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## Design and synthesis of magnetic nanoparticles by microwave strategy

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In the past few years, numerous investigations have utilized the high quality magnetic nanoparticles in bio-applications, ranging from cancer therapy to bio-sensing applications for specific diagnosis, all due to their unique magnetic properties to solve mass practical issues. To best of our knowledge, the magnetic nanoparticles can be synthesized by chemical methods, such as sol-gel, thermal decomposition, sol-or hydrothermal reaction and co-precipitation. Recent studies have demonstrated this issue with promising and exciting. However, these approaches mentioned above centrally over some points have restricted in further supporting the reliability and stability of mass fabrication, though they were known as the conventional technique that possess long been recommended, as well as the well-defined morphology and narrow size distribution. In microwave matrix, energy output and thermal feedback is uniform distributed and responsive to minimize thermal gradient, hence could leading enhanced reaction rate and should be more appropriate to achieve the aim. Here, attention is focused on demonstrating that hypothesis. We engaged in this issue to develop a universal synthesis strategy for the magnetic nanoparticles preparation, and the products own the outstanding performance which can be differentially modified to expand and/or improve their functions, thus considered as the highly promising biomedical nano-materials. As stated, our powerful strategy is of relevance for a broad range of applications, which could also be extended to exploit other mono-disperse NPs benefiting from its important advantageous features.

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