



## **A fluorescence probe based on molecularly imprinted polymer coated on CdTe quantum dots for a selective determination of amoxicillin**

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A fluorescence probe based on molecularly imprinted polymer coated on CdTe quantum dots (MIP@CdTe QDs) were fabricated for the determination of amoxicillin. The MIP@CdTe QDs were synthesized through precipitation polymerization process using amoxicillin (AMX), 3-aminopropyltriethoxysilane (APTES) and tetraethoxysilane (TEOS) as a template, functional monomer and cross-linker, respectively. The MIP@CdTe QDs exhibited highly selective and sensitive fluorescence probe for the determination of amoxicillin. Fluorescence intensity of MIP@CdTe QDs was more strongly quenched by amoxicillin than that of the non-imprinted polymer (NIP@CdTe QDs). Under the optimum condition, pH of MIP@CdTe QDs of 8.0 and incubation time of 25 minutes, the probe exhibited fluorescence quenching response to amoxicillin in the range of 0.50 to 50  $\mu\text{g kg}^{-1}$  with a detection limit of 1.47  $\mu\text{g kg}^{-1}$ . The developed method was applied to determination of amoxicillin in milk with satisfactory recoveries of > 80% and the relative standard deviation less than 10%.

**Keywords** molecularly imprinted polymer; quantum dots; amoxicillin