**Supporting Materials**

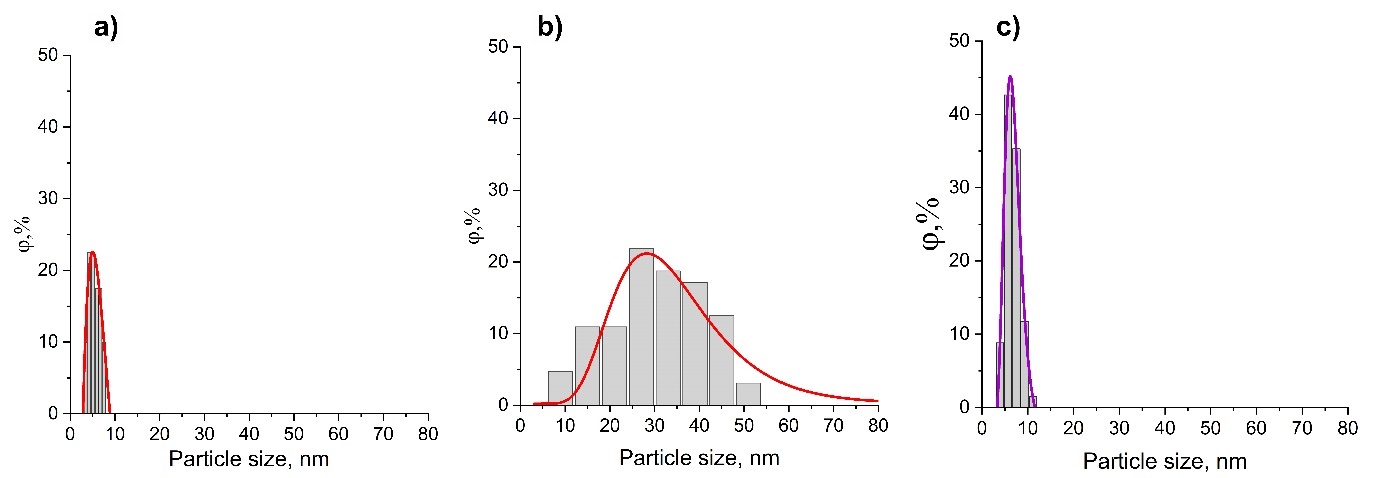


Fig. S1 Histogram of particle size distribution for samples, synthesized by precipitation method: a) Y23% and b) Y73% with rhabdophane structure, c) Y100%(YPO4) with xenotime structure

