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Title: Application of multi-dimensional (0D, 1D, 2D) nanostructures for the cytological evaluation of cancer cells and their bacterial response

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Abstract: The size of nanomaterial is a significant parameter, which influences the physicochemical characteristic.These materials also have a part to affect various biological activities in cells and bacterial solution. Because of the larger applicability and enough potential of nanostructures, the current work was displyed the dissimilar shaped nano structures such as quantum dots (QDs), rods (NRs) and sheets (NSs). The structures were processed through solution method and applied to evaluate the efficacy against cancer (C2C12) and bacterial (Gram - Ve) cells. The nanostructures were analysed via the X-ray diffrection (XRD), scanning electron, transmission electron and and high resoultion trans- mission electron microscopy (SEM, TEM and HR-TEM) correspondingly. The low doses of nanostructures (100, 500 and 1000 ng/mL) were applied against cancer cells for to evaluvate the % activity of sustained and non-sustained cells through MIT assay. The general microscopy was operated for to observe the morphology of treated and non-treated cells with nanostructures respectively. The cancer cells treated with nanostructures were also examined via confocal microscopy to access the density and efficacy of nanostructures through staining, whereas the apoptotic studies were also scrutinized with caspase 3 and 7 with control gene, revealed that cells were up-regulated in all conditions.The morphological and quantitative study of bacterial cells with nanostructures were studies through UV visible spectroscopy individually and also describes possible mechanism.

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