**Figure 1**



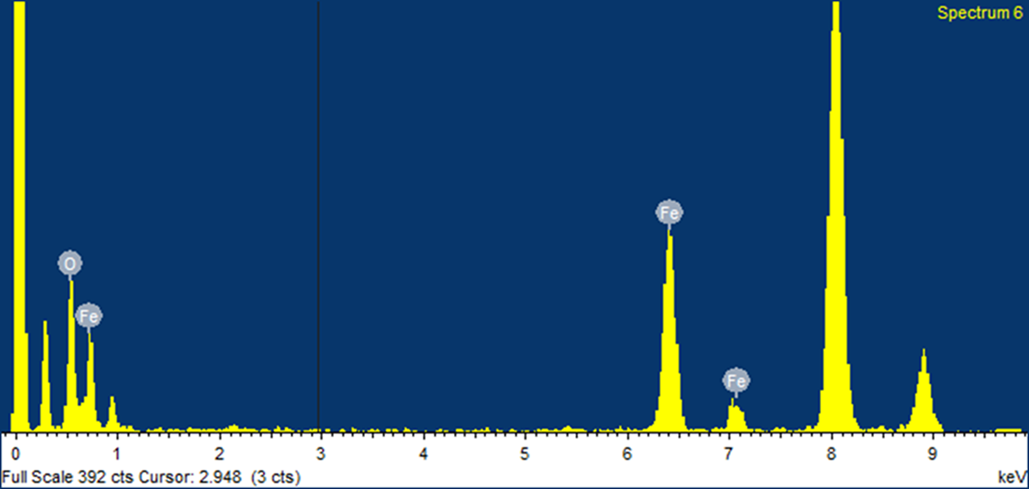
**Figure 1.** Structures of Acid blue 29 (a) and Ponceau xylidine (b).

**Figure 2**



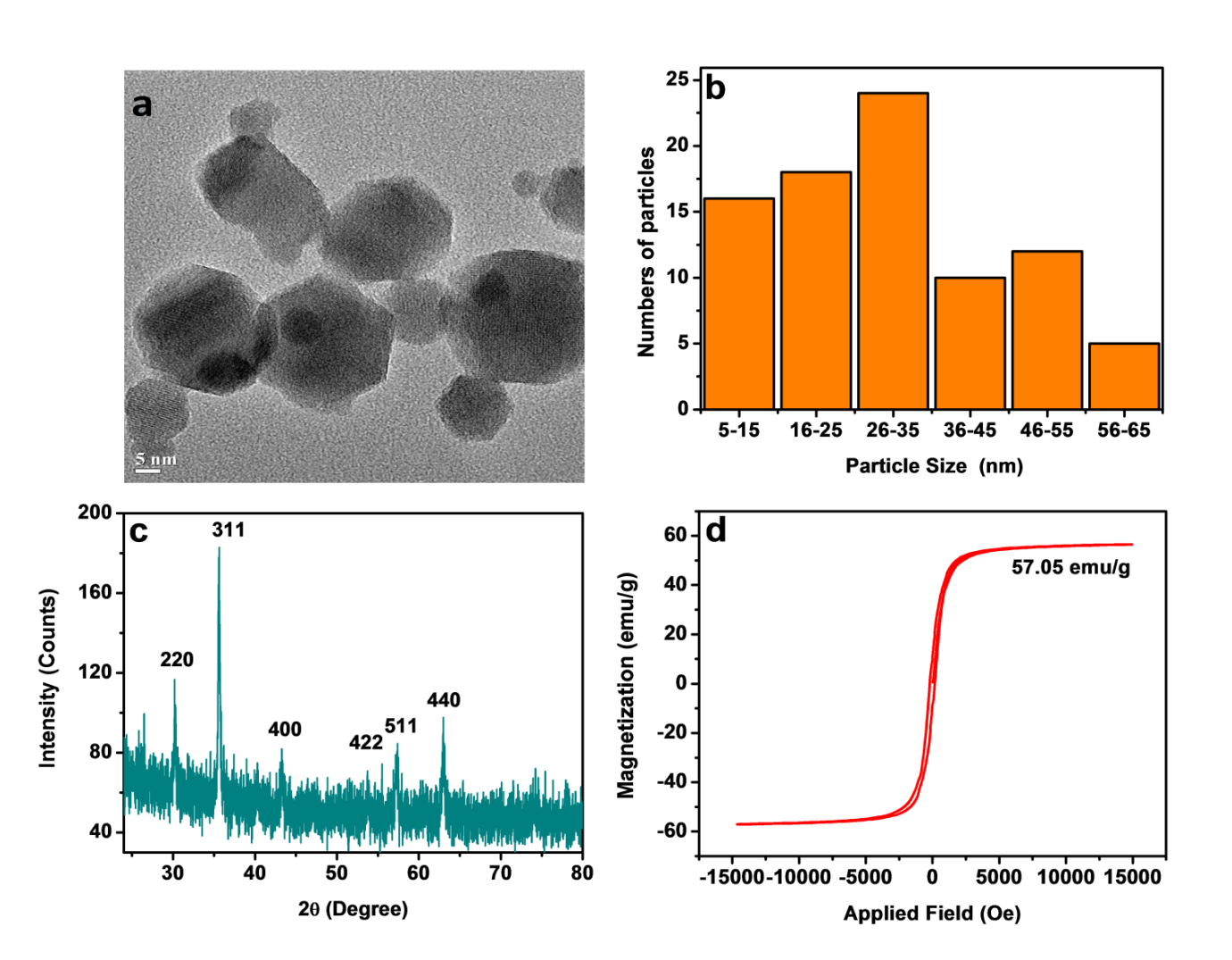
**Figure 2.** FTIR spectrum of n- particles.

