Supporting info

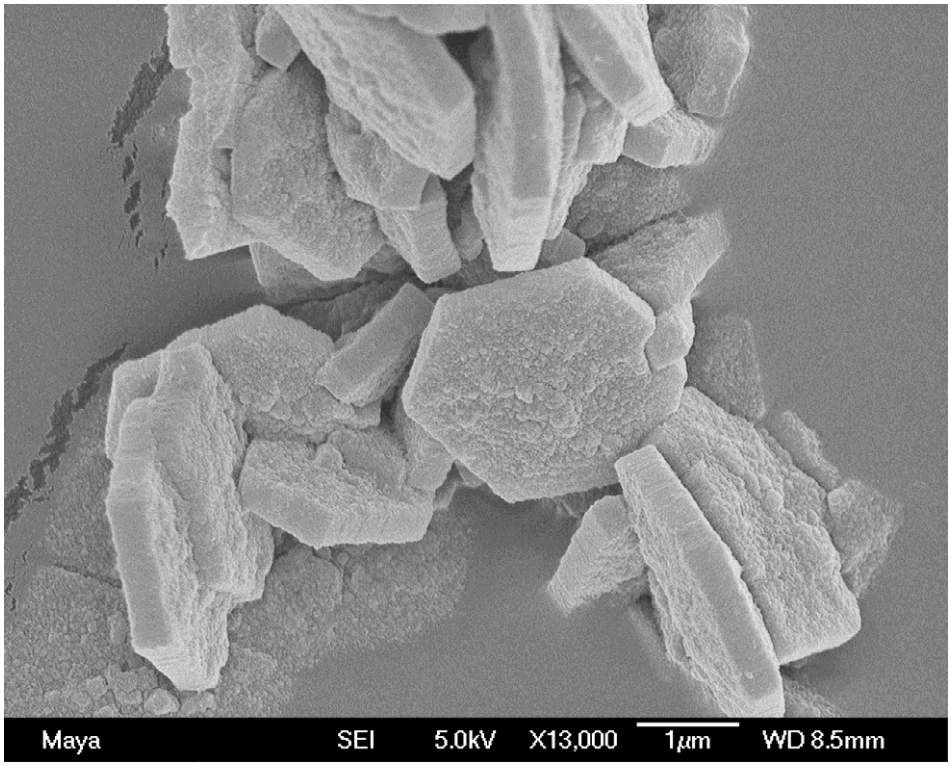

Figure 1. Addition of solid NaCl to the reaction solution 15 minutes after the addition of TMOS giving the final concentration of 0.1M of NaCl. The salt is dissolved in approximate 30s. Time of precipitation decreases and the particles are significantly larger, diameter 2.6/3.0μm and height 0.45μm.

