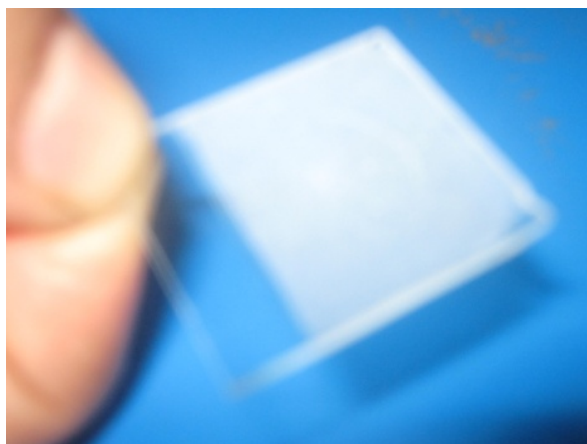


Supporting Information:

S1: Percent weight loss during the reaction of zinc sulphide prepared at different molar ratios.

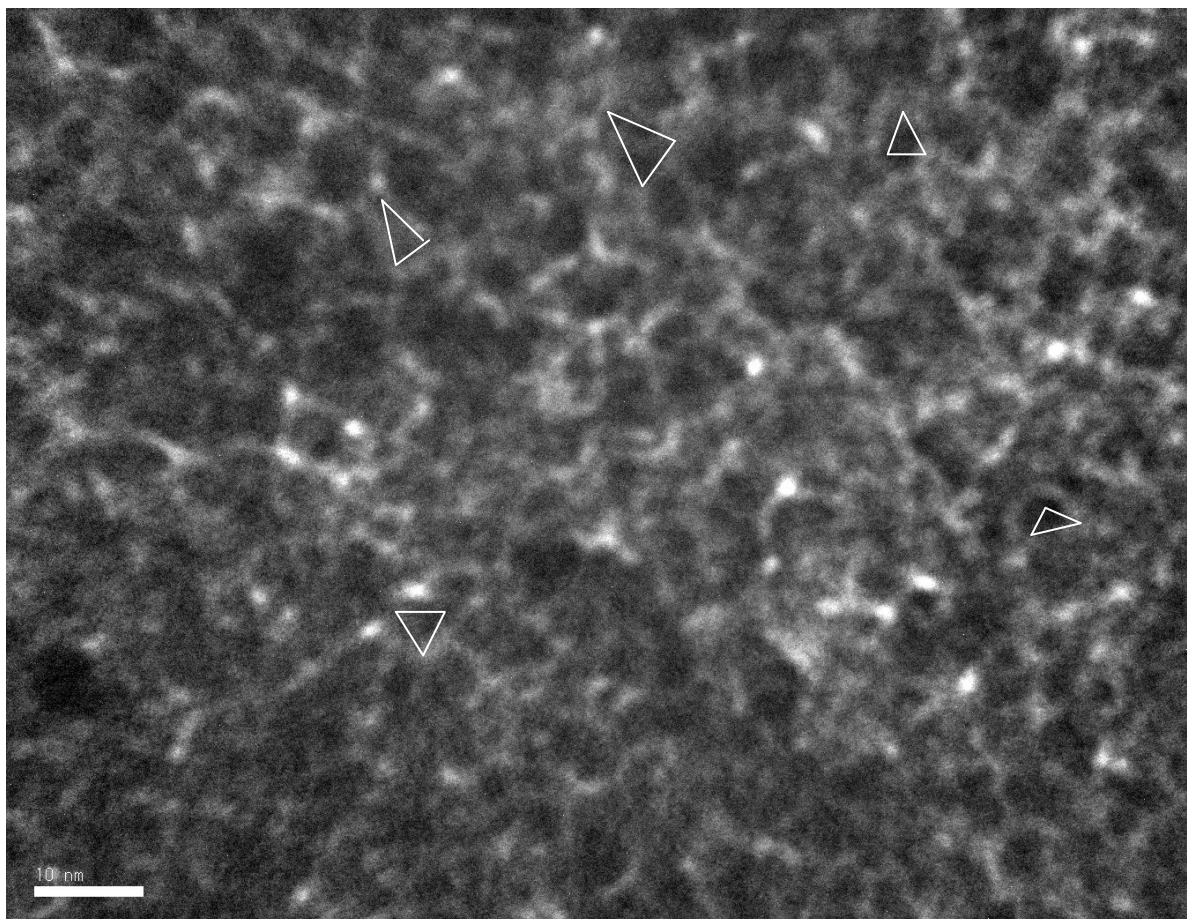
Sample ID	Wt of reaction mixture (ZnO + T. U.) before the reaction	Wt of product (ZnS + byproduct) after the reaction	Actual wt loss during the reaction	% wt loss during reaction
ZnS 1:1	7.72	7.33	0.39	5.05
ZnS 1:2	11.57	11.03	0.54	4.66