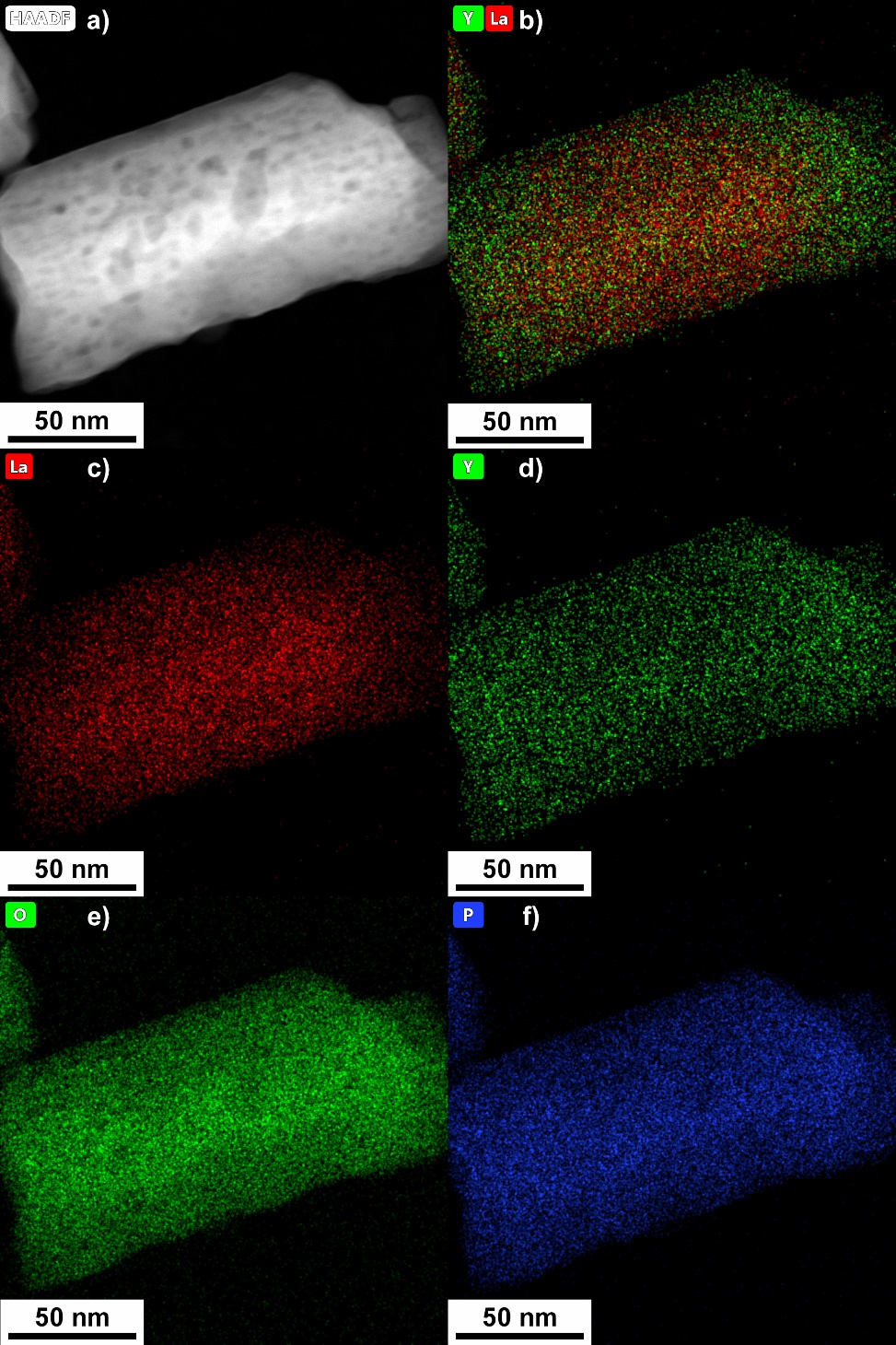
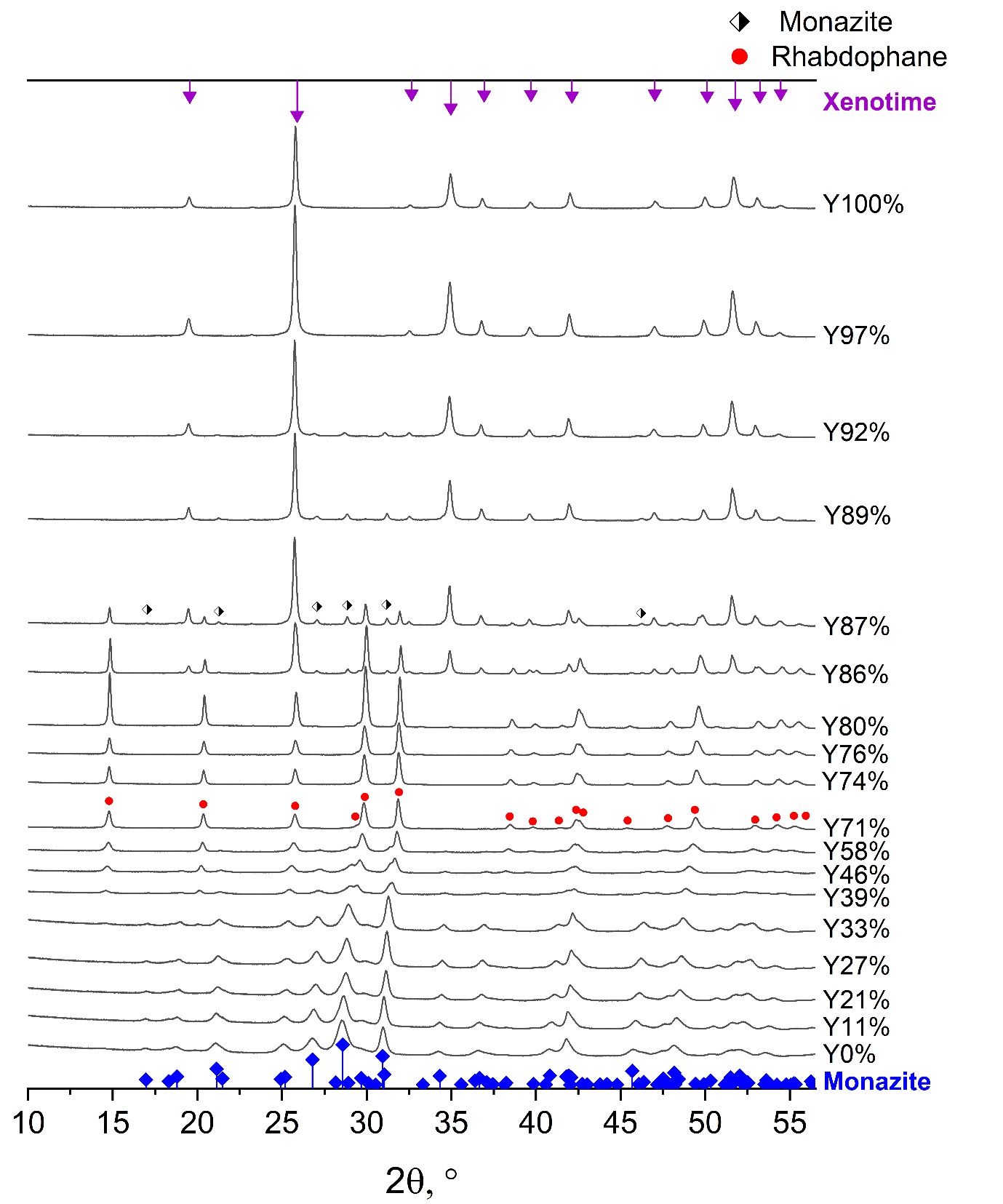
