Supporting Information

Phosphotungstic acid supported on aminosilica functionalized perovskite-type LaFeO$_3$ nanoparticles: a novel recyclable and excellent visible-light photocatalyst

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2. Time dependent absorption spectrum during photocatalytic reaction of MB (a) and MO (b) in the presence of PTA (concentration of MB and MO= 25 mg/L, amount of catalyst = 10 mg, 2 mL of hydrogen peroxide 0.1 M, reaction temperature =25°C) (S2)

3. Effect of different amounts of hydrogen peroxide on the photocatalytic degradation of MB in the presence of composite catalyst. Concentration of MB= 25mg/L, amount of catalyst = 25 mg, amount of hydrogen peroxide addition, 1 mL (sample 1), 2mL (sample 2), 3 mL (sample 3), reaction temperature =25°C) (S3)

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Table S1. The structure and nature of methylene blue and methyl orange dye pollutants

<table>
<thead>
<tr>
<th>Dye name</th>
<th>Chemical Structure</th>
<th>Ionicity</th>
<th>Size (nm³)</th>
<th>MW(g/mol)</th>
<th>Absorption λ max(nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylene Blue</td>
<td><img src="image" alt="MB Structure" /></td>
<td>Cationic</td>
<td>1.38 0.64 0.21</td>
<td>319.85</td>
<td>664</td>
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<tr>
<td>(MB)</td>
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</tr>
<tr>
<td>Methyl Orange</td>
<td><img src="image" alt="MO Structure" /></td>
<td>Anionic</td>
<td>1.54 0.48 0.28</td>
<td>327.33</td>
<td>463</td>
</tr>
<tr>
<td>(MO)</td>
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</tbody>
</table>
Fig. S1. UV-Vis time dependent absorption spectrum during photocatalytic reaction of MB (a) and MO (b) in the presence of LaFeO3 nanoparticles (concentration of MB and MO= 25 mg/L, amount of catalyst = 20 mg, 2 mL of hydrogen peroxide 0.1 M, reaction temperature = 32°C).
Fig. S2. UV-Vis time dependent absorption spectrum during photocatalytic reaction of MB (a) and MO (b) in the presence of PTA (concentration of MB and MO= 25 mg/L, amount of catalyst = 10 mg, 2 mL of hydrogen peroxide 0.1 M, reaction temperature =32°C).
**Fig. S3.** Effect of different amounts of hydrogen peroxide on the photocatalytic degradation of MB in the presence of composite catalyst. concentration of MB= 25mg/L, amount of catalyst = 25 mg, amount of hydrogen peroxide addition, 1 mL (sample 1), 2mL (sample 2), 3 mL (sample 3), reaction temperature =32°C.
Fig. S4. The FT-IR spectra of recovered catalyst after three cycles of photodegradation reactions.