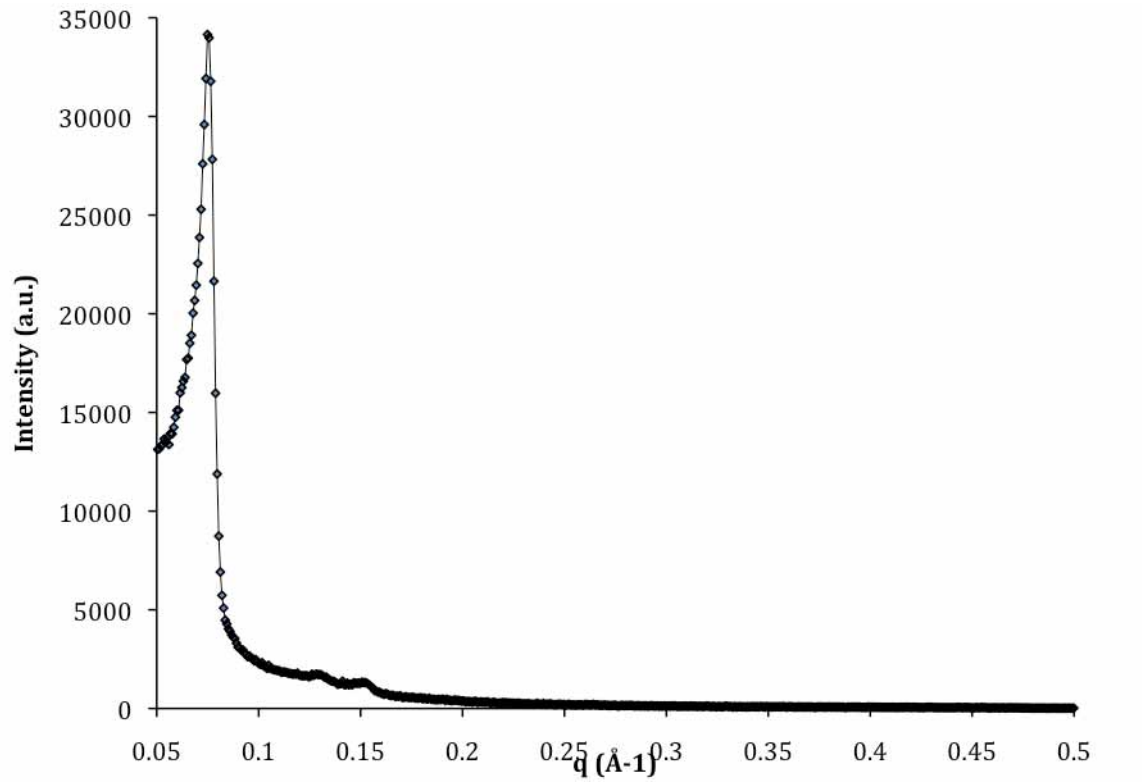

Figure 2. An example of a SAXS diffractograms, 0.1M of NaCl added to the 50°C synthesis 15 minutes into the synthesis. All materials are well ordered with a hexagonal p6m structure.

