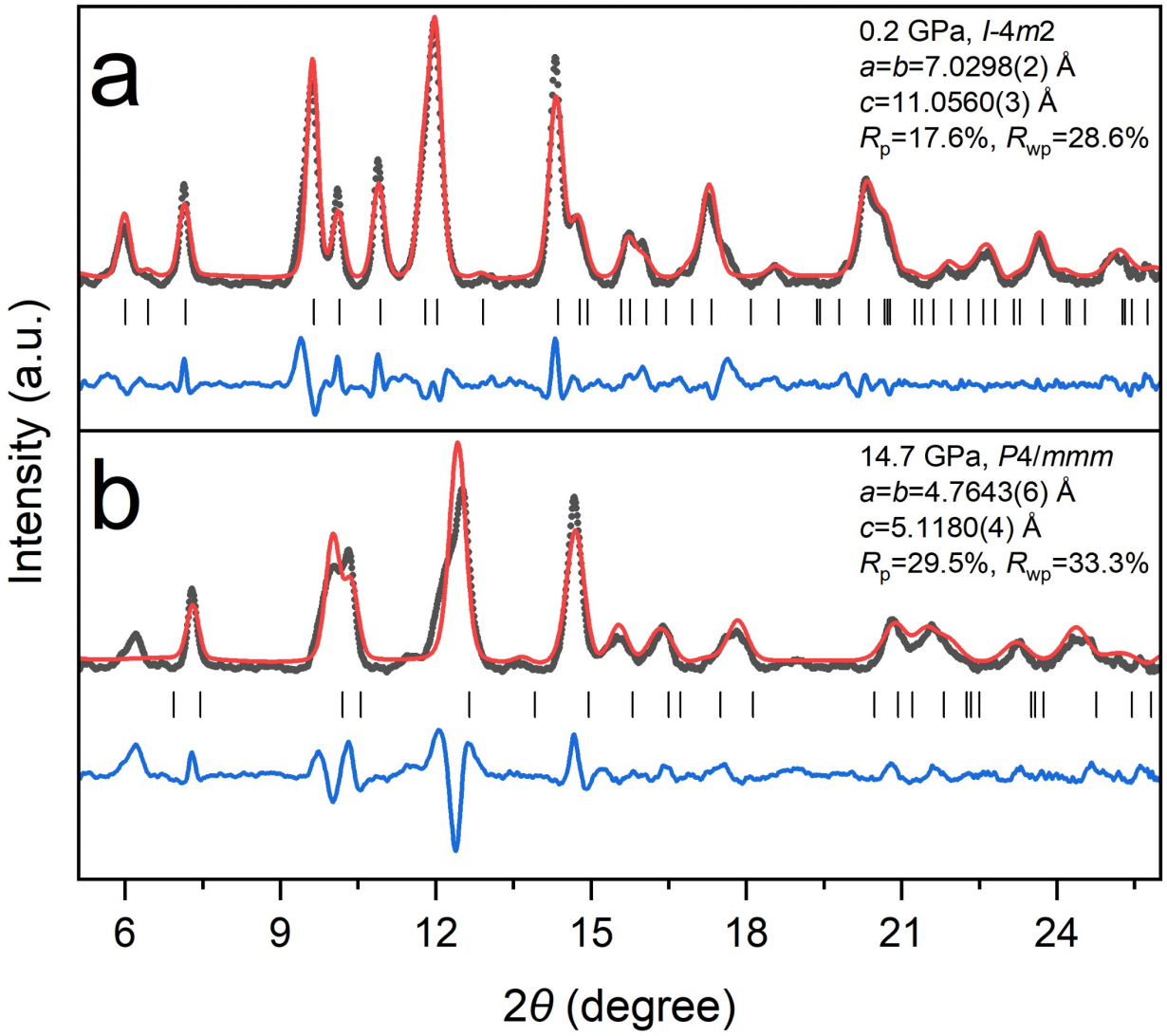

Figure S10. LeBail fitting results of $BaCuSi_2O_6$ at (a) 0.2 GPa, (b) 14.7 GPa.

