

Multiple suspension particles as templates for biomineralisation

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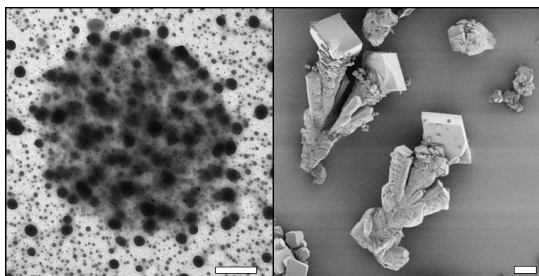
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In biomineralisation the morphology of the crystals is influenced by the nature of a polymeric additive. Modifications of the polymer structure and morphology allow specific variations and to gain insights into the fundamentals of biomineralisation.

A new class of colloidal particles, Multiple Suspension Particles (MSP), based on a poly(N-isopropylacrylamide) precursor scaffold synthesized via redox-initiated heterophase polymerization was recently reported [1]. Subsequently these MSP were used as additives in the biomineralisation of calcium carbonate via the classic ammonium carbonate method.

Figure 1: Left, TEM micrograph of a single MSP showing PS particles distributed on a PNIPAM scaffold (scale bar: 1 μ m) ; Right, SEM micrograph of the calcite crystals obtained (scale bar: 100 μ m)



Preliminary results suggested that the presence of MSP induced a “Stalagmite” morphology grown continuously in conjunction with the typical trigonal calcite crystals. Confocal Raman spectroscopy, X-ray diffraction analyses and additional relevant studies will follow to complete the discussion.

[1] Ran Yu *et al* . (2013), *Macromol. Rapid Commun* 34, 1629-1634