B911830F

Electronic Supplementary Information (ESI): Fig. S1-S8

Facilely eco-friendly treatment of dye wastewater mixture by *in-situ* hybridization with growing calcium carbonate

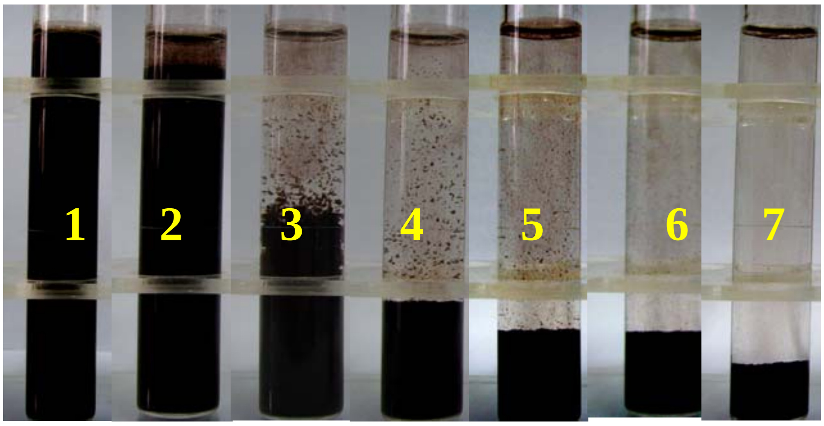

Fig. S1 Sedimentation time of the CR-MB conjugate - $CaCO_3$ hybrid particles in the presence of 300 μM CR, 500 μM MB, 0.006 M CO_3^{2-} and 0.012 M Ca^{2+}. From 1 to 7: 0, 5, 10, 15, 20, 30 and 60 min.

