Electronic Supplementary Information (ESI†)

Cetyl alcohol mediated fabrication of forest of Ag/Mn_3O_4 nanowhiskers catalyst for the selective oxidation of styrene with molecular oxygen

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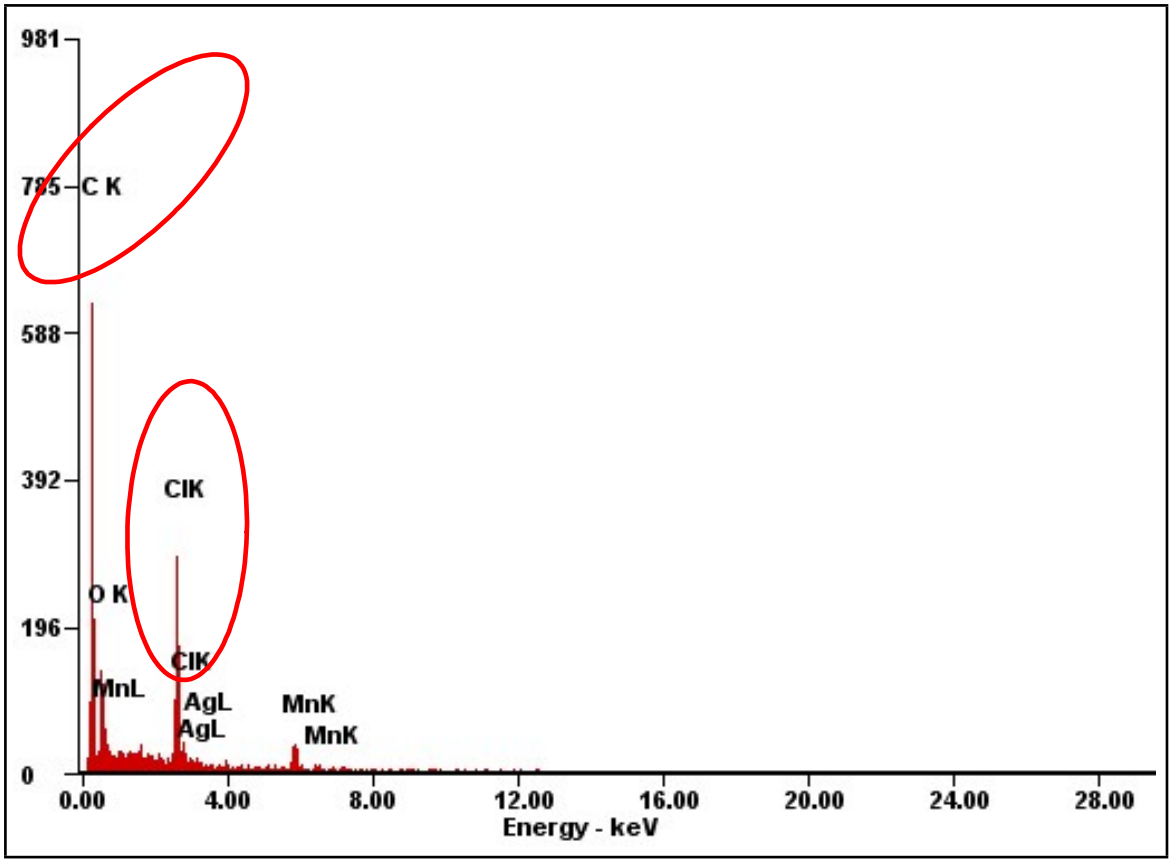

Fig. S1 SEM-EDAX of uncalcined Ag/Mn_3O_4 nanowhiskers catalyst.

Fig. S2 TEM-SAED (based on 6c, main) Ag/Mn_3O_4 nanowhiskers catalyst.