**Figure 3**



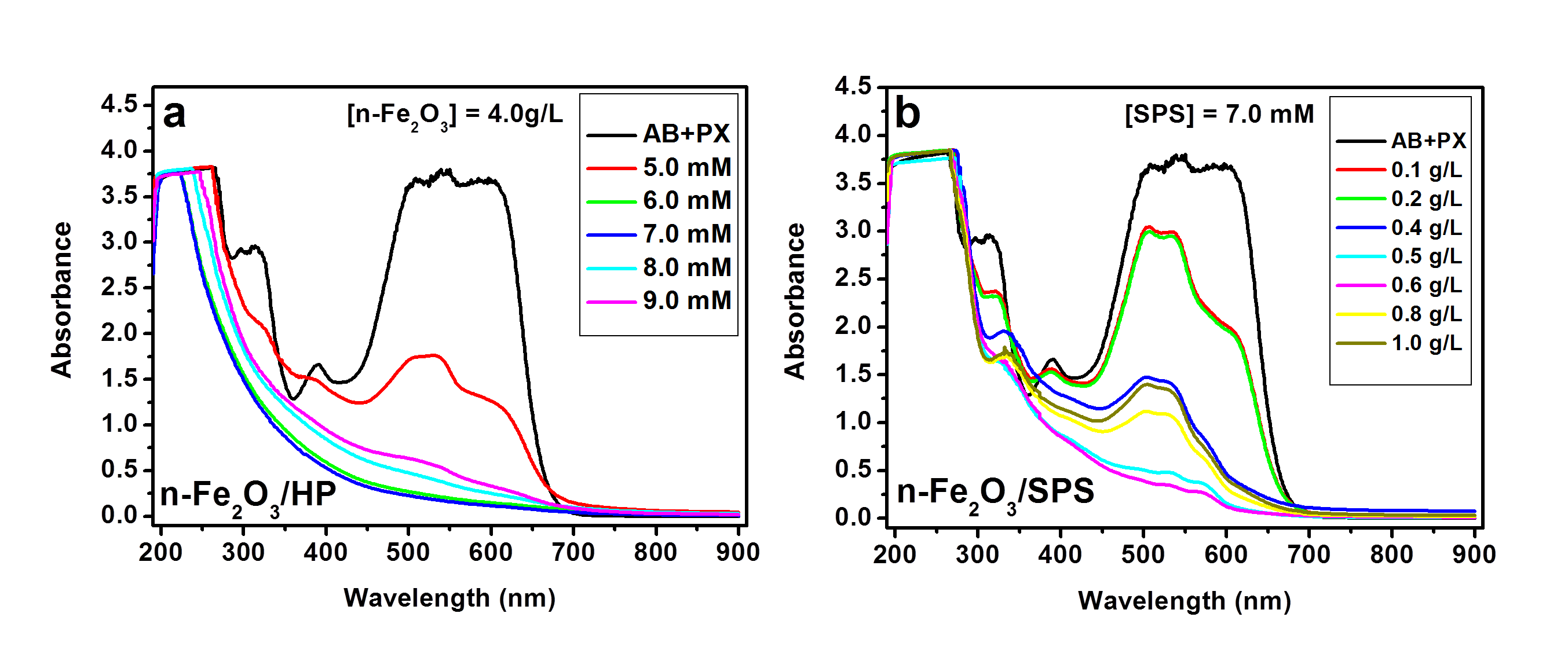
**Figure 3.** EDX analysis of n- particles.

