Supporting Information

Aqueous Heterogeneous Oxygenation of Hydrocarbons and Sulfides Catalyzed by Recoverable Magnetite Nanoparticles Coated with Copper (II) Phthalocyanine

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Table S1. The oxidation of indane using aqueous solution of TBAOX catalyzed by **CuPcS@ASMNP**

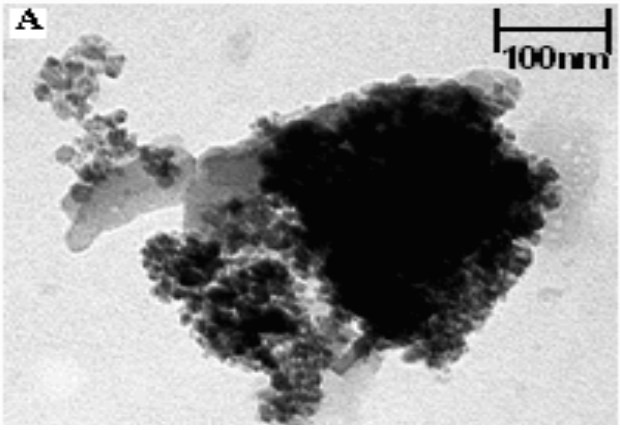
Run	Indane/TBAOX/Catalyst Molar Ratio	Total conversion	T/°C	Time/min
1	200:600:1	0	70	90
2	200:600:1	10	70	180
3	200:600:1	57	80	180
4	100:300:1	90	80	180

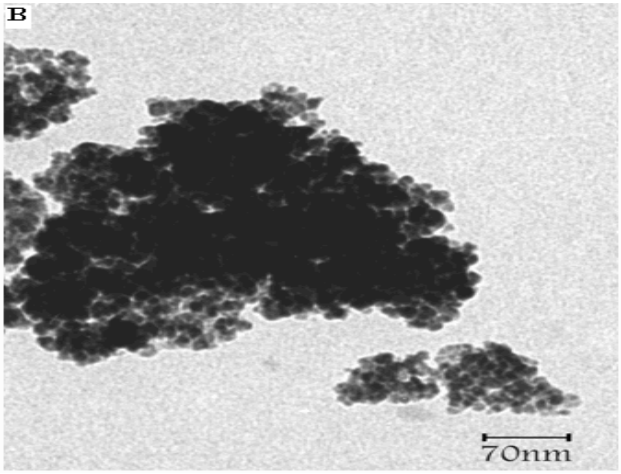
Table S2. Screening of solvents and quantity of the catalyst in the oxidation of methylphenylsulfide[a)]

Entry	Catalyst mol%	Equivalent of TBAOX	Solvent	Conversion %	Sulfoxide Selectivity %[b]
1	0[b]	3	H_2O	70	44
2	0.5	3	H_2O	100	0
3	1	1	H_2O	60	65
4	0.5	2	H_2O	80	35
5	1	2	H_2O	90	40
6	0.5	1	H_2O	45	77
7	0.5[c]	1	H_2O	40	90
8	0.5	1	H_2O/EtOH(2/1)	50	80
9	0.5	1	H_2O/EtOH(1/1)	65	85
10	0.5	1	H_2O/EtOH(1/2)	80(100[d])	100(100)
11	0.5	1	H_2O/EtOH(1/3)	80	100

12	0.5	1	EtOH	35	85
13	0.5	1	H_2O/EtOH(1/2)	100	-

a) GC yield
b) Reaction condition: The reactions were run at room temperature within 1h.
c) Reaction condition: The reactions were run at 0˚C within 1h.
d) Reaction condition: The reactions were run at room temperature within 1.5h.