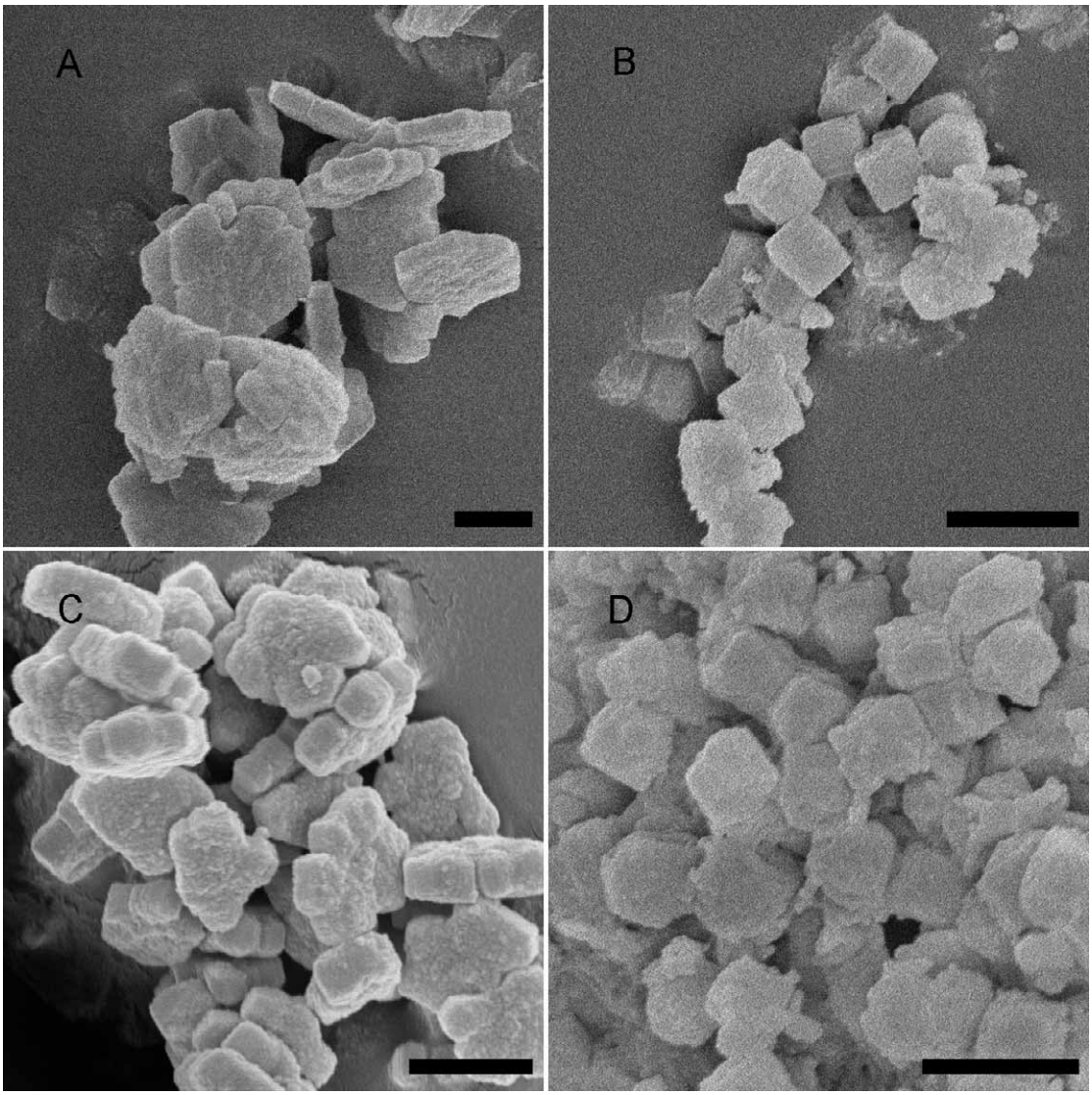

Figure 3. Particles obtained in a normal synthesis and the corresponding particles obtained by dilution at the time of oriented aggregation. Particles formed at 50°C without dilution (*i.e* normal synthesis) (a) and with dilution (b) and, at 55°C without dilution (c) and with dilution (d). Particles in a) and c) are 2nd generation and the ones in b) and d) are 1st generation (*c.f.* figure 1). Scale bars 1 μm.