**Figure 4**



**Figure 4.** Characterisation of n- particles: a. TEM image; b. Particle size distribution; c. XRD diffractogram; d. Magnetization curve.

**Figure 5**

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**Figure 5.** Effect of [HP] (a) and catalyst loading (b) on the absorption spectra: [AB] = [PX] = 0.15 mM; pH= 3; treatment period = 90 min; equilibrium period = 90 min.

**Figure 6**



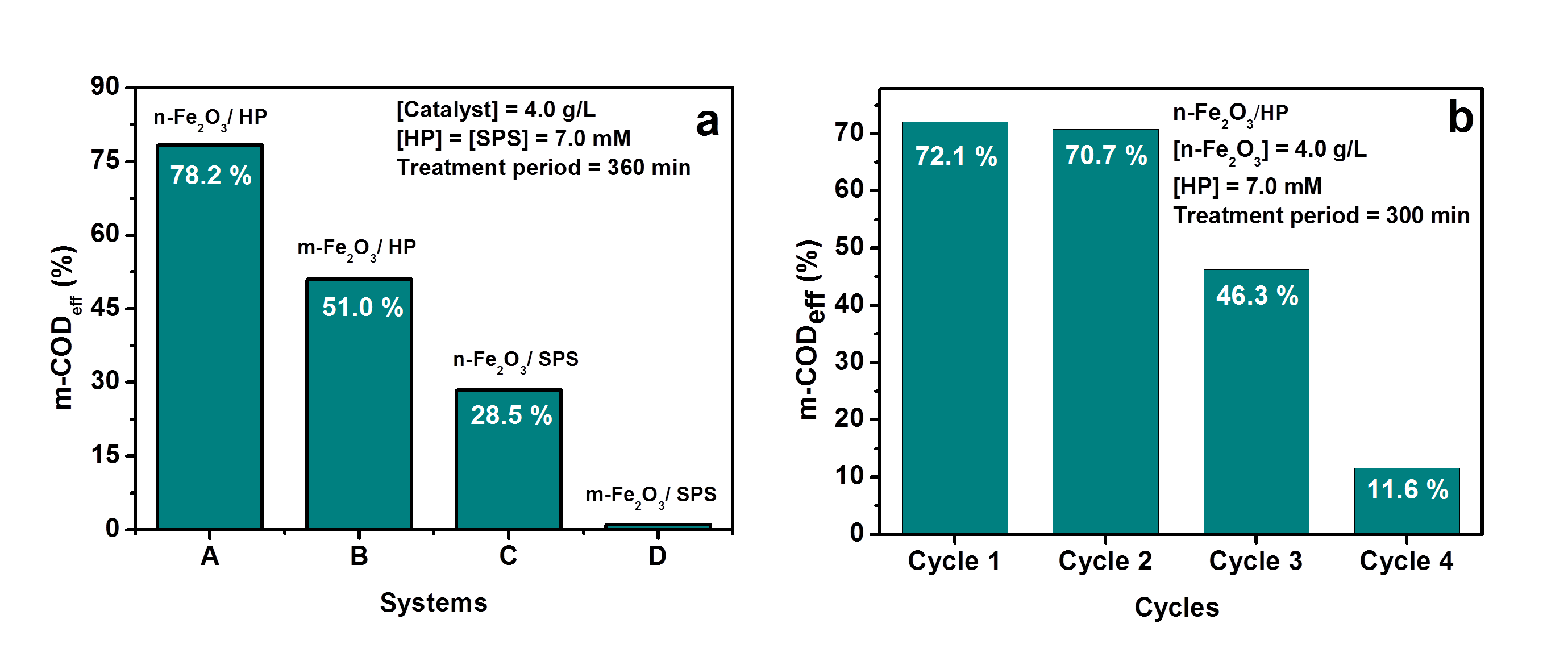
**Figure 6.** Effect of catalyst load on the m-of mixture of dyes (AB+PX): [HP] = 7.0 mM; [AB] = [PX] = 0.15 mM; pH= 3; equilibrium period = 90 min; treatment period= 90 min.