S 2 : Photograph of zinc sulphide thin film on glass slide.



Zinc sulphide nanoparticles were dispersed in ethanol and spin coating was performed to obtain thin film of zinc sulphide. This is a simple method for making uniform thin film of nanostructured zinc sulphide on glass slide.

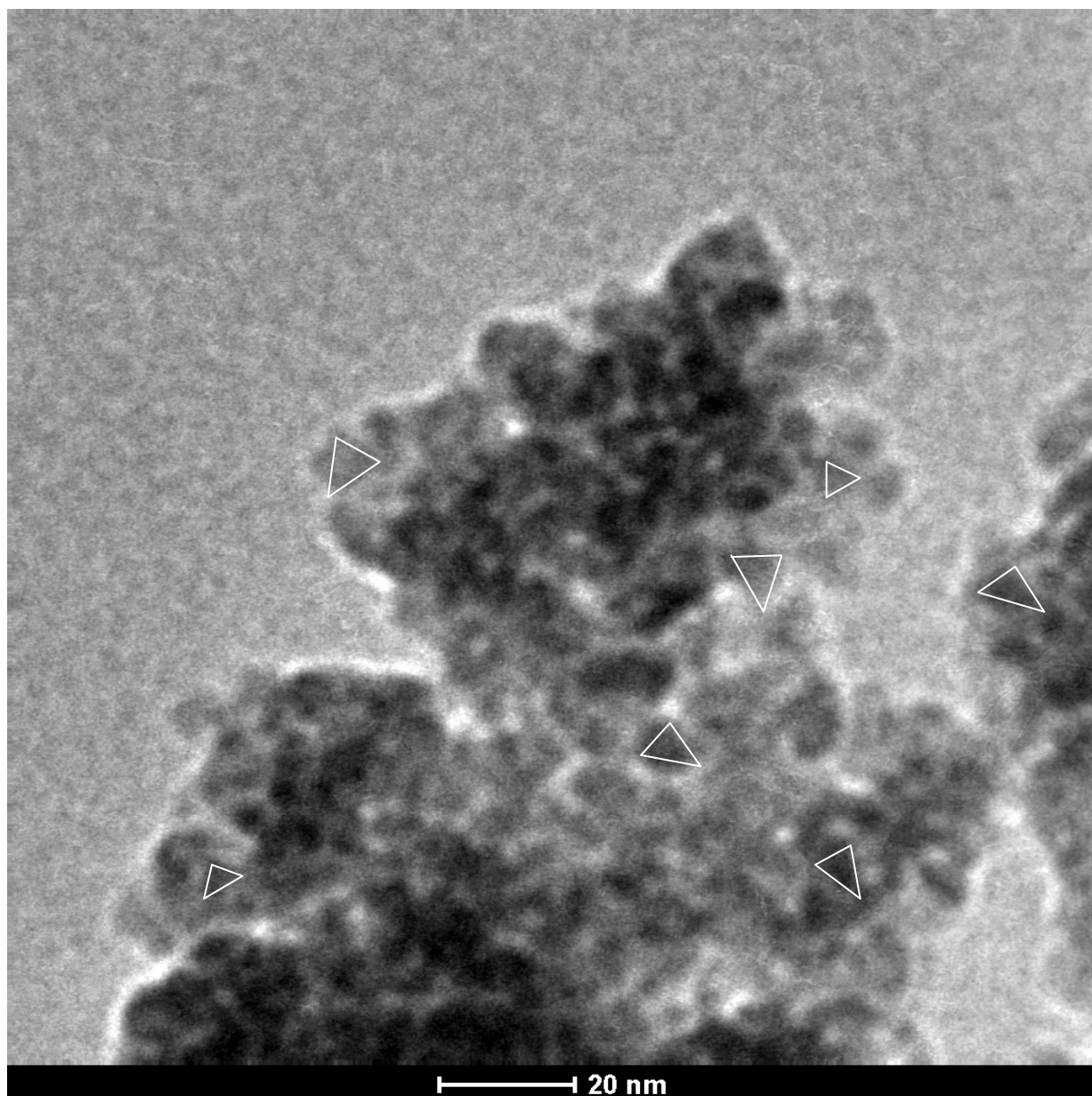
S3: (A) Magnified image of TEM of ZnS (1:2)



