Electronic Supplementary Material (ESI) for Reaction Chemistry & Engineering.

Improvement of DERA activity and stability in the synthesis of statin precursors by immobilization on magnetic nanoparticles

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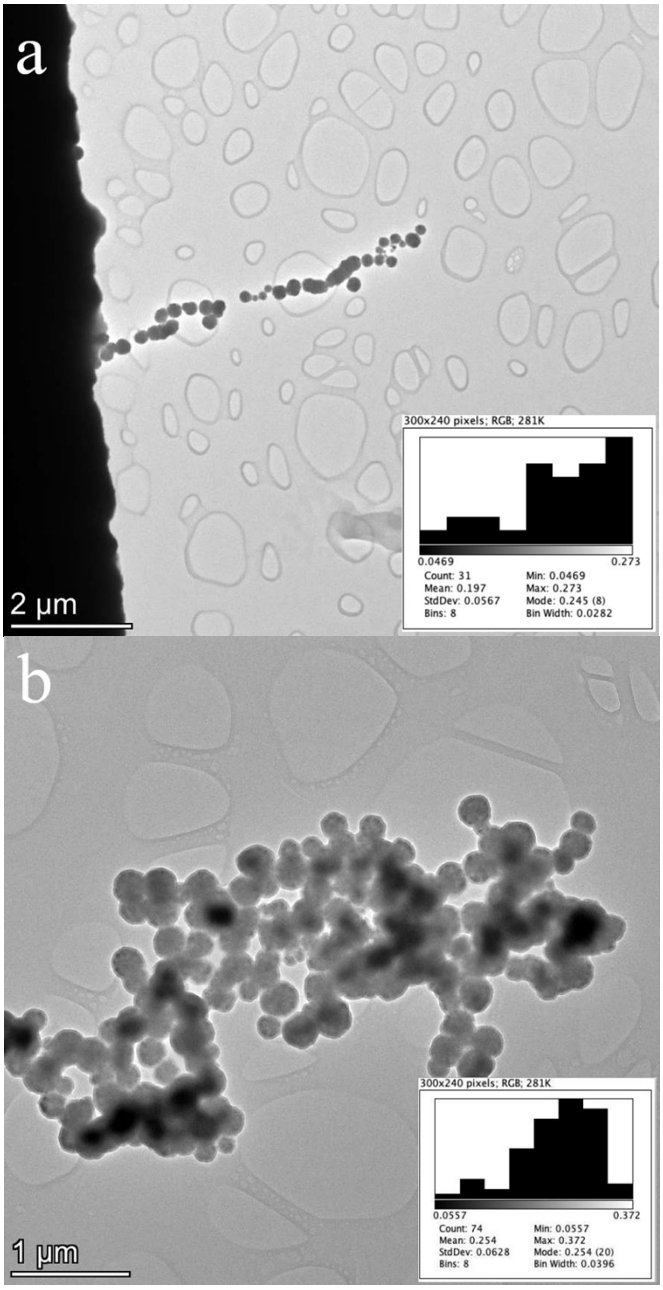
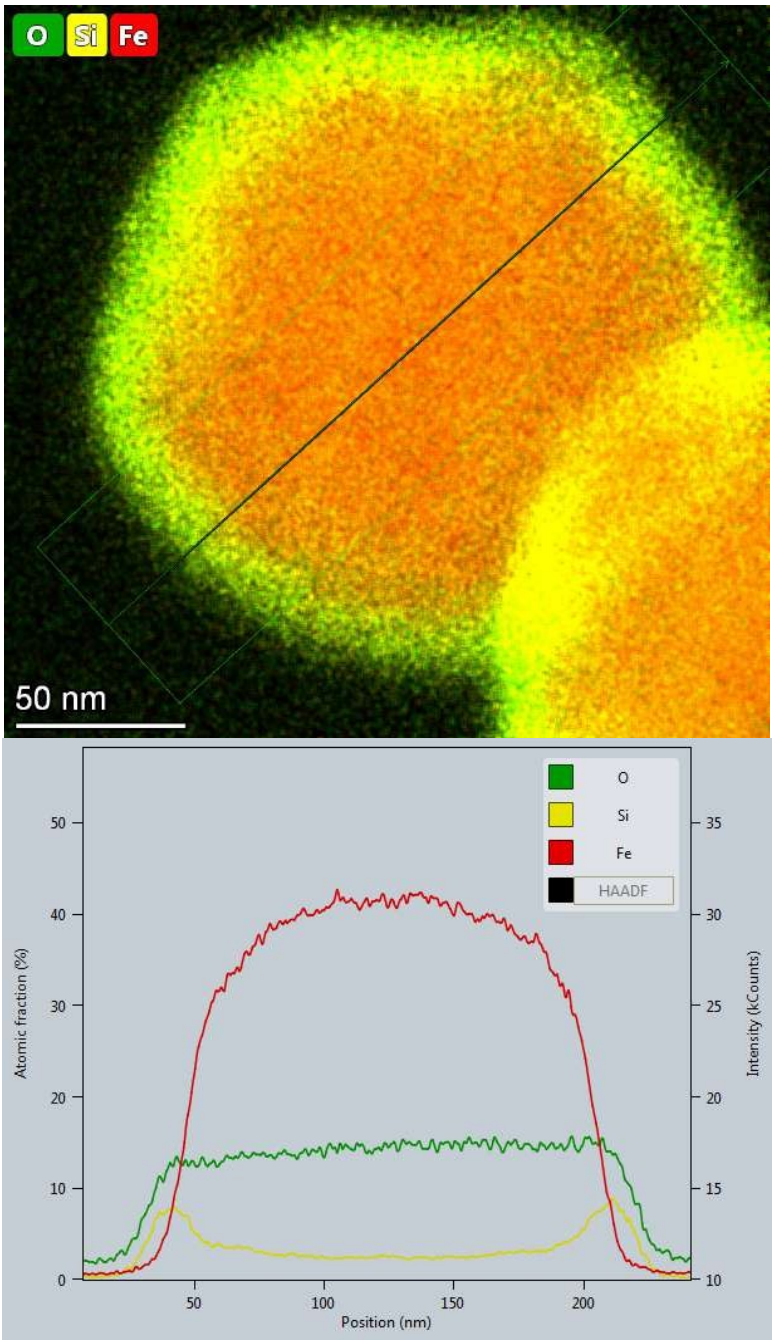
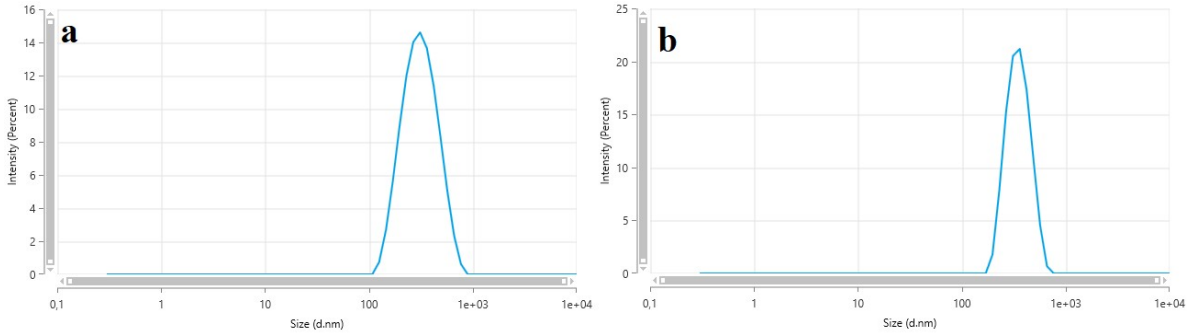
Supplementary material



