

Simple and Phytic Acid-Assisted Green Synthesis of Mn-based Nanorods for Theranostic Applications

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Novel rapid fabrication of uniform manganese-based nanorods was developed via a simple one-pot thermal decomposition synthetic process. Our strategy is facile and environment-friendly by using phytic acid as a surfactant for the first time. On the basis of the experimental results, oleylamine and phytic acid both are believed to be act as structure-directing agent. It is known that nanorods are formed when two surfactants with different stabilizing capabilities are used under kinetically controlled conditions, such as those involving rapid thermal decomposition at high reaction temperature. Furthermore, amount of surfactant, reaction temperature, and time all seem to be the crucial factors for the formation of nanorods and size control. These novel Mn-based nanorods are expected to be widely exploited as MR imaging, multi-functional drug delivery, energy storage, sensing, and catalysis, among others.