TEM images of as synthesized zinc sulphide of 1:2 molar ratio.

The size of all nanotriangles are in the range of 5-6nm and hence for simplicity typical nanotriangles are marked in white line.

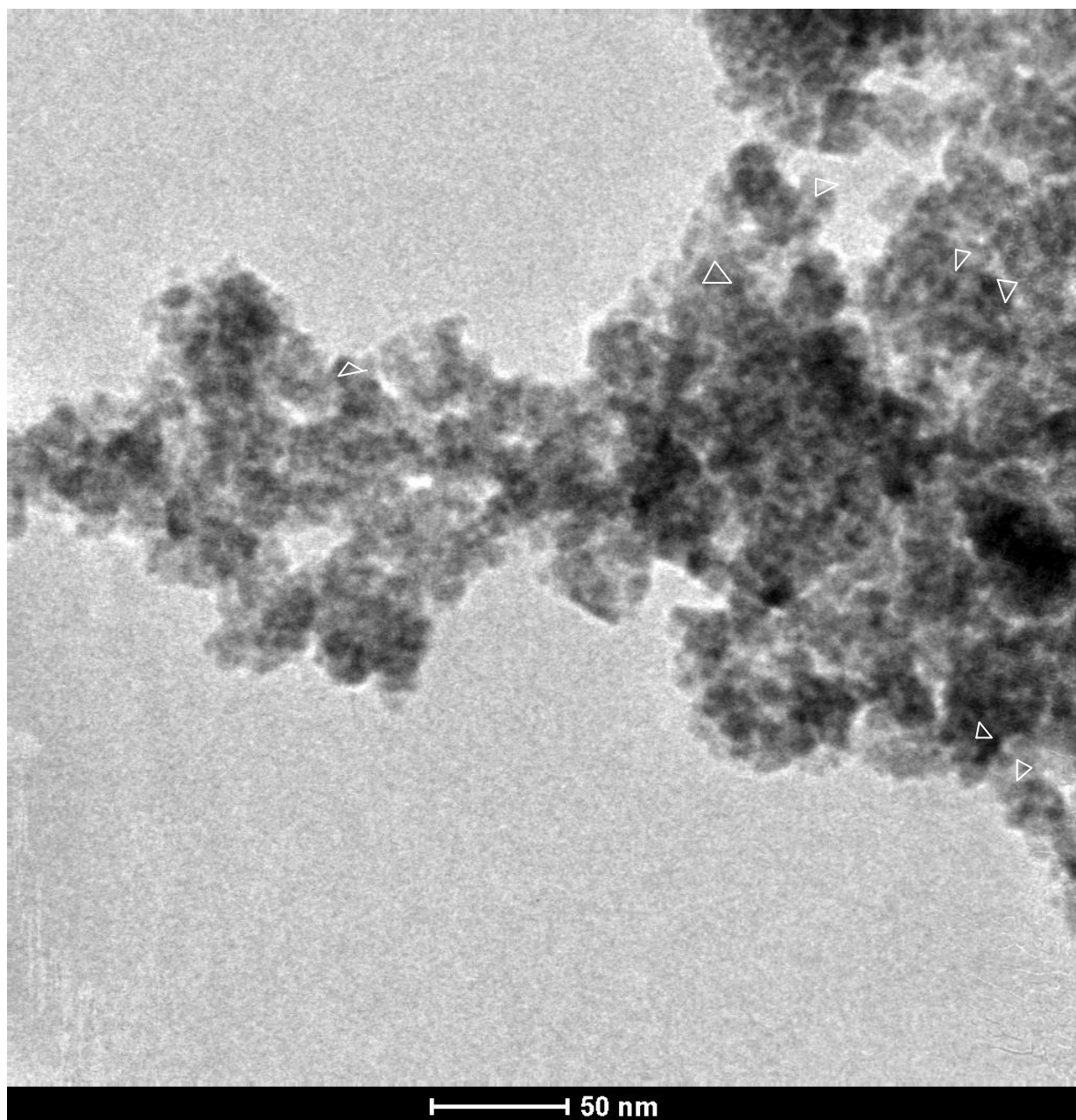
S3(B) Magnified image of TEM of ZnS (1:3)