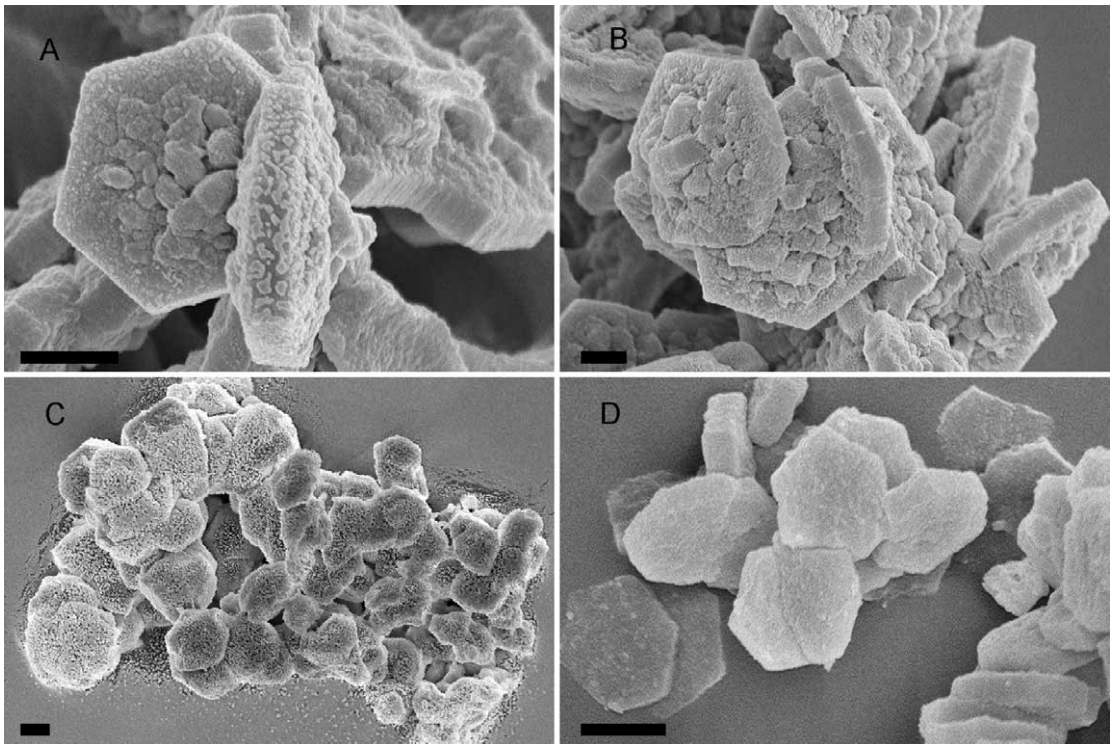

Figure 4. The SEM micrographs show the effect of addition of sodium iodide to the 50°C synthesis at the time of oriented aggregation (15 minutes). The final NaI concentrations are a) 0.01M, b) 0.05M and c) 0.1M. When the addition of NaI (0.01M) is made prior to TMOS the particles in d) are obtained. Scale bars: 1μm