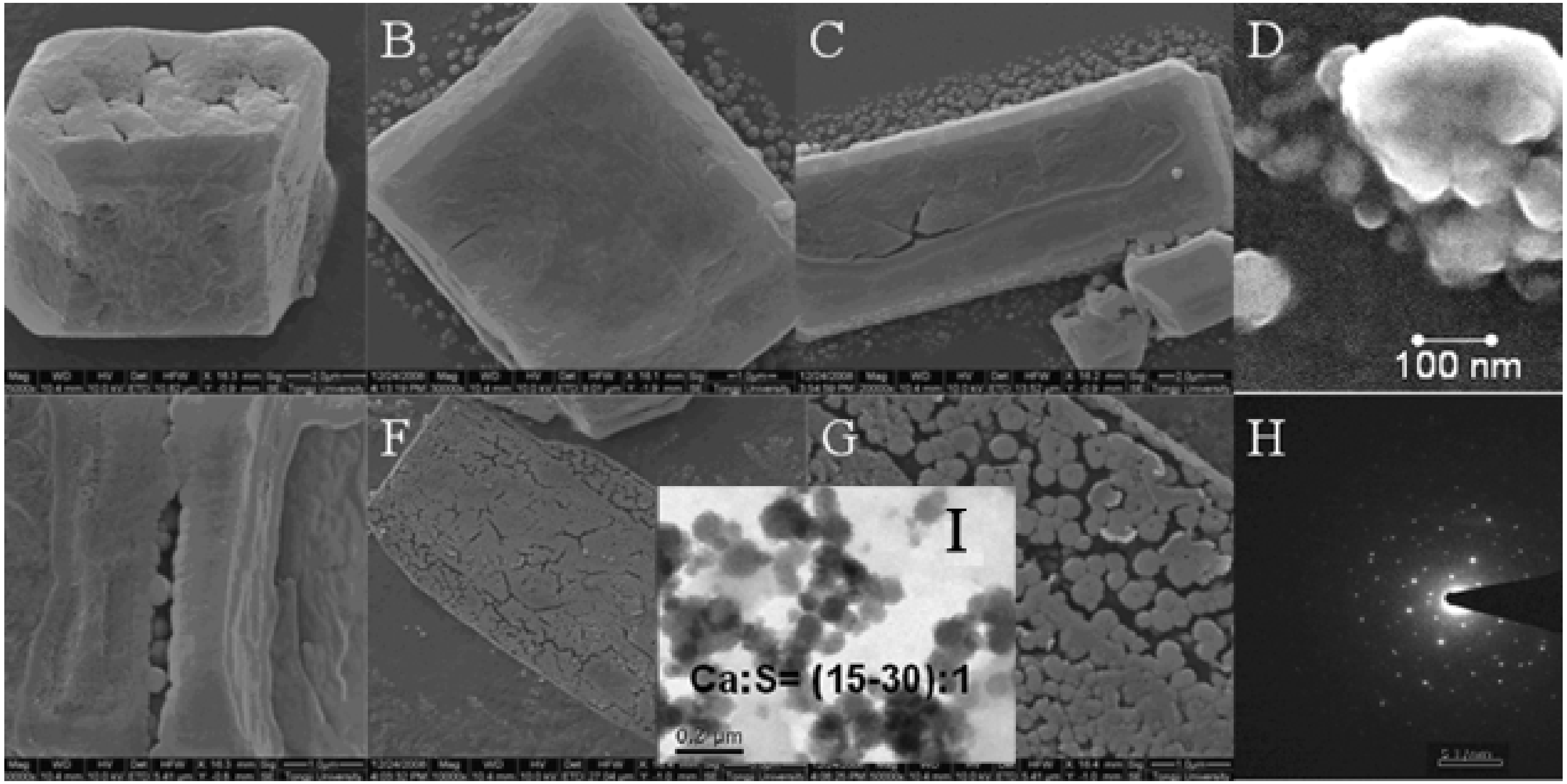

Fig. S2 SEM images of growing CR - MB conjugate - $CaCO_3$ hybrid (A, B, C, E- the differential morphology of encapsulation of particles; D: the sticky nanosphere of the CR -MB conjugate formed; F: an un-encapsulated closed-packed monolayer of growing particles and its partial enlarged detail (G); H: the electrronic diffraction pattern of a particle; I: Ca and S analysis of the scattered CR - MB conjugate - $CaCO_3$ hybrid particles.