TEM images of as synthesized zinc sulphide of 1:3 molar ratio.

The size of all nanotriangles are in the range of 7-9nm and hence for simplicity typical nanotriangles are marked in white line.

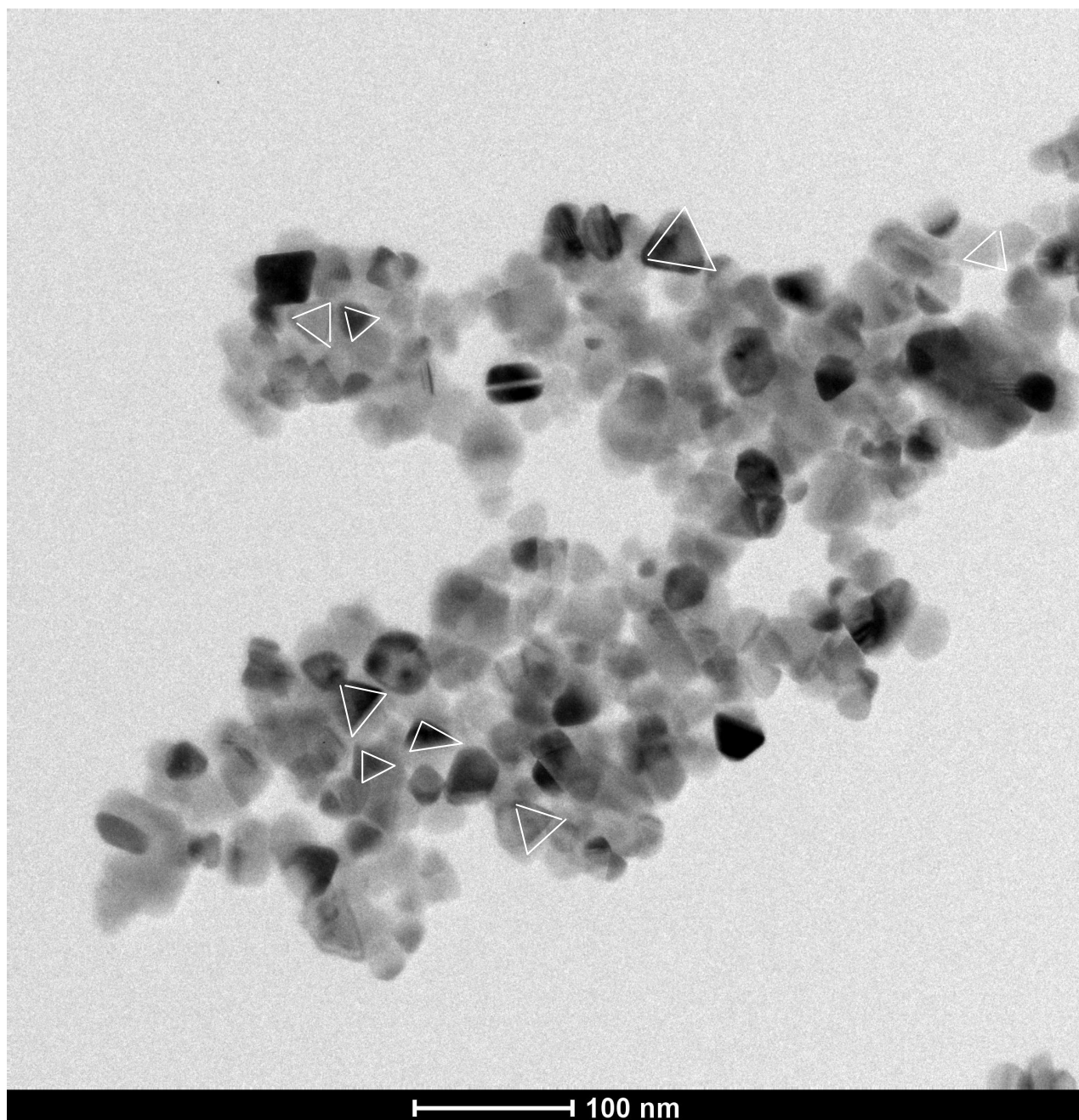
S3(C) Magnified image of TEM of ZnS (1:4)



