





# Document details - Effective Photodegradation of CR & MO dyes by morphologically controlled Cerium oxide nanocubes under visible light illumination

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## Effective Photodegradation of CR & MO dyes by morphologically controlled Cerium oxide nanocubes under visible light illumination(Article)

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### Abstract

Synthesis of novel CeO<sub>2</sub> nanocubes via simple wet chemical method has described in this manuscript. Since the CeO<sub>2</sub> nanoparticles have been admired for their properties and extensive applications in the recent years, the structural properties and morphology of the obtained materials were investigated in detail. The results indicated that formation of CeO<sub>2</sub> nanocubes and it act as very dynamic photocatalyst in visible region. When applied to the photocatalytic degradation of Congo red (CR) and methyl orange (MO) dyes, the best results were obtained when using this catalyst which is due to the formation of more reactive oxygen species owing to the presence of Ce<sup>4+</sup>/Ce<sup>3+</sup>. The photodegradation efficiency of CeO<sub>2</sub> nanocubes was 95% within 100 & 90 min for CR and MO respectively. Furthermore, the catalyst can be easily recovered and reused until fifth cycles without significant loss of activity. © 2017 Elsevier GmbH

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