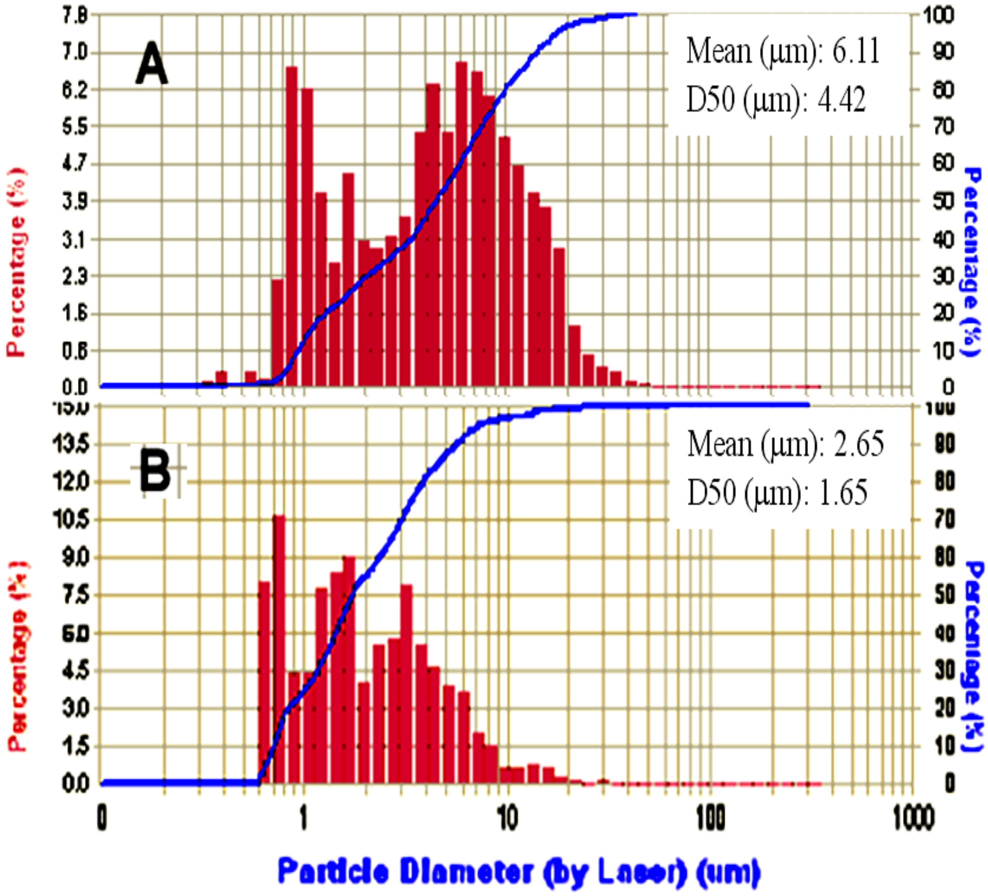

Fig. S3 Particle size distribution of $CaCO_3$ –only (A) and its CR-MB conjugate hybrid (B)

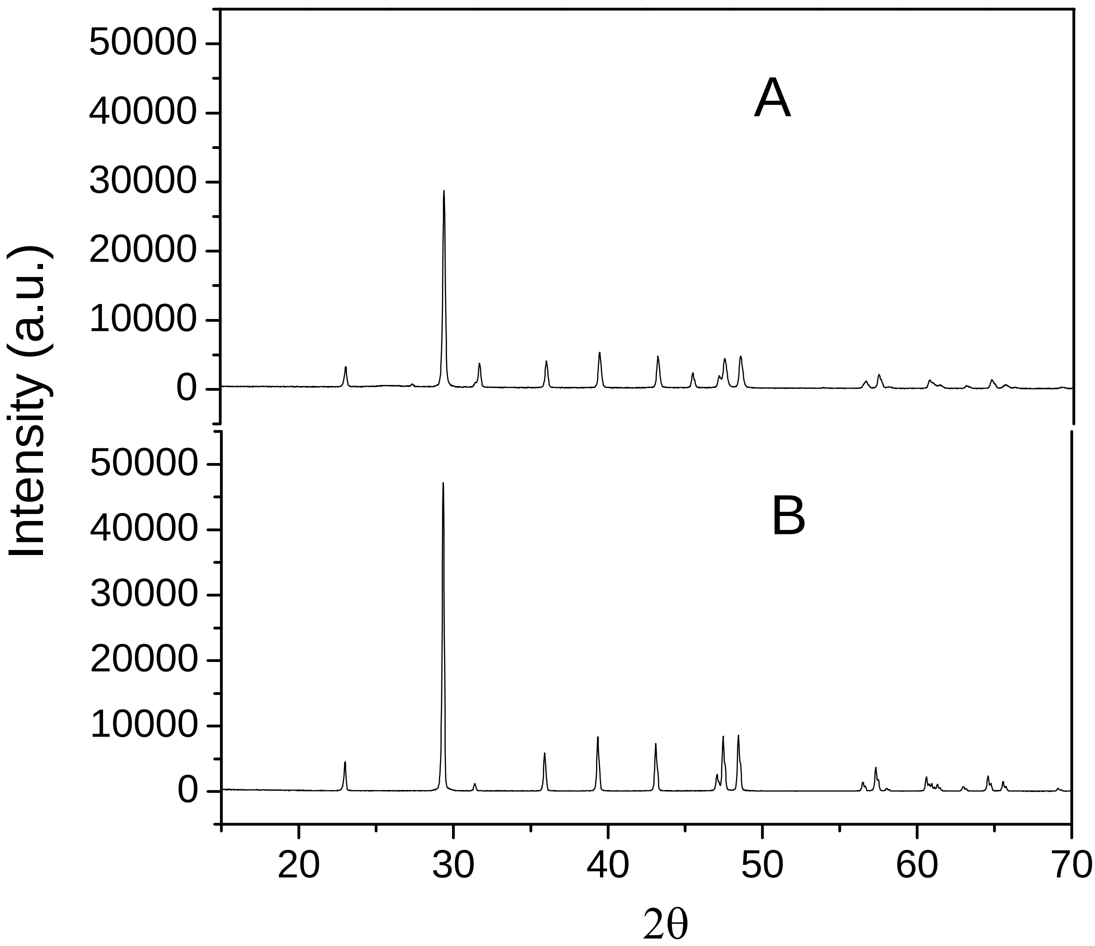

Fig. S4 XRDs of the CR-MB conjugate-$CaCO_3$ hybrid (A) and $CaCO_3$ (B)