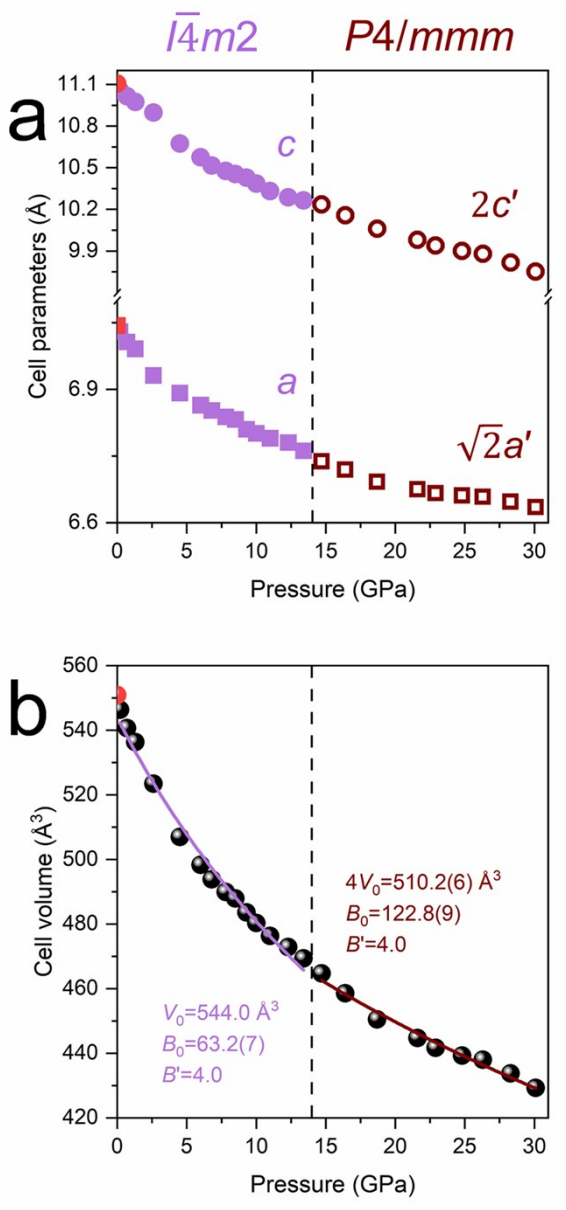

Figure S11. (a) *In situ* HP cell parameters of $BaCuSi_2O_6$ under selected pressure, and (b) the cell volume as a function of applied pressure.

