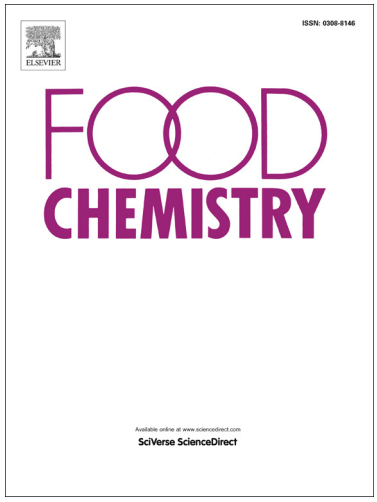

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Aptamer-mediated colorimetric method for rapid and sensitive detection of chloramphenicol in food

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Abstract

We report an aptamer-mediated colorimetric method for sensitive detection of chloramphenicol (CAP). The aptamer of CAP is immobilized by the hybridization with pre-immobilized capture probe in the microtiter plate. The horseradish peroxidase (HRP) is covalently attached to the aptamer by the biotin-streptavidin system for signal production. CAP will preferably bind with aptamer due to the high binding affinity, which attributes to the release of aptamer and HRP and thus, affects the optical signal intensity. Quantitative determination of CAP is successfully achieved in the wide range from 0.001 to 1000 ng/mL with detection limit of 0.0031 ng/mL, which is more sensitive than traditional immunoassays. This method is further validated by measuring the recovery of CAP spiked in two different food matrices (honey and fish). The aptamer-mediated colorimetric method can be a useful protocol for rapid and sensitive screening of CAP, and may be used as an alternative means for traditional immunoassays.

Keywords: food safety; chloramphenicol; aptamer; colorimetric method; honey; fish; rapid detection;

Running title: Aptamer based colorimetric detection of CAP

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