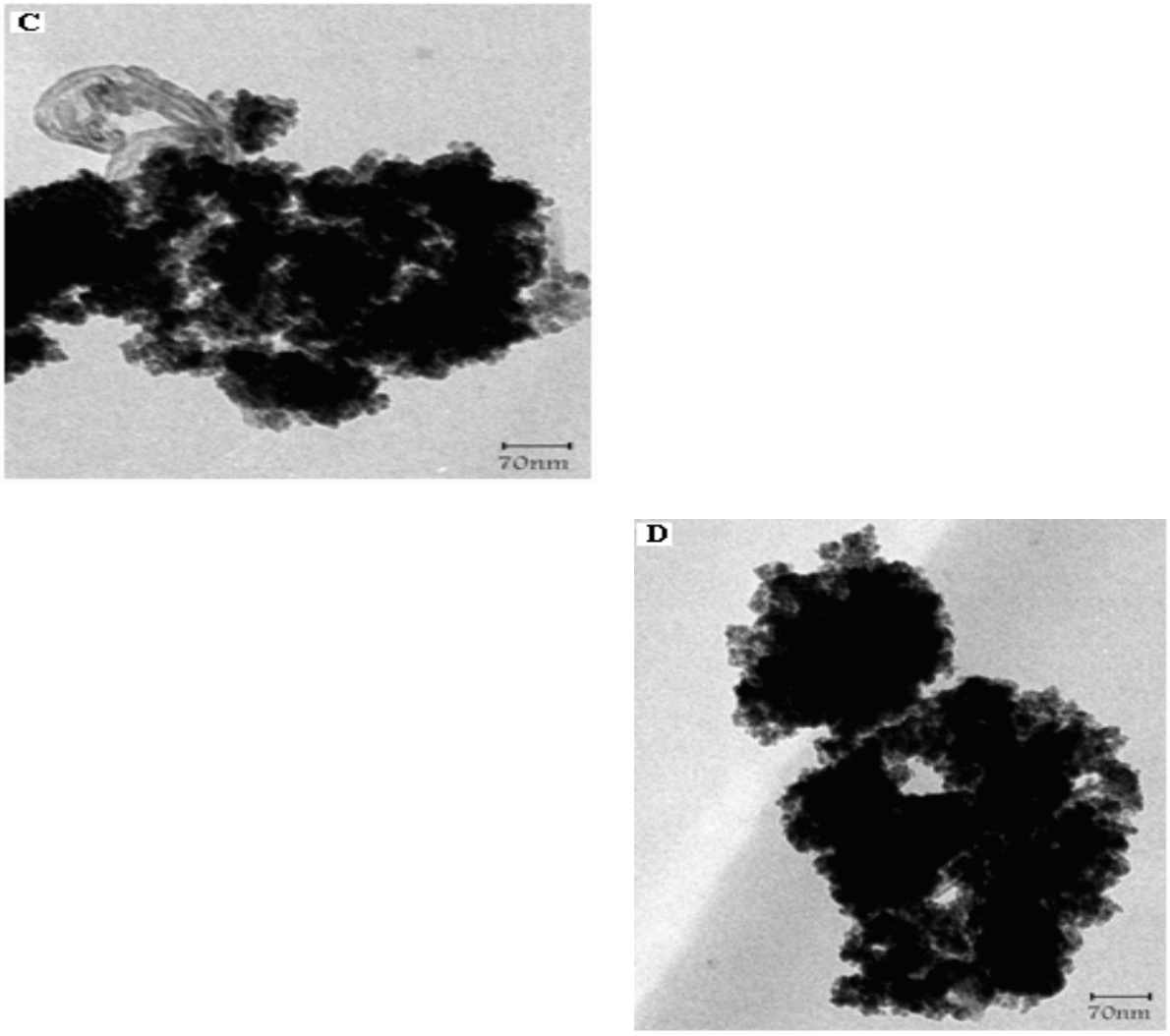


Fig. S1. TEM images of **CuPcS@ASMNP** stirred in aqueous solution of H_2O_2 (A) TBHP (B) PhIO (C) and Oxone® (D) at 70 °C.