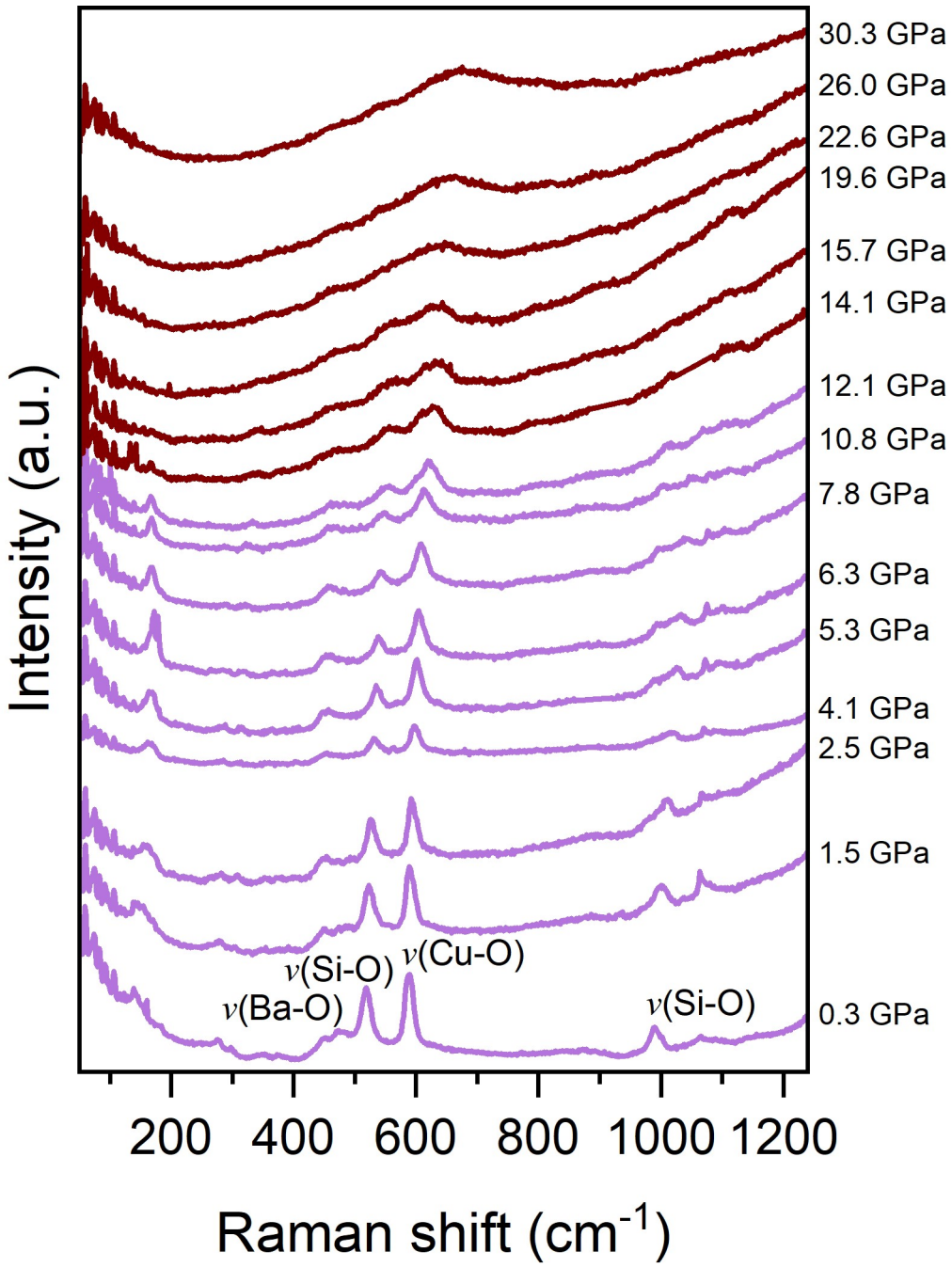

Figure S12. *in situ* HP Raman spectra of $BaCuSi_2O_6$.

