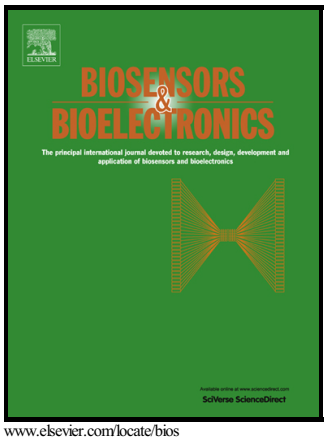

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One-pot synthesis of mesoporous structured ratiometric fluorescence molecularly imprinted sensor for highly sensitive detection of melamine from milk samples

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Abstract:

A facile strategy was developed to prepare mesoporous structured ratiometric fluorescence molecularly imprinted sensor for highly sensitive and selective determination of melamine using CdTe QDs as target sensitive dye and hematoporphyrin as reference dyes. One-pot synthesis method was employed because it could simplify the imprinting process and shorten the experimental period. The as-prepared fluorescence MIPs sensor, which combined ratiometric fluorescence technique with mesoporous silica materials into one system, exhibited excellent selectivity and sensitivity. Under optimum conditions, these mesoporous structured ratiometric fluorescence MIP@QDs sensors showed detection limit as low as 38 nM, which was much lower than those non-mesoporous one. The recycling process was sustainable at least 10 times without obvious efficiency decrease. The feasibility of