**Figure 7**



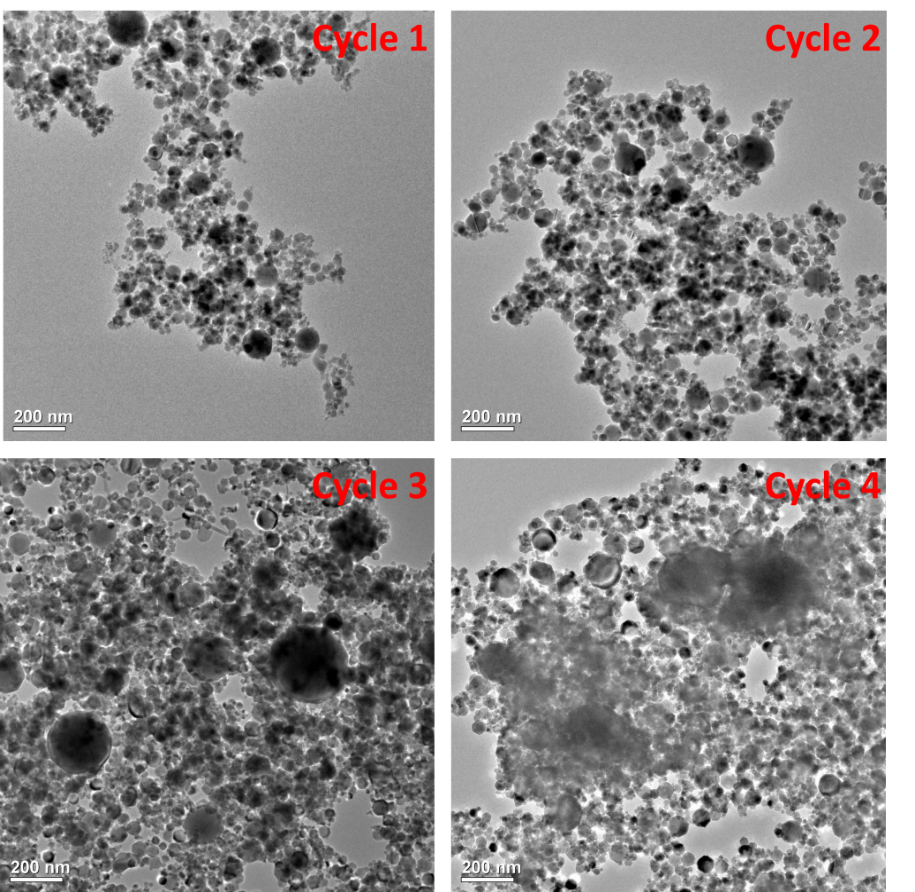
**Figure 7.** Effect of residual HP on of mixture of dyes (AB+PX). **Inset**: consumption of HP with time. [AB] = [PX] = 0.15 mM; [n-] = 4.0 g/L; [HP] = 7.0 mM; pH= 3; equilibrium period = 90 min.