TEM images of as synthesized zinc sulphide of 1:4 molar ratio.

The size of all nanotriangles are in the range of 11-12nm and hence for simplicity typical nanotriangles are marked in white line.

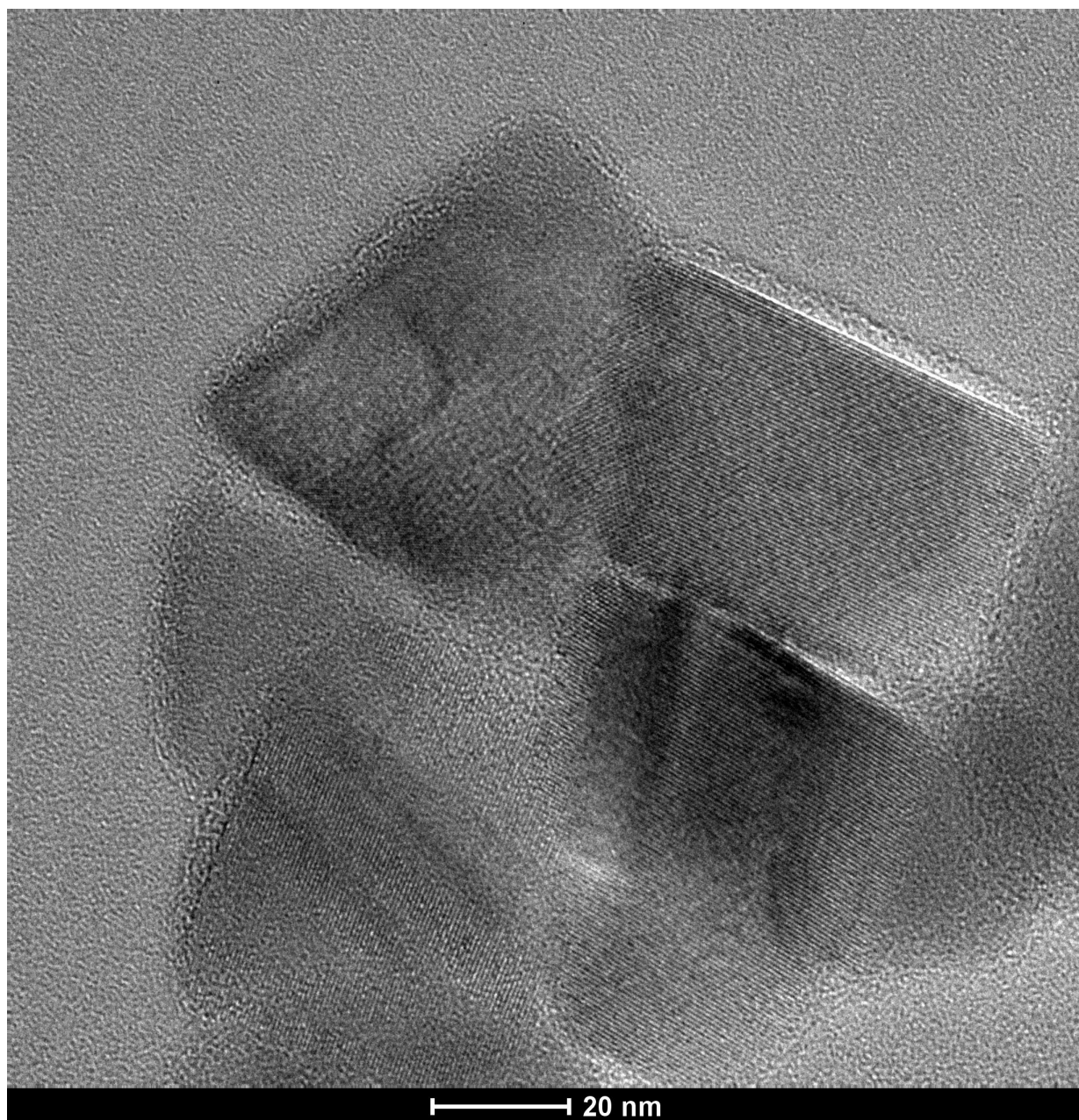
S3(D) Magnified image of TEM of ZnS (1:10)