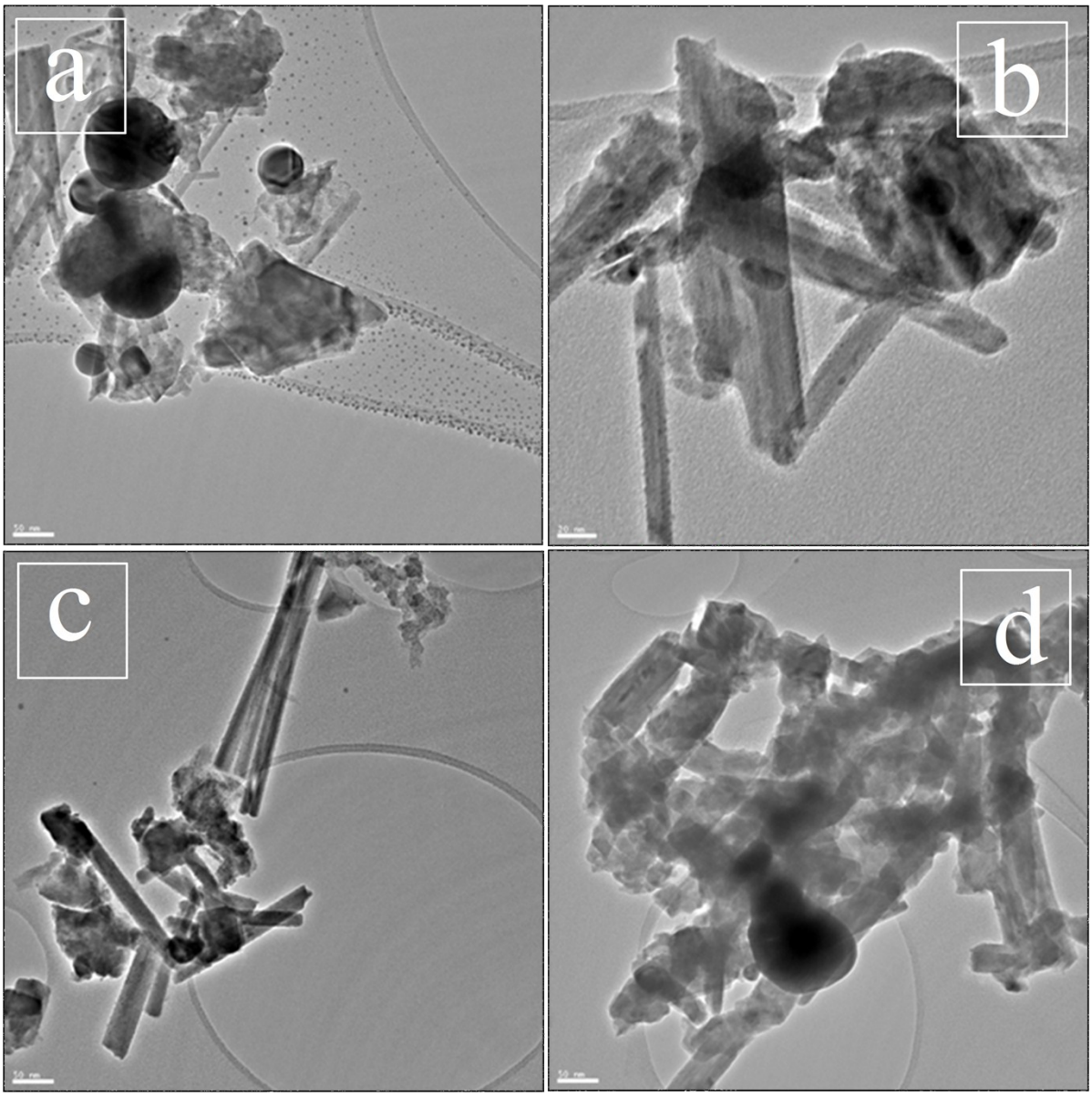

Fig. S3 TEM images of Ag-Mn composite catalyst: (a) without cetyl alcohol, aging time (b) 3h, (c) 8h and (d) 24 h.

