

## Supplementary material

**Table S1.** List of chemicals used in this study.

<b>Sr No</b>	<b>Chemical Name</b>	<b>Company</b>	<b>Purity / Grade</b>
1	Ferrous sulfate heptahydrate ( $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ )	Sigma-Aldrich	$\geq 98\%$
2	Iron(III) chloride hexahydrate ( $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ )	Sigma-Aldrich	$\geq 98\%$
3	$\text{NH}_4\text{OH}$ (Ammonium hydroxide)	Sigma-Aldrich	25–28% w/w
4	Titanium Isopropoxide (TTIP)	Sigma-Aldrich	> 97 %
5	Ethanol ( $\text{C}_2\text{H}_5\text{OH}$ )	Merck	> 99-100 %
6	Acetic acid ( $\text{CH}_3\text{COOH}$ )	Sigma-Aldrich	$\geq 99\%$
7	Isopropyl alcohol ( $\text{C}_3\text{H}_7\text{OH}$ )	Sigma-Aldrich	99.5%
8	Manganese sulfate monohydrate ( $\text{MnSO}_4 \cdot \text{H}_2\text{O}$ )	Sigma-Aldrich	> 99 %
9	Reactive Yellow 145 (RY145)	Koh-e-Noor textiles	-