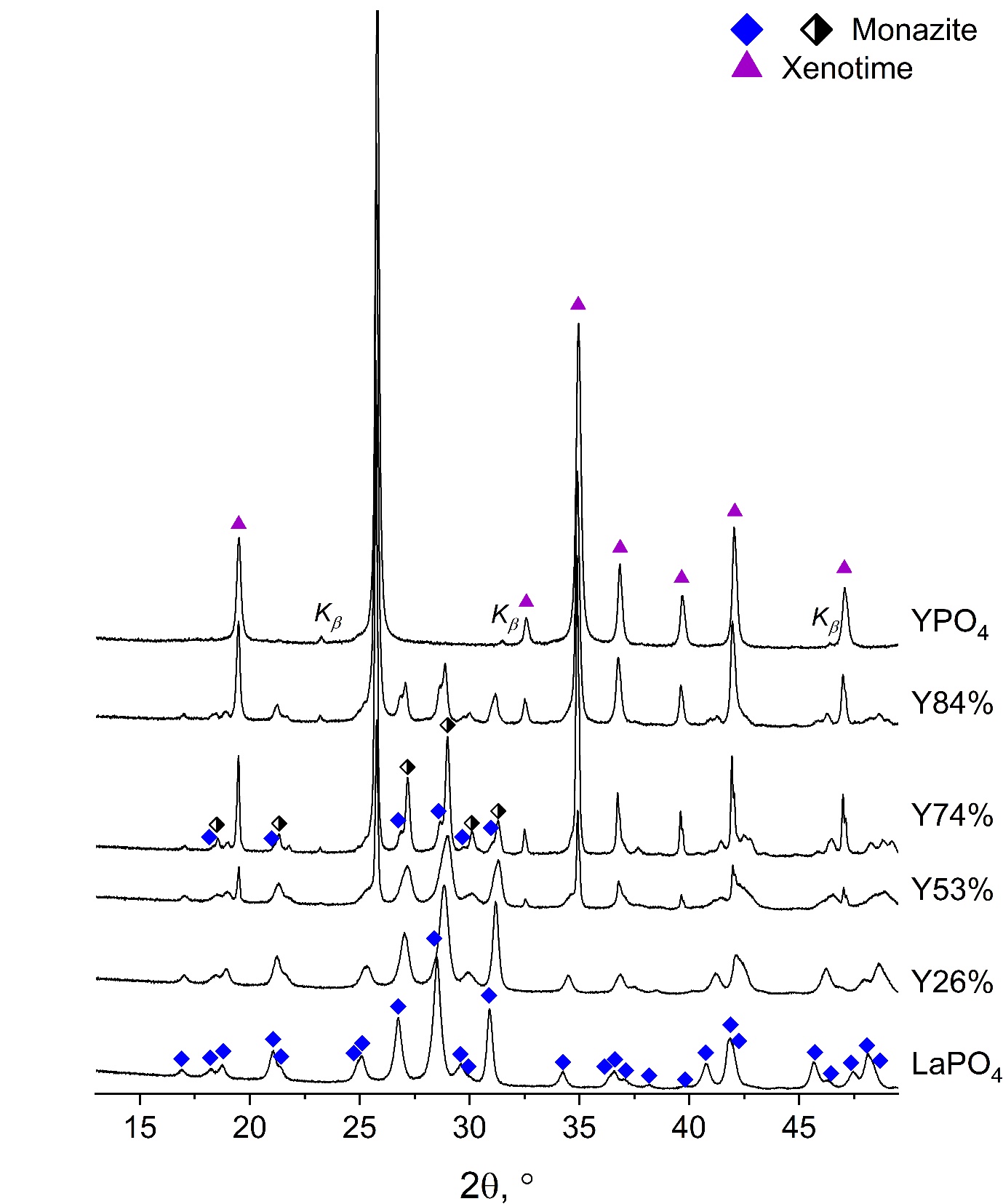