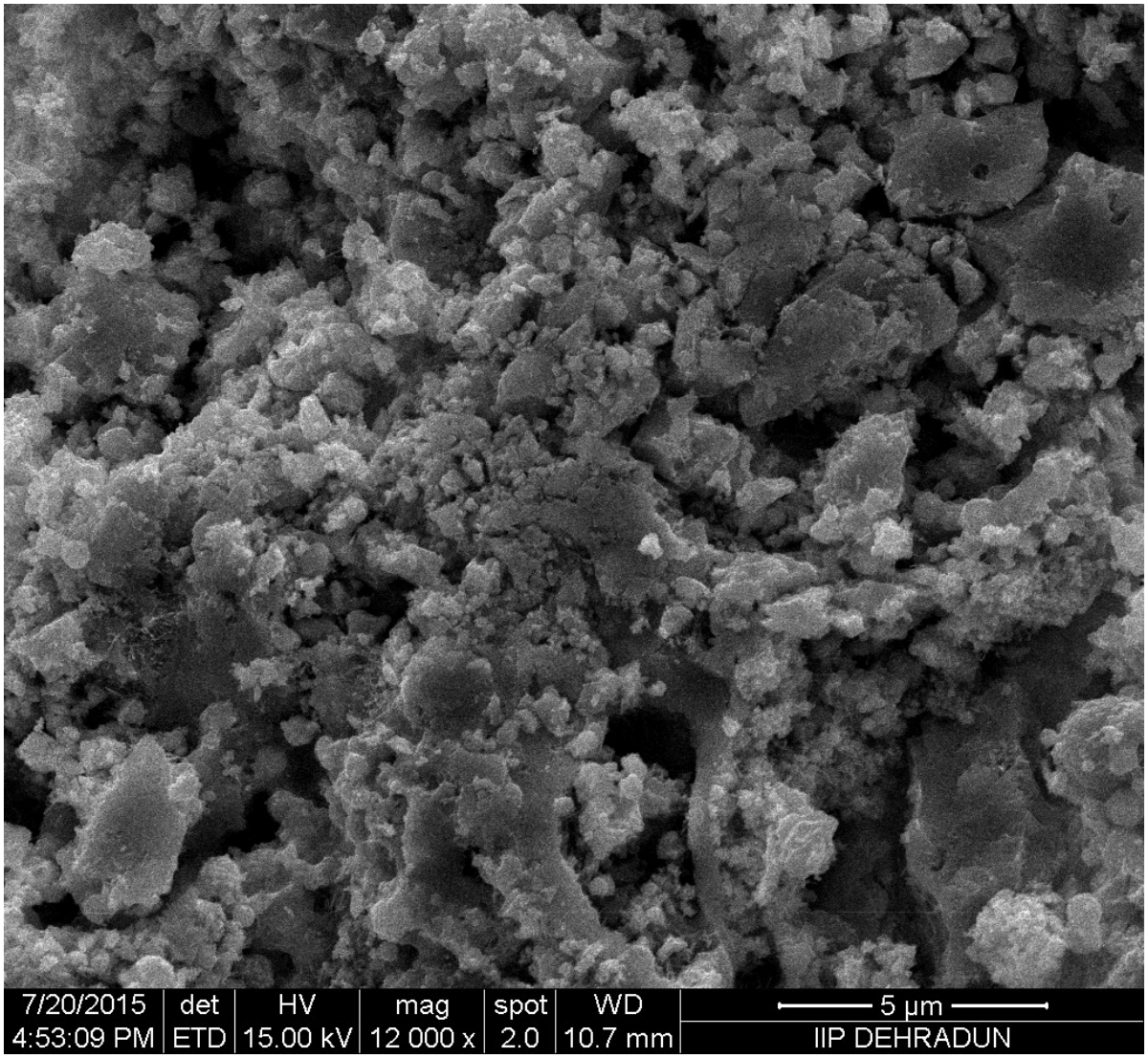

Fig. S4 SEM image of Ag-Mn composite catalyst prepared in impregnation process.

