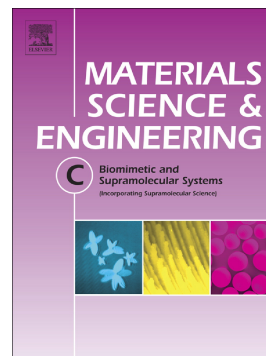


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The first one-pot synthesis of undoped and Eu doped β -NaYF₄ nanocrystals and their evaluation as efficient dyes for nanomedicine.

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Abstract: Polygonal-shaped about 75 nm sized and highly crystallized Eu³⁺-doped β -NaYF₄ particles were directly prepared under mild conditions using the polyol process. A set of operating parameters were optimized for such a purpose. A conventional heating under reflux for 30 minutes of a mixture of Y(III) and Eu(III) acetate, ammonium fluoride, sodium hydroxide and oleic acid (OA) dissolved in ethyleneglycol offered a pertinent material processing route if a large excess of NH₄F and an enough amount of OA were used. Typically, the former parameter provides an exclusive stabilization of the desired β allotropic form, while the latter allows a significant size decrease of the particles. Thanks to their coating by a double OA layer, the produced particles exhibited a hydrophilic surface feature when dispersed in water and when excited under UV light they emitted a very intense red photoluminescence. Additionally, they did not evidence any accurate cytotoxicity when incubated with healthy human foreskin fibroblast (BJH) cells for doses as high as 50 $\mu\text{g}\cdot\text{mL}^{-1}$

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