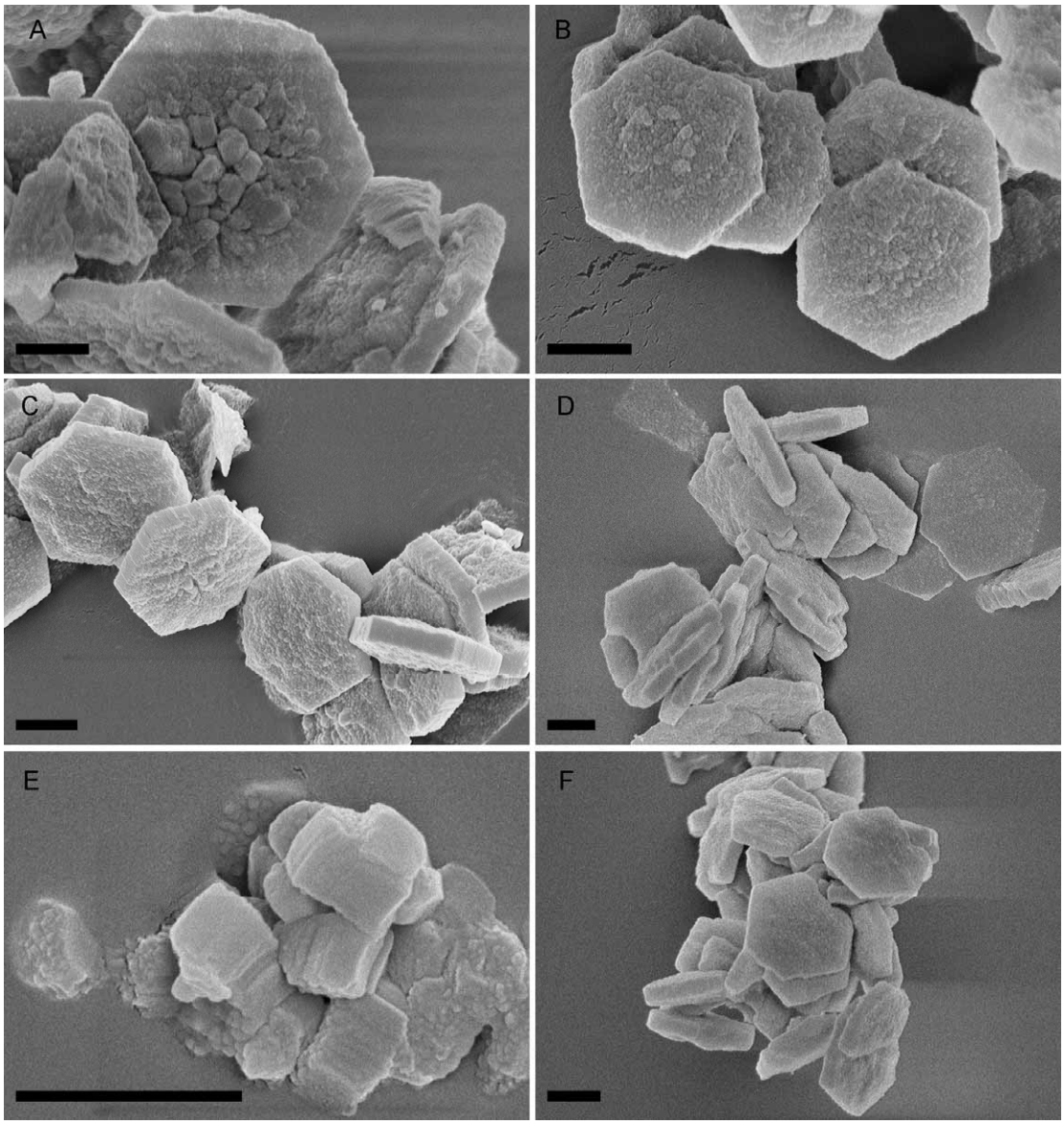

Figure 5. Micrographs showing particles obtained in a 50°C synthesis with NaCl additions made at the time of oriented aggregation (15 minutes). The final NaCl concentrations were (a) 0.01M, (b) 0.05M, (c) 0.10M, (d) 0.25M and (e) 0.50M. Addition (0.5M) made at the onset of synthesis gave particles shown in (f). Scale bar: 1μm