TEM images of as synthesized zinc sulphide of 1:10 molar ratio.

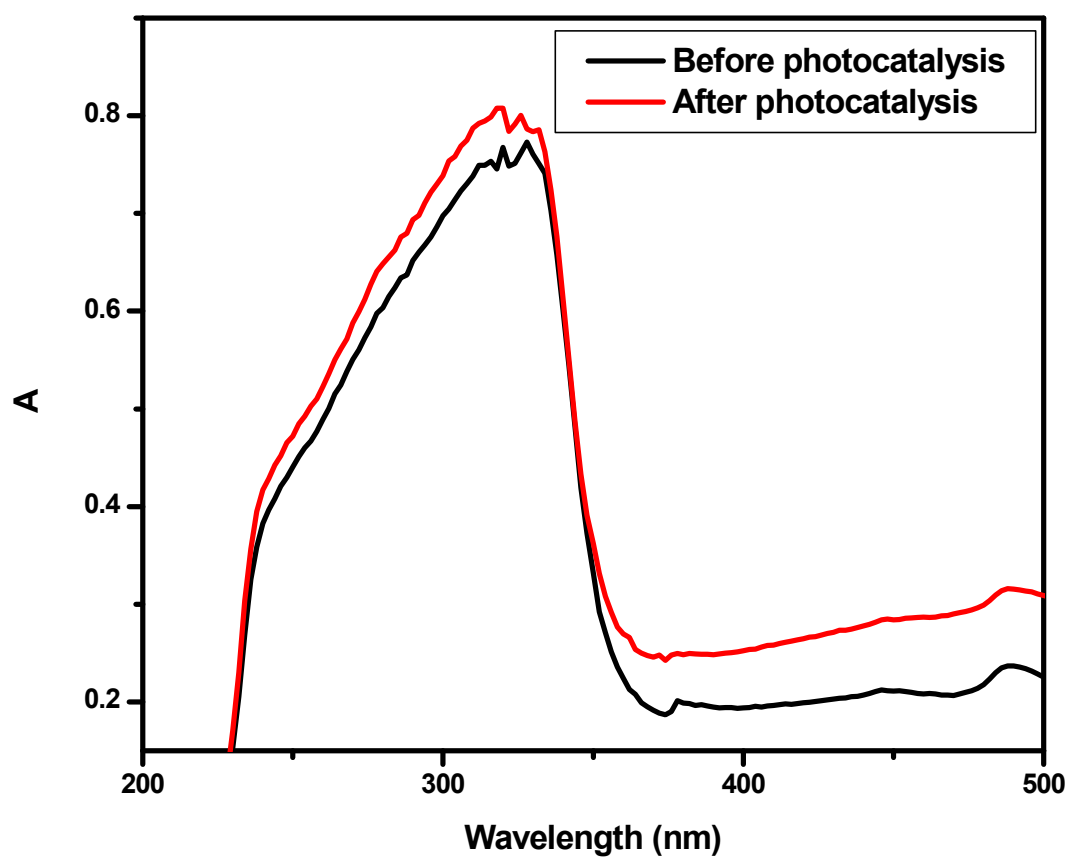
The size of all nanotriangles are in the range of 48-50nm and hence for simplicity typical nanotriangles are marked in white line.

