Electronic Supplementary Material (ESI) for Chemical Communications

Supporting Information

Preparation of Porosity-Controlled Calcium Carbonate by Thermal Decomposition of Volume Content-Variable Calcium Carboxylate Derivatives

Experimental Section

Thermal decomposition of calcium carboxylate derivatives. The powders of calcium compounds (calcium carbonate, calcium citrate, and calcium lactobionate) and their mixtures with predetermined molar ratios were loaded into a standard die of stainless steel and compressed into round pellets of ~13 mm in diameter under a pressure of 10 ton using Manual 15 Ton Press (Specac). The as-prepared pellets in a crucible were put into a furnace (Nabertherm, model N 11/H with a program controller) at room temperature. The programme was set 2 h to increase the furnace temperature from room temperature to 1000 °C. After remaining at this temperature for 1 h, the pellets were taken out of the furnace and cooled to room temperature naturally. Shape and morphology of the as-prepared samples were examined by JEOL JSM-6700 field-emission scanning electron microscope (SEM).

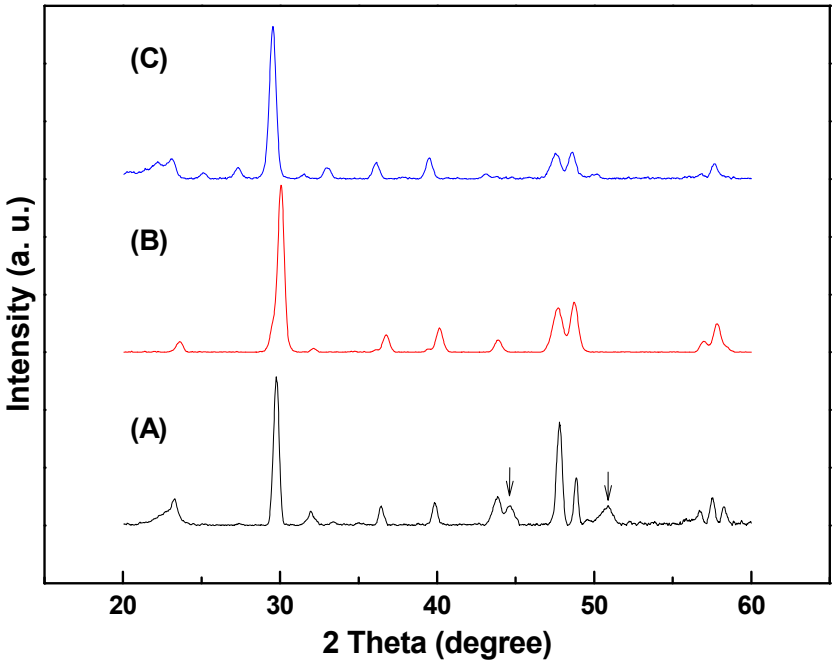

Fig. S1 XRD patterns of the final products obtained by thermal decomposition of (A) calcium carbonate, (B) calcium citrate and (C) calcium lactobionate followed by subsequent cooling to room temperature. The XRD peaks are indexed to calcium carbonate (calcite) and those marked with arrows are calcium carbonate (vaterite).