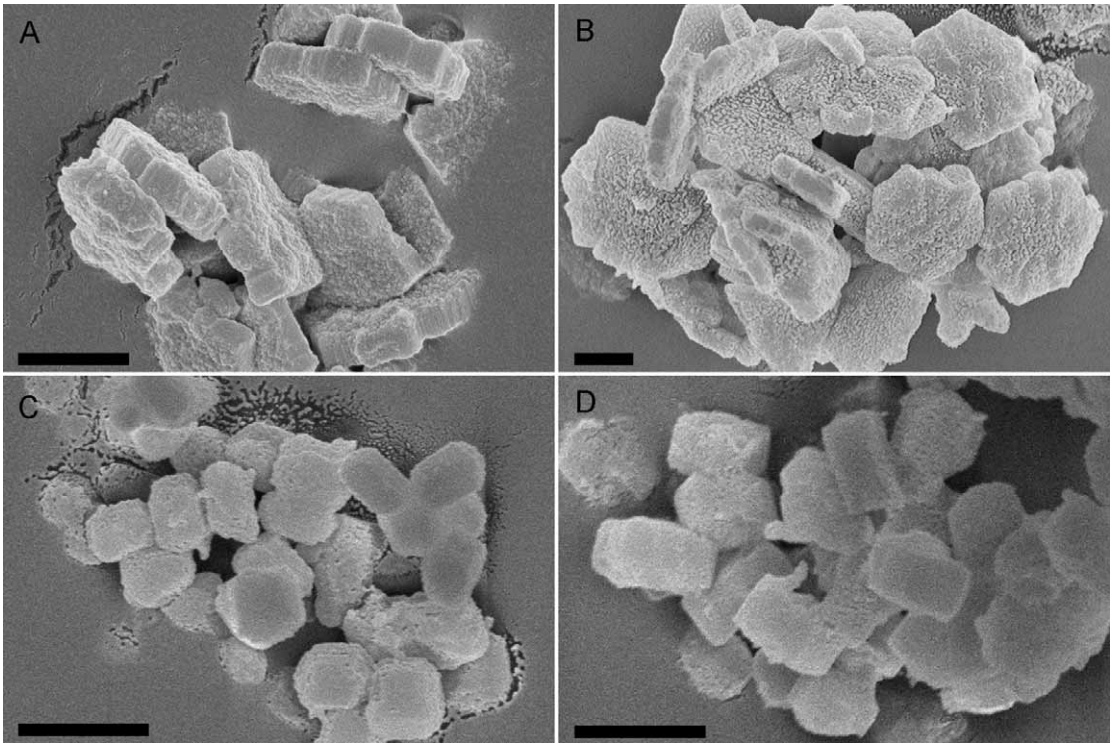

Figure 6. Micrographs showing the effect of addition of NaI to the 55°C synthesis. Additions were made at 14 minutes and the final NaI concentrations were (a) 0.01M, (b) 0.02M, (c) 0.05M. Addition (0.02M) made at the onset of synthesis gave particles shown in (f). Scale bar: 1μm

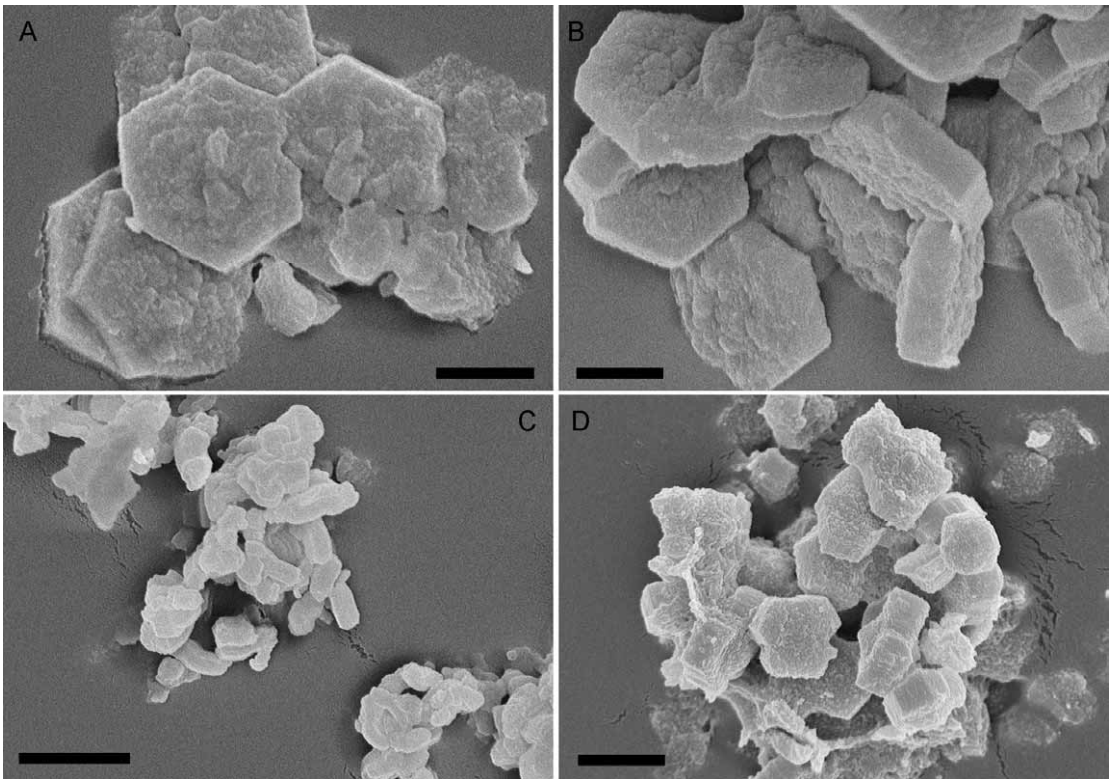

Figure 7. Micrographs showing the result of some additional control experiments. (a) The lid of the reaction flask was opened for 15 s to investigate effect of solvent evaporation. No effect on particle size was observed. (b) 1.8 ml of 1.6 ml was added at 15 minutes which did not effect the particle size. (c) Dilution (1:1) with 1.6 M NaCl at the time of oriented aggregation resulted in instantaneous precipitation, whereas (d) dilution (1:1) with Millipore water delayed the precipitation with several hours and gave rise to a polydisperse particle size.