Fig. S5 The $CaCO_3$ surface-modifying CR and MB material was prepared by adding CR and MB into a $CaCO_3$ powder liquid, thus both CR and MB were adsorbed on the outside surface of $CaCO_3$ powder particles. The suspending substance was washed with distilled water (1). The CR-MB conjugate – $CaCO_3$ hybrid was prepared according to the present work and washed with distilled water (2). The concentrations were 200 μM CR, 400 μM MB and 0.06% $CaCO_3$ and both the water-washing liquids were settled naturally for 30 min.

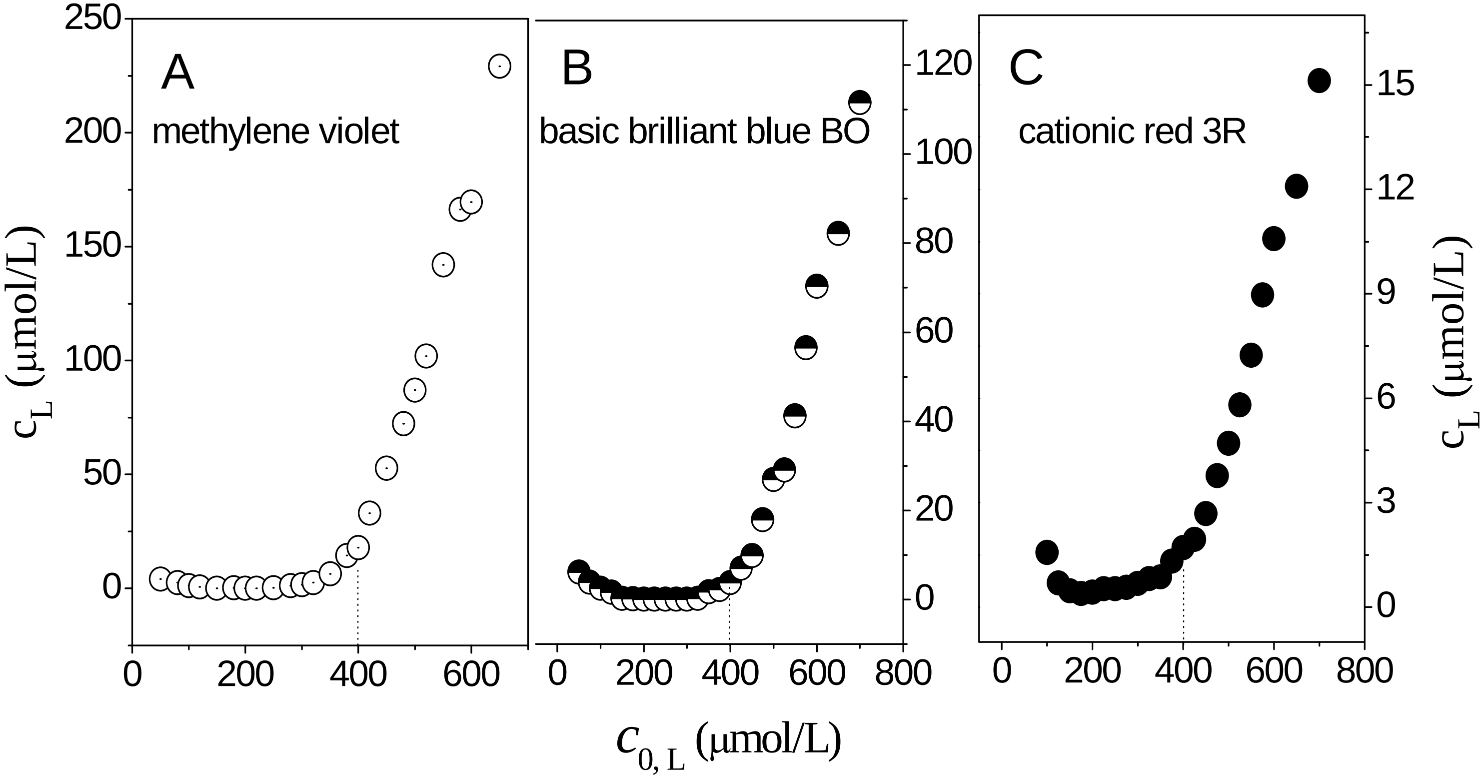

Fig. S6 Change of the equilibrium concentration of methylene violet (A), basic brilliant blue BO (B) and cationic red 3R (C). All the solutions contained 200 μM CR and were treated with growing $CaCO_3$ (0.06%). The $CR{\cdot}L_2$ complex (L: cationic dye) was formed at the mole ratio of CR to L being 1:2.