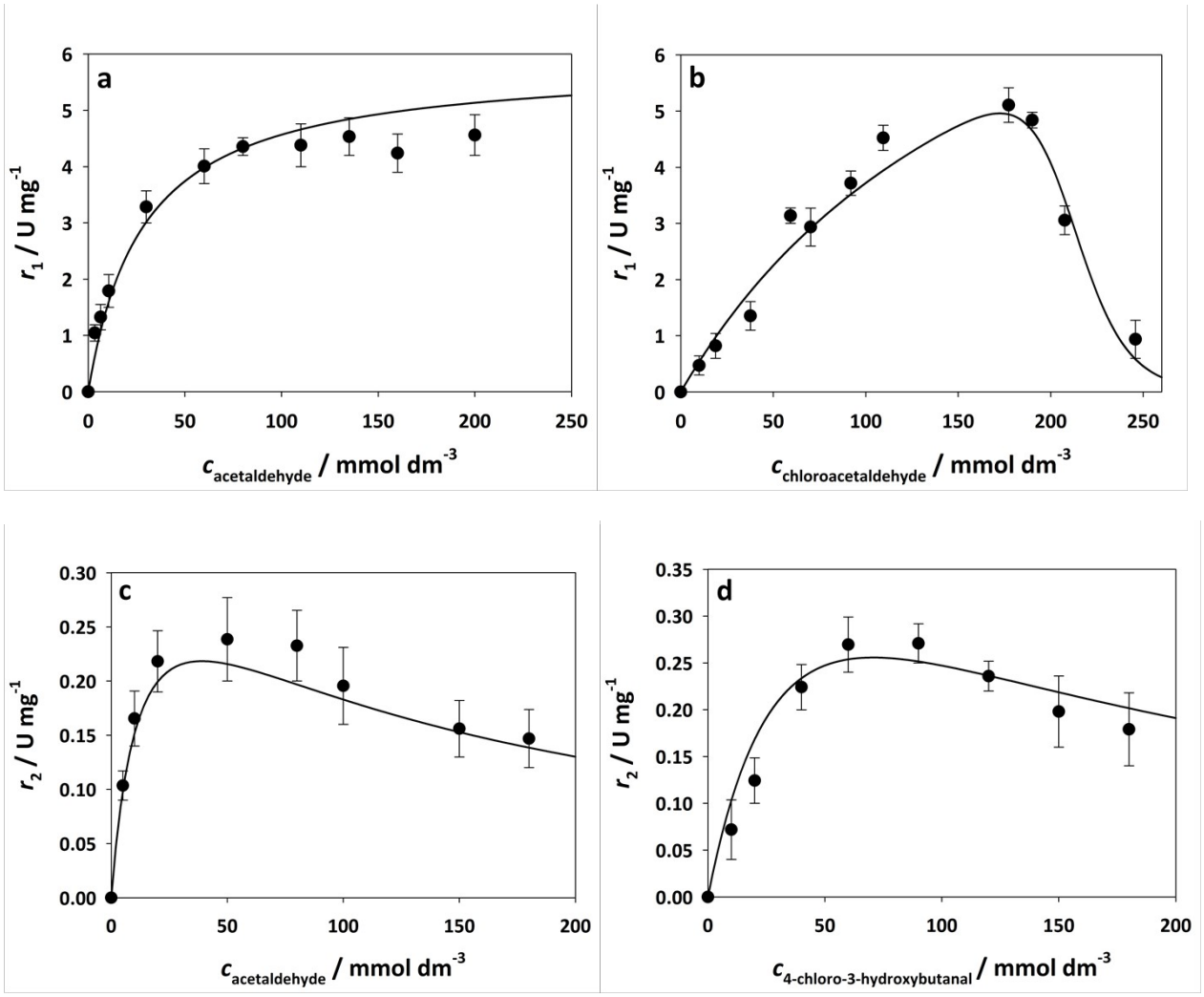
S-1. TEM particle size distributions for a) Fe_3O_4 and b) Fe_3O_4@SiO_2.



