Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Enhanced hydrogen production under visible light source and dye degradation under natural sunlight using nanostructured doped zinc orthotitanates

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Supporting Information

S1 JCPDS Data

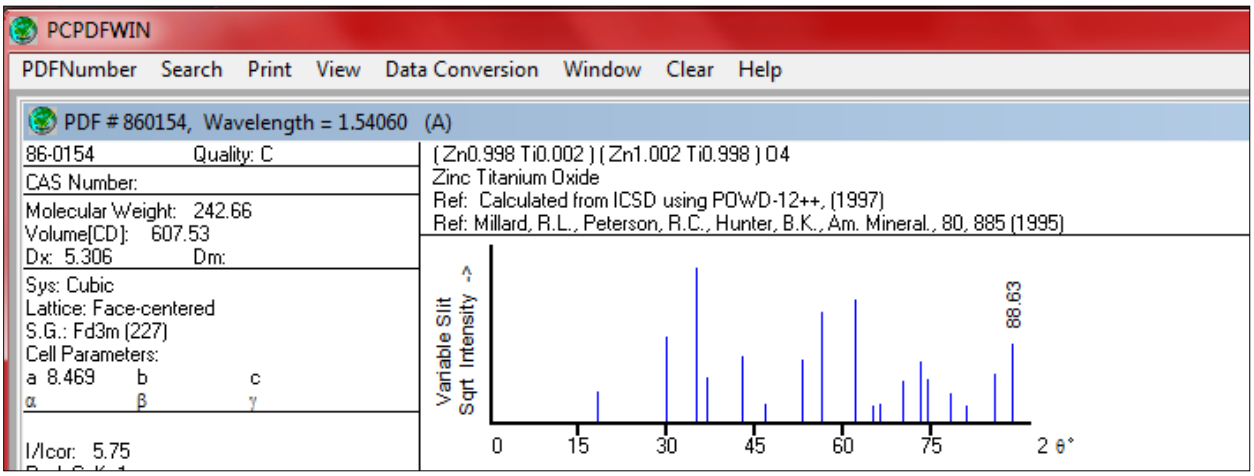

Fig 1 JCPDS data of Zn_2TiO_4 (cubic) [86-0154]

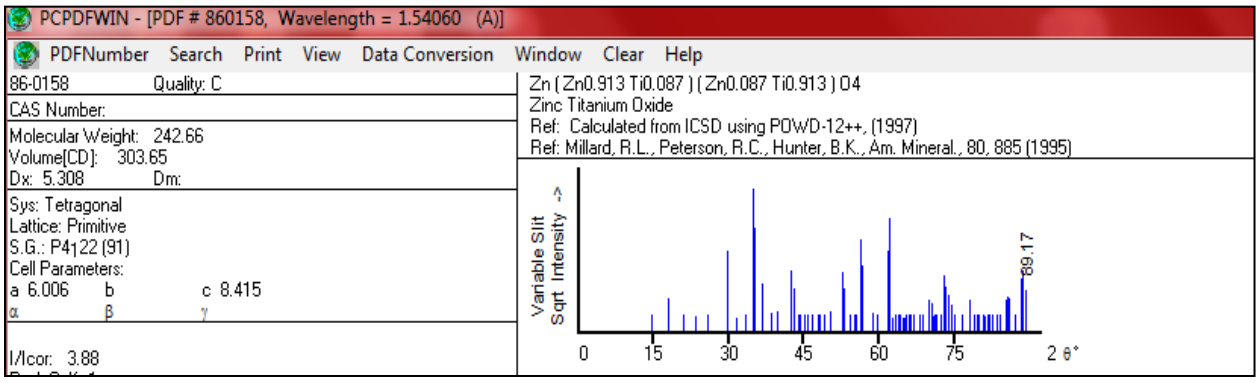

Fig 2 JCPDS data of Zn_2TiO_4 (Tetragonal) [86-0158]