Fig. S2TEM image (a) and elemental mapping (b-f) particle from the Y73% sample, synthesized by precipitation method

Fig. S3 X-ray diffraction patterns of samples after HT at *T*=230 °C for 2 hours

Fig. S4X-ray diffraction patterns of samples after HT at *T*=230 °C for 7 days

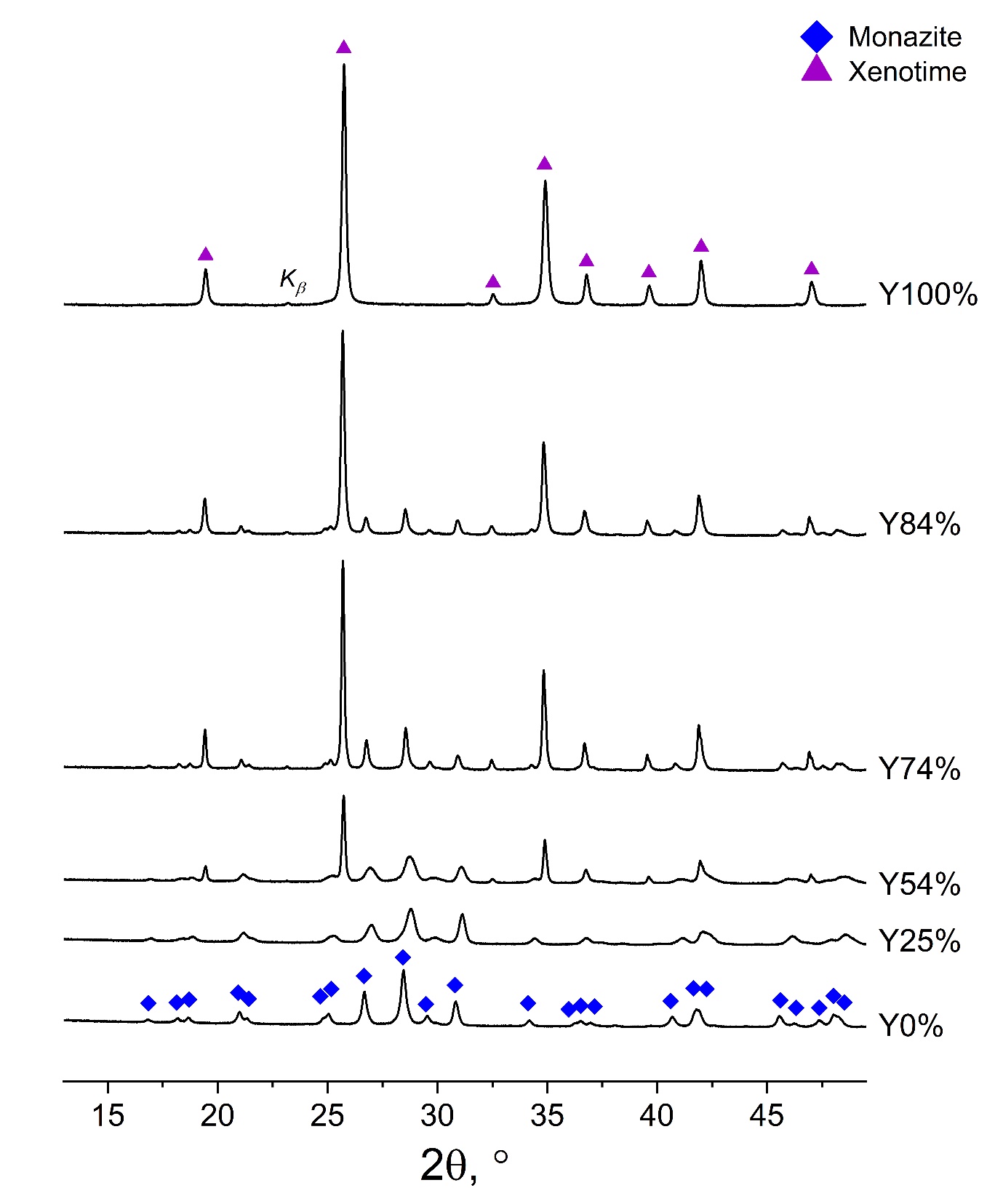


Fig. S5 X-ray diffraction patterns of samples after HT at *T*=230 °C for 28 days