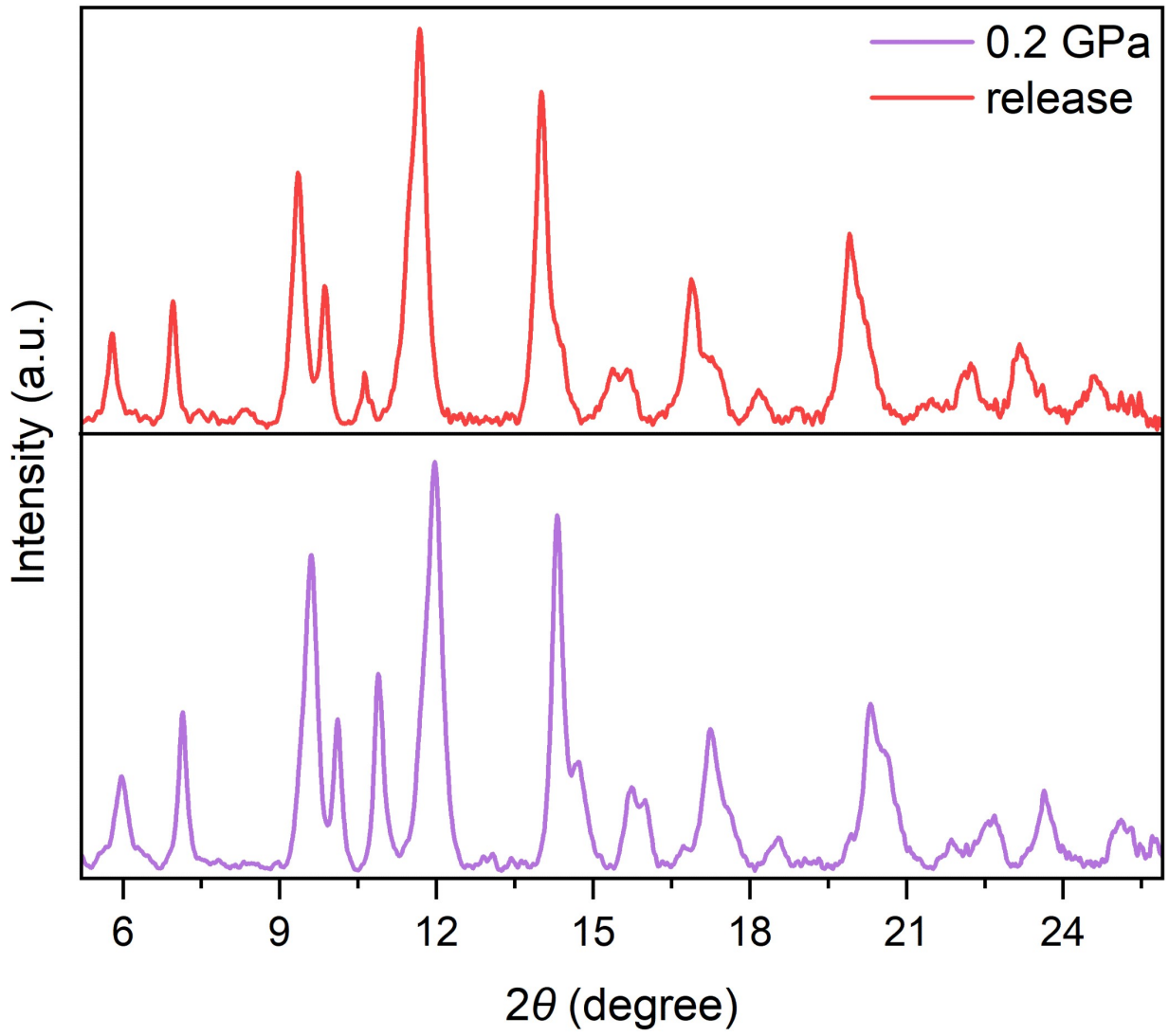

Figure S13. XRD patterns of $BaCuSi_2O_6$ at 0.2 GPa and after pressure release.