**Figure 8**

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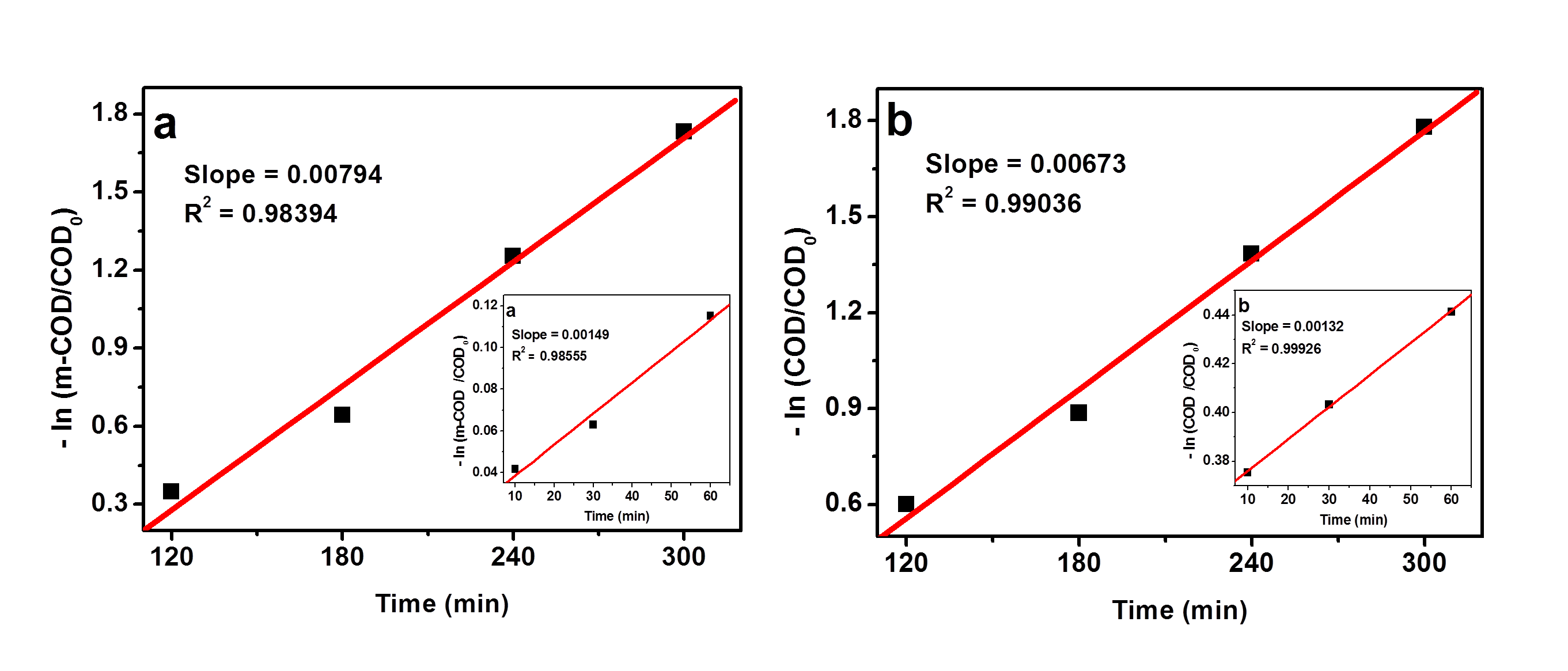
**Figure 8.** Effect of particle size of catalyst on m- (a) and reusability of catalyst (b): [AB] = [PX] = 0.15 mM; equilibrium period = 90 min; pH= 3.

**Figure 9**



**Figure 9.** TEM images of n- particles after different cycles of treatment: [AB] = [PX] = 0.15 mM; [n-] = 4.0 g/L; [HP] = 7.0 mM; treatment period = 300 min; pH = 3.

**Figure 10**

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**Figure 10.** COD removal kinetics in n-/HP system: (a) with interference due to HP from 120 min to 300 min (inset: from 0-60 min); (b) Without interference due to HP from 120 to 300 min (inset: from 0-60 min).

**Figure 11**



**Figure 11.** Kinetics of HP consumption in n-/HP system from 120 min to 300 min. (Inset: from 05 min to 60 min)

**Figure 12**



**Figure 12.** CFU and light loss (%) in n- / HP system: [AB] = [PX] = 0.15 mM; pH of treatment = 3; pH of *E. coli* growth = 7; [n- ] = 4.0 g/L; [HP] = 7.0 mM.