S3(D1) Magnified image of TEM of ZnS (1:10)



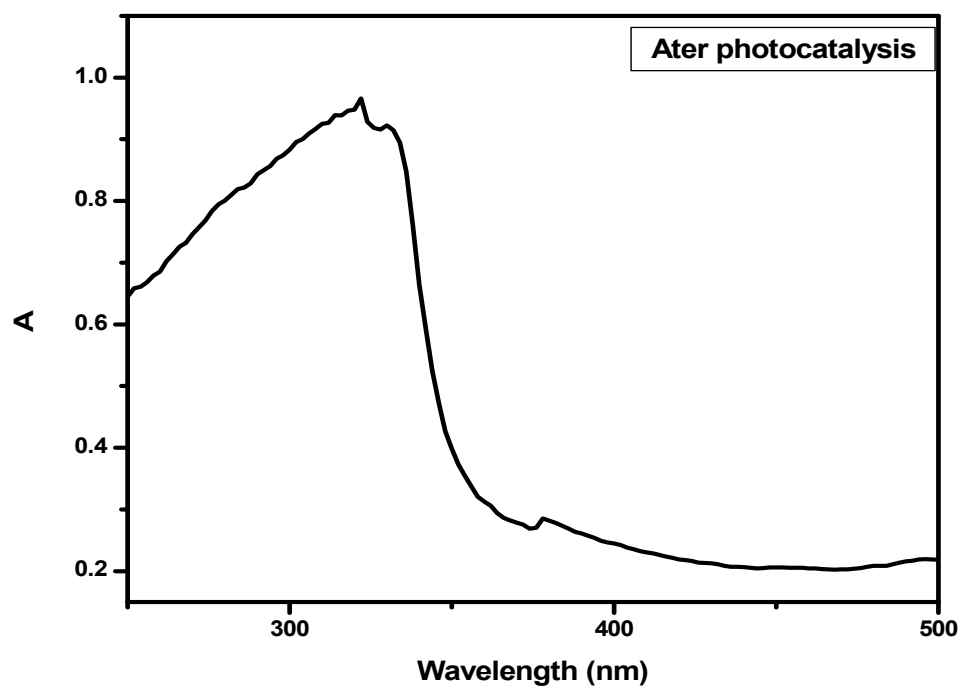
TEM images of as synthesized zinc sulphide of 1:10 molar ratio.

S 4 : (a) UV-DRS of platinised ZnS before and after photocatalysis



UV-Vis DRS spectra of as synthesized platinised zinc sulphide before and after water splitting.

S 4 : (b) UV-DRS of platinised ZnS after photocatalysis (MB degradation)



UV-Vis DRS spectra of as synthesized zinc sulphide after MB degradation.

The two steps observed due to the instrumental error mostly due to the very small quantity of sample. There is no change in band gap before and after the photocatalysis.