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Title: Low temperature synthesis of semiconducting α -Al₂O₃ quantum dots
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Dear Dr. karim h hassan,

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ABSTRACT:

A simple low temperature chemical route, which was based on the reactions of aluminium nitrate and hexamethylenetetramine in aqueous medium at 473 K for 36 h, was proposed for the synthesis of α -Al₂O₃ quantum dots (QDs). The characterization results from X-ray diffraction, Fourier transform infrared spectroscopy and transmission electron microscopy along with selected area diffraction pattern are revealed the formation of α -Al₂O₃. Ultra-violet spectra indicated that the as-synthesized α -Al₂O₃ has a direct band gap of about 3.6 eV and also disclosed semiconducting behaviour of α -Al₂O₃ QDs using defect chemistry.