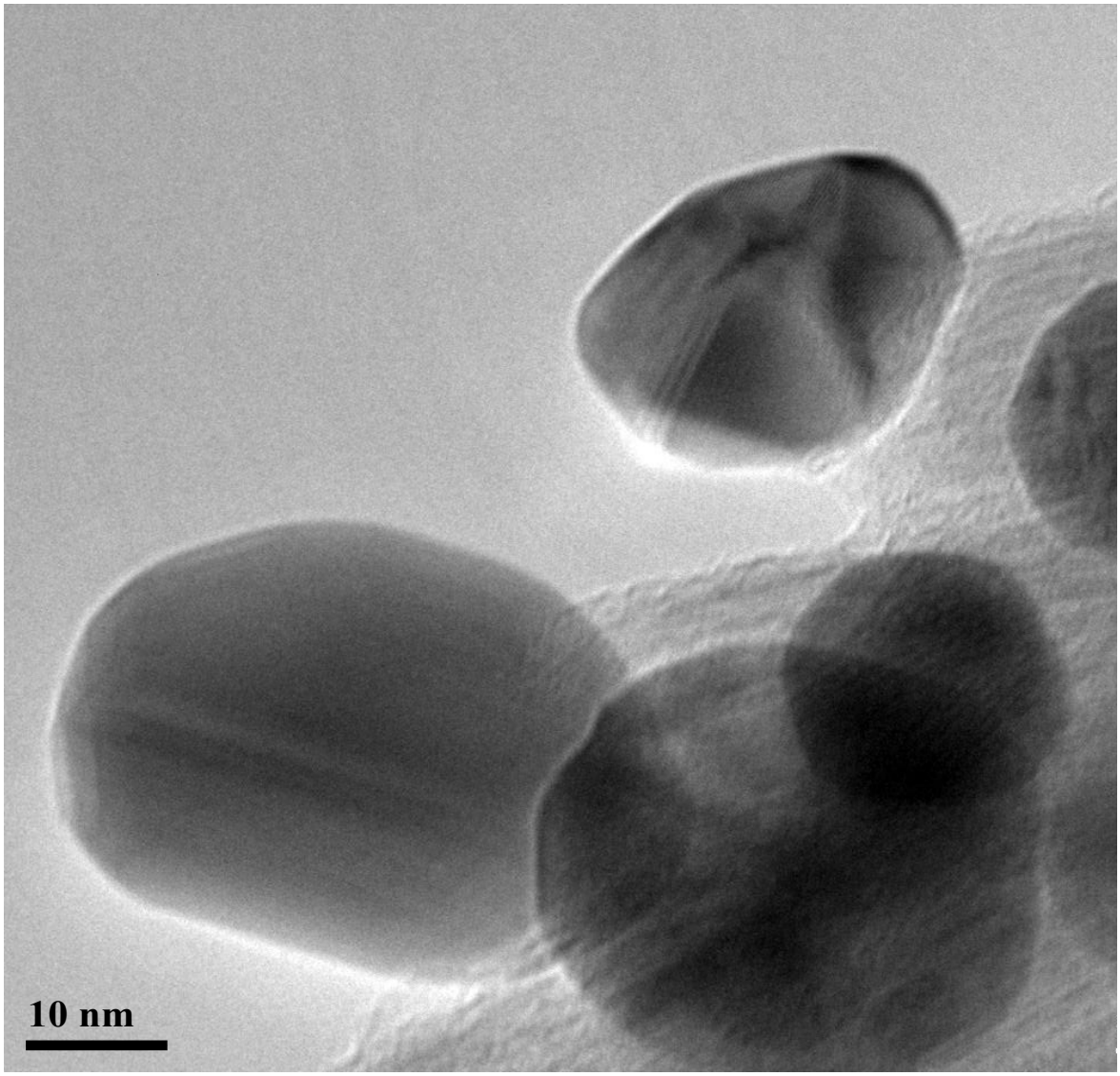

Fig. S5 TEM image of Ag/Mn_3O_4 nanowhiskers catalyst with Ag loading 11.7 %.

Table S1. Comparative studies on styrene oxidation to styrene oxide

Entry	Catalyst	Oxidant	Reaction Conditions	Conversion	Selectivity	Reference
1.	Schiff base tridentate ligand PS-[Hfsal-aepy],anchored ligand based metal complexes PS[Cu(Hfsal-aepy)Cl	TBHP + O_2	85 °C/6h	70.0	14.9	1
2.	Au particles with size of 20–150 nm were formed on amino-modified porous polydivinylbenzene	O_2	100 °C/15 h	27.0	30.0	2
3.	Sphere-shaped nanosized polyoxomolybdate {Mo}132	O_2	25 °C/3h	94.89	98	3
4.	CeO_2Nano Wires	O_2	120 °C/5 h	96%	69%	4
5.	Hollow Silver Nanoparticle Cages Assembled with Silver Nanoparticles	TBHP	65 °C/4 h.	81.7	79.6	5
6.	Ga_2O_3 Nano Rods	H_2O_2	80 °C/ 4 h	34.5	58	6
7.	Ultrathin copper oxide (CuO) nanorods	TBHP	75 °C/10 h.	98	77	7
8.	Hierarchical mesoporous vanadiumsilicate-1	TBHP	100 °C/12 h	49%	54%	8
9.	6V-MCM-48	H_2O_2	30 °C/12 h	44.1	1.1	9
10.	1 wt% In/TiO_2	O_2	150 °C/ 8 h	52	82	10
11.	0.98% CeO_2-SiO_2	H_2O_2	50 °C / 6h	72.1	82.1	11
12.	Ag–WO_3Nanorods	H_2O_2	75 °C/12 h	75%	55%	12
13.	**Ag–Mn_3O_4 Nanorods**	**O_2**	**80 °C/25 h**	**67**	**100**	**Present Work**

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