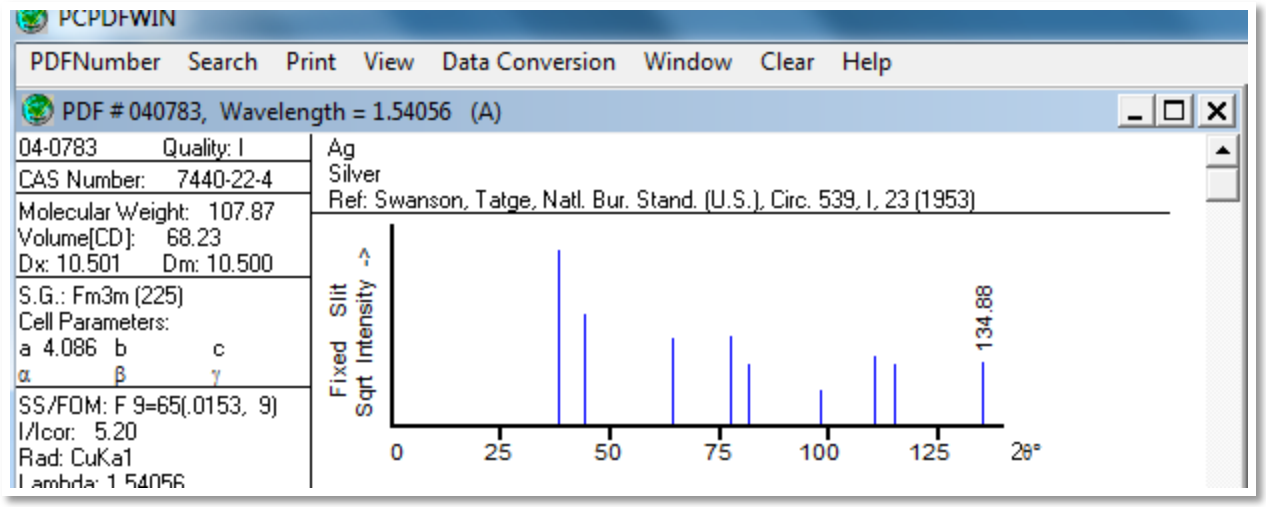

Fig 3 JCPDS data of Ag [04-0783]

S-2 FTIR analysis

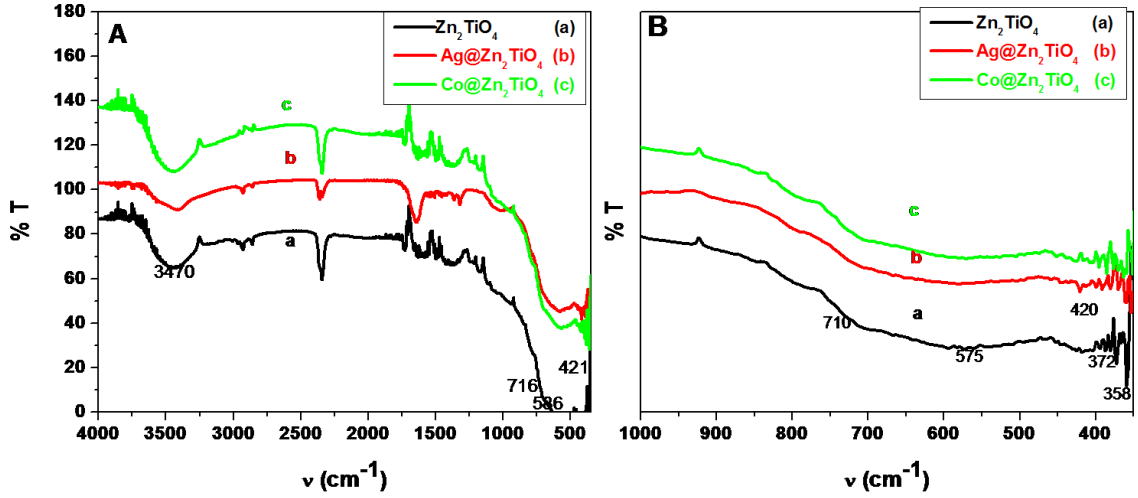

Fig : FTIR spectra of Zn_2TiO_4, $Ag@Zn_2TiO_4$ and $Co@Zn_2TiO_4$ A) in the range 4000-350 cm^{-1} B) magnified in the range 1000-350 cm^{-1}

S-3: Elemental analyses

The elemental analysis of the synthesized compounds has been performed by Energy Dispersive X ray Fluorescence (EDXRF) analyses technique. The data given in table 1 shows that % Zn and Ti observed in all synthesized samples is in good agreement with expected values and molecular formula of the oxides.

