Supplementary Information (SI)

The transmission electron microscope (TEM) images of zirconia nanocubes depicting high yield in the size range of 80-90 nm are shown in Figure 1S (a) and 1S (b).

![TEM images of synthesized zirconia nanocubes](image1.png)

(a)                  (b)

Figure 1S (a-b): TEM images of synthesized zirconia nanocubes (a) large number of nanocubes in aggregated form and (b) synthesized nanostructures in segregated form

The atomic force microscope (AFM) images of synthesized zirconia nanostructures are shown below in Figure 2S (a) and 2S (b). The AFM images (NX 10, Park Systems) were acquired in non contact mode. Figures 2S (a) shows large number of nanocubes whereas Figure 2S (b) represents the magnified image of some selected area of image 2S (a). The size of prepared nanostructures appeared to be in the range of 80-100 nm from image 2S (b).
Figures 2S (a-b): AFM image (a) of synthesized zirconia nanostructures and (b) magnified image of some selected portion of (a)