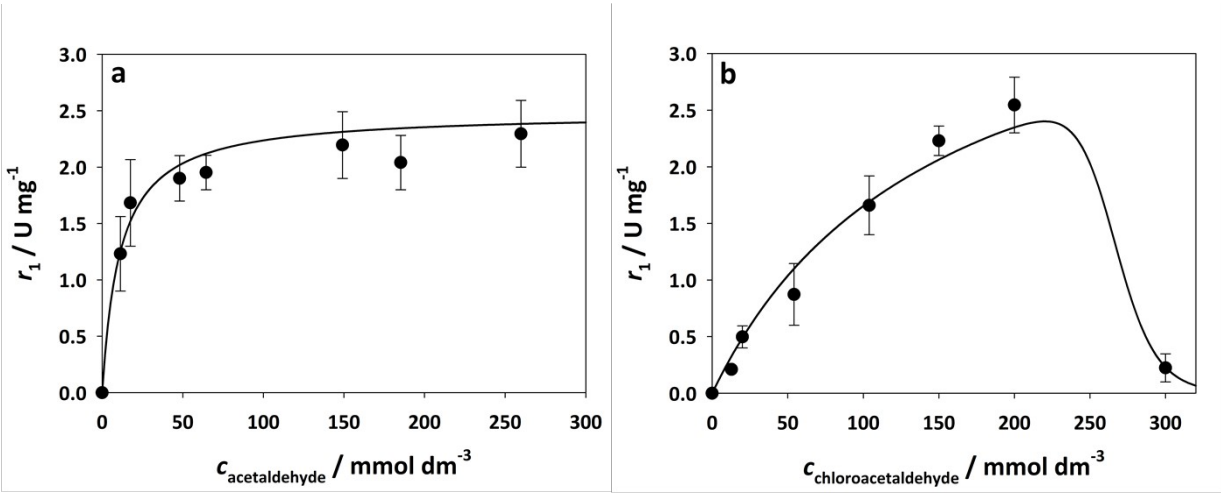
S-2. STEM EDX spectroscopy mappings of Fe_3O_4@SiO_2 nanoparticles (top) and the material distribution profile across the nanoparticle (bottom).



S-3. DLS size distribution of Fe_3O_4 (a) and Fe_3O_4@SiO_2 (b).



S-4. Kinetics of DERA immobilized on MNP/APTES/15 mM succinic anhydride in the reaction of first (a, b) and second (c, d) aldol addition. The influence of: A -acetaldehyde ($c_{chloroacetaldehyde}$ = 140 mM), B - chloroacetaldehyde ($c_{acetaldehyde}$ = 100 mM), C - acetaldehyde ($c_{4\text{-chloro-3-hydroxybutanal}}$ = 40 mM) and D - 4-chloro-3-hydroxybutanal ($c_{acetaldehyde}$ = 50 mM) concentration on the initial reaction rate (0.1 M phosphate buffer pH 6, 25 °C, γ_{DERA} = 1 mg cm^{-3}).



S-5. Kinetics of free DERA in the reaction of first aldol addition. The influence of: a - acetaldehyde ($c_{chloroacetaldehyde}$ = 100 mM) and b - chloroacetaldehyde ($c_{acetaldehyde}$ = 200 mM) concentration on the initial reaction rate (0.1 M phosphate buffer pH 6, 25 °C, γ_{DERA} = 1 mg cm^{-3}).