Table : EDXRF data for elemental analyses of zinc orthotitanates

Sr. No.	Compound	Elements (%)		
		Zn	Ti	M (Co/Ag)
01	Zn_2TiO_4	73.2 (73.2)	26.8 (26.8)	-
02	$Zn_{1.9}Co_{0.1}TiO_4$	71.4 (69.8)	25.4(26.9)	3.3(3.3)
03	$Zn_{1.9}Ag_{0.2}TiO_4$	64.3 (64.1)	24.9(24.7)	10. 8(11.2)

S-4

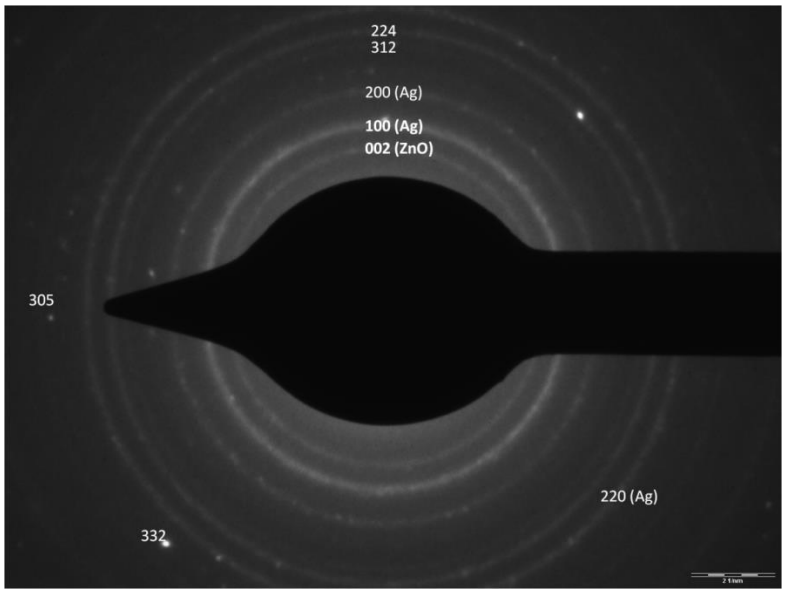

Fig. ED pattern of $Ag@Zn_2TiO_4$

S-5: Pore volume plots

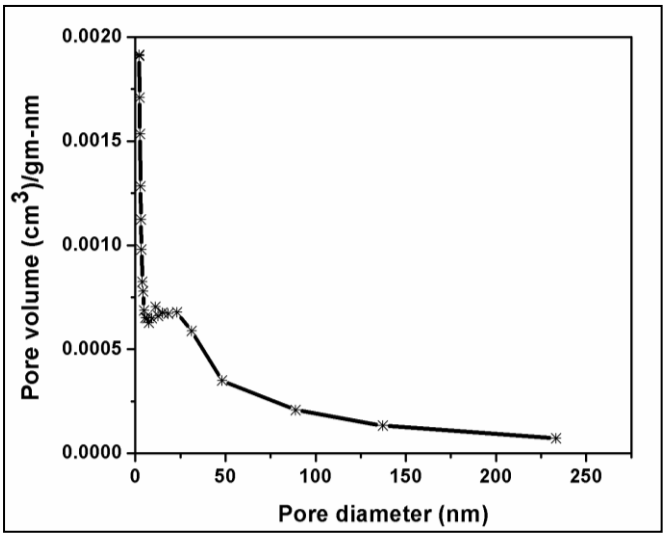

Fig.1 Pore volume plot of Zn_2TiO_4

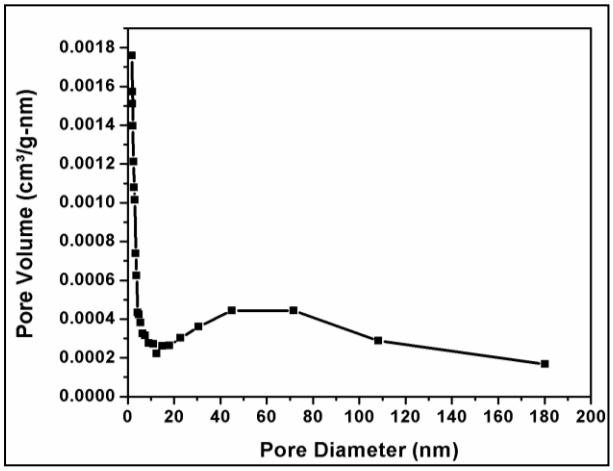

