Title:	Fabrication of Metal Oxide Nanoparticles for Antibacterial Studies
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Abstract:	In the present work, the fabrication of three different types of spherical metal oxide nanoparticles of varying sizes with a goal of high surface area to volume (A/V) ratio and their application in antibacterial studies have been demonstrated. In a one-pot heating-up method, using the respective metal oleate as the precursor (i) four grades of manganese oxide particles (MOPs) with high crystallinity and exceptionally narrow size distribution (in some cases with σ < 3%); (ii) six grades of iron oxide particles (IOPs) with high crystallinity and particle size distribution ranging from broad to narrow, and (iii) four grades of cobalt oxide particles (COPs) with high crystallinity and broad size distribution have been synthesized. These were characterized using various analytical techniques such as FT-IR spectroscopy, powder X-ray diffraction (PXRD), field emission scanning electron microscopy (FE-SEM) and dynamic light scattering (DLS) analyses. Their antibacterial activities were conducted using plate assays on two biological species Staphylococcus aureus and Escherichia coli. Out of these three nanoparticles, smaller sized MOPs (30 - 60 nm) showed higher antibacterial activity than larger sized IOPs (30 - 530 nm) and COPs (40 - 980 nm) under normal lighting conditions.
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