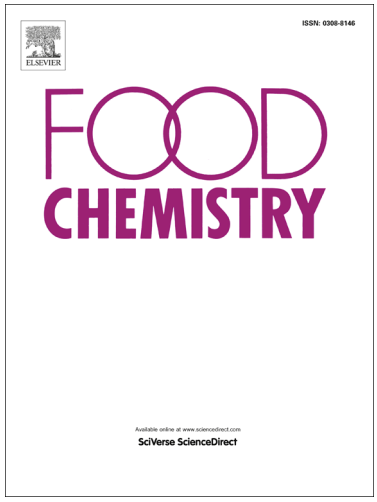

Colloidal gold-based immunochromatographic strip assay for the rapid detection of three natural estrogens in milk

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Colloidal gold-based immunochromatographic strip assay for the rapid detection of three natural estrogens in milk

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Abstract: In this study, we developed highly sensitive and specific monoclonal antibodies (mAbs) against estrone (E_1), 17β-estradiol (17β-E_2), and estriol (E_3). The half-maximal inhibitory concentration values of anti-E_1, anti-17β-E_2, and anti-E_3 mAbs were 0.46, 0.36, and 0.39 ng/mL, respectively, based on competitive enzyme-linked immunosorbent assay (ic-ELISA) results. A rapid colloidal gold-based immunoassay strip assay was developed for the determination of E_1, 17β-E_2, and E_3 residues in milk samples. The assay had a visual cut-off value of 5 ng/mL, and required 10 min to assess with the naked eye. The results obtained from the immunochromatographic strip assay were consistent with those obtained from ic-ELISA and gas chromatography–mass spectrometry. The immunochromatographic strip assay is useful and rapid for the detection of E_1, 17β-E_2, and E_3 in milk.

Keywords: estrone; 17β-estradiol; estriol; monoclonal antibody; immunochromatographic strip.