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## Low cost and non-fluoride flowerlike superhydrophobic particles fabricated for both emulsions separation and dyes adsorption

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**ABSTRACT:** Green fluoride-free superhydrophobic hierarchical flowerlike iron-containing MnO<sub>2</sub> particles were synthesized by a simple one-pot approach and subsequently modified by stearic acid. The special selective wettability toward water and oil makes the particle can be used in oil-in-water emulsion separation. In addition, the particle also can be applied as absorption material to remove dyes which are serious water contaminants. More importantly, as for the mixture of emulsion and dye, the particles also have the ability to remove both oil and dye, making the particles potential for wastewater purification in the future.

**KEYWORDS:** low-cost; fluoride-free; flowerlike; superhydrophobicity and superoleophilicity; emulsion separation; dye removal

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