Fig.2 Pore volume plot of $Ag@Zn_2TiO_4$

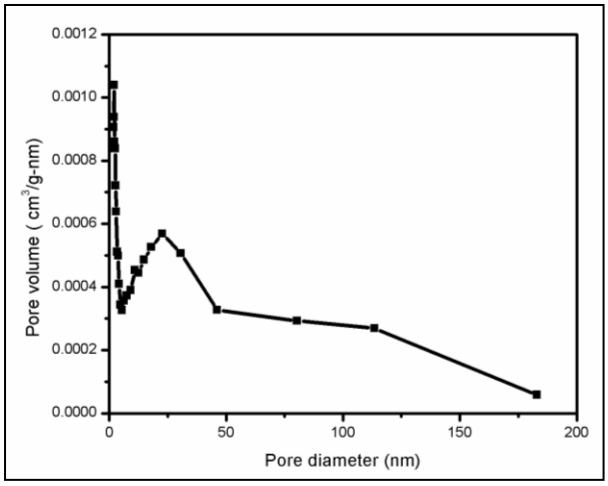

Fig.3 Pore volume plot of $Co@Zn_2TiO_4$

S-6

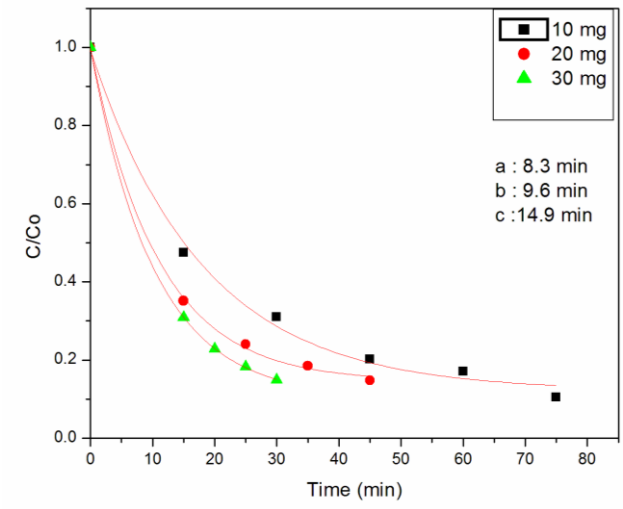

Fig. Effect of amount of $Ag@Zn_2TiO_4$ on the rate of degradation of AO-8 a) 30 b)20 and c) 10 mg

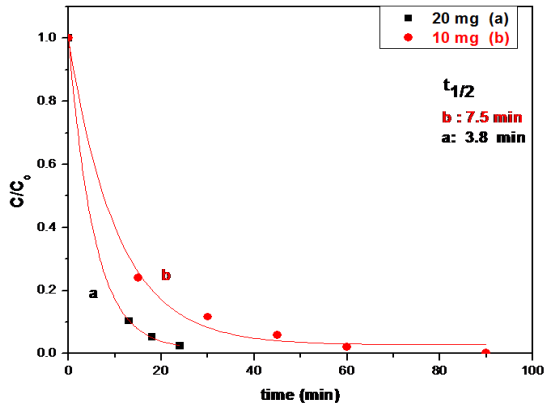

Fig. 1 Effect of concentration of catalyst for 10 and 20 mg $Ag@Zn_2TiO_4$ for 5 ppm solution

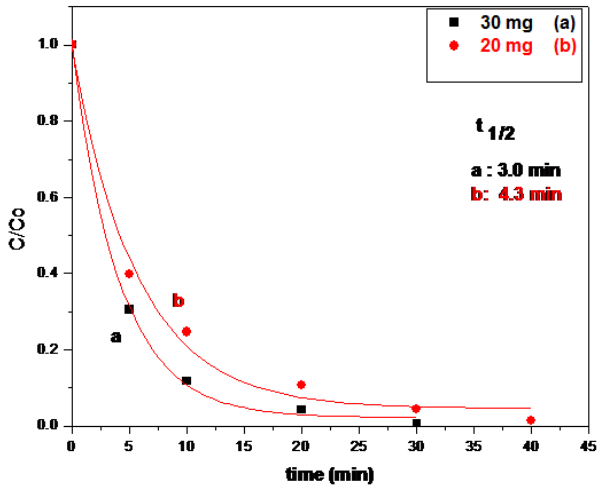

Fig. 2 Effect of amount of $Ag@Zn_2TiO_4$ (20 and 30 mg) catalyst for 7.5 ppm Rh-B solution.