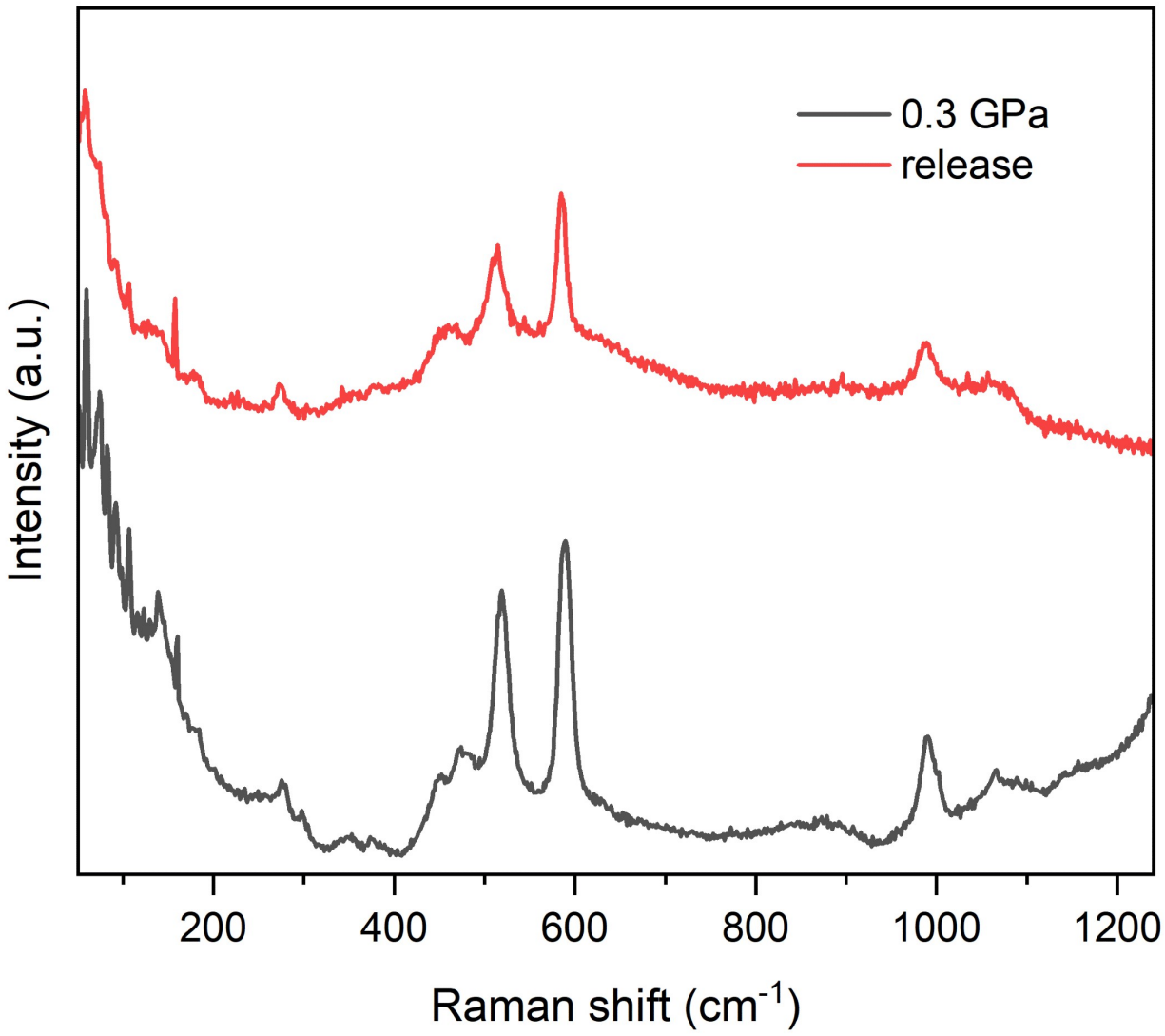

Figure S14. The Raman spectra of $BaCuSi_2O_6$ at 0.3 GPa and after pressure release.

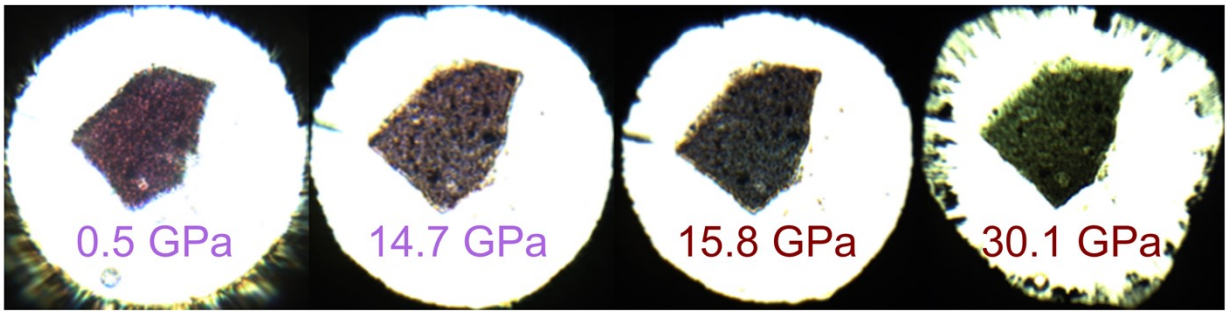

Figure S15. Optical photos of $BaCuSi_2O_6$ during compression.