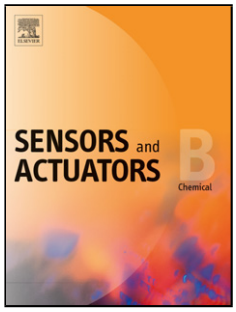

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A fluorescent molecularly imprinted polymer using aptamer as a functional monomer for sensing of kanamycin

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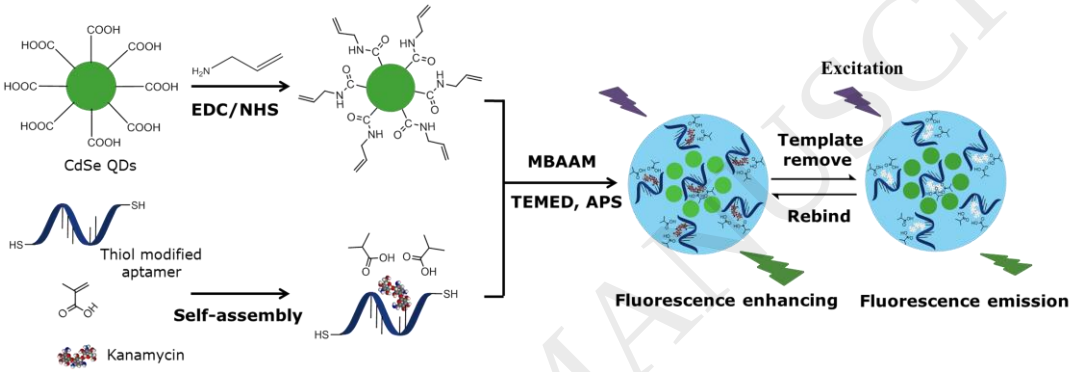
Graphical abstract



Highlights

- A fluorescent aptamer functionalized MIP for sensing of kanamycin.
- The MIP utilized double recognition elements of the aptamer and imprinted cavities.
- The "thiol-ene" click reaction was utilized to fix the aptamer into polymer matrix.

Abstract

This paper describes an alternative strategy for fabricating a fluorescent aptamer functionalized molecularly imprinted polymer (MIP) for highly specific sensing of kanamycin. The technique provides surface imprinting in aqueous solutions using CdSe quantum dots as supports, thiols modified aptamer and methacrylic acid as functional monomers, and kanamycin as a template. The MIP would function utilizing double recognition of the aptamer and imprinted cavities for fluorescent sensing of kanamycin. The "thiol-ene" click reaction was utilized to fix the aptamer into polymer matrix, and the click chemistry used was highly efficient under mild condition and environmentally friendly. Experimental results indicated that there was a synergistic interaction between the aptamer and MAA, which improved the recognition ability of MIP toward kanamycin.