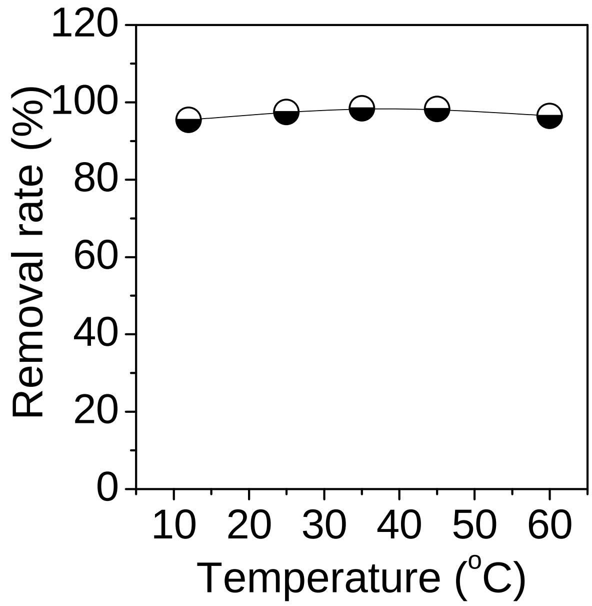

Fig.S7 Effect of temperature on the synergetic in situ coprepicitation of the mixed dyes solution of CR (300 μM) and MB (500 μM)in the presence of 0.06% $CaCO_3$

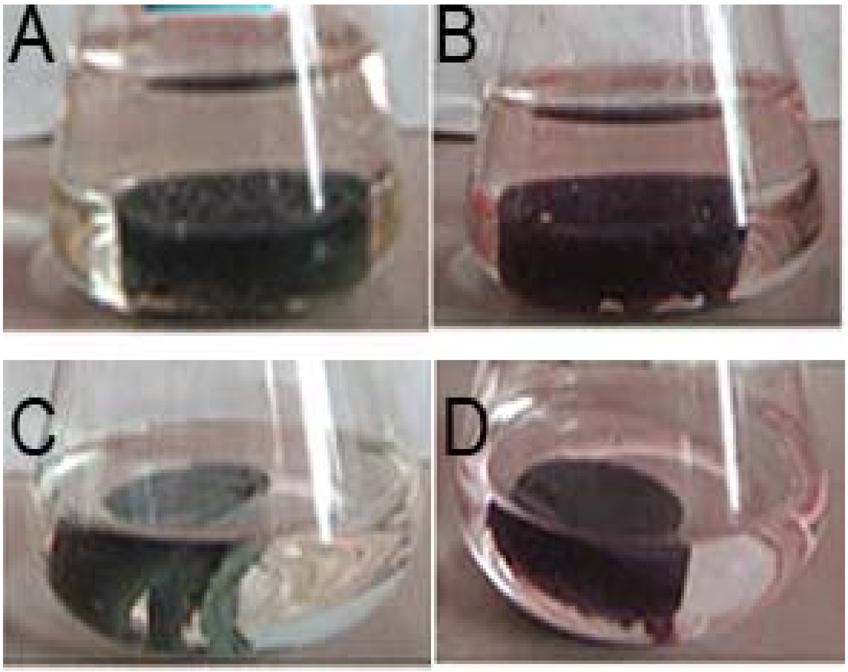

Fig. S8 The cylindrical plastic products in which the CR-MB conjugate – $CaCO_3$ hybrid (A and C) and the CR-MB mixture (B and D) were added as the color substance were immersed in the neutral aqueous medium (A and B) and 0.1 M NaOH (C and D) for 24 h.