

Supplementary materials

Dual flow immunochromatographic assay for rapid and simultaneous quantitative detection of ochratoxin A and zearalenone in corn, wheat and feed samples

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Table S1 Optimal conditions of the dual flow immunochromatographic assay

Item	Ochratoxin A	Zeralenone
Diameter of GNPs	40 nm	
NC membrane	Sartorius UniSart CN140	
Conjugated pad	Ahlstrom 6613	
Sample pad	SB08	
Volume of GNPs-labeled mAbs	4 $\mu\text{l}/\text{cm}^2$	16 $\mu\text{l}/\text{cm}^2$
Concentration of test lines	1 μl of OTA-OVA, (0.3 mg/ml)	1 μl ZEN-BSA (0.1 mg/ml)
Concentration of control line	1 μl of goat anti mouse IgG (0.3 mg/ml)	

Table S2 Buffer types, optimum buffers, and optimum concentrations of additives in the dual flow immunochromatographic assay

Buffers	Optimum buffers	Optimum types and concentrations of buffer additives (w/v)
Coating antigen buffer	50 mM phosphate buffer saline (PBS, pH 7.4)	–
Sample and conjugate pads pretreated buffer	10 mM phosphate buffer saline (PBS, pH 7.4)	2% OVA (w/v), 2% sucrose (w/v) and 0.02% NaN_3 (w/v)
Gold-labeled antibody resuspension buffer	2 mM borate buffer (BB, pH 7.4)	1% BSA (w/v), 6% sucrose (w/v), 0.2% PEG 20000 and 0.05% sodium azide (w/v)
GNPs-labeled antibodies storage, dilution and conjugation buffer	50 mM borate buffer (BB, pH 8.0)	5% (w/v) trehalose, 1% OVA (w/v) and 0.02% NaN_3 (w/v)

–, no additives

Table S3 Comparison of results of gold nanoparticles-based immunochromatographic assay published in the past

Target analyte	Limit of detection (ng/ml)	Working range (ng/ml)	Ref.
OTA	500	–	(Cho et al., 2005)
OTA	1	–	(Anfossi et al., 2012)
OTA	0.05	–	(Zhang et al., 2018)
OTA	0.20	–	(Majdinasab et al., 2015)
ZEN	100	–	(Luo et al., 2013)
ZEN	15	–	(Ji et al., 2017)
ZEN	0.84	–	(Sun et al., 2014)
ZEN	2.5	–	(Shim et al., 2009b)
DON and ZEN	ZEN: 6	–	(Huang et al., 2012)
ZEN and FB_1	ZEN:0.35	ZEN: 0.94–7.52	(Wang et al., 2013)
OTA and ZEN	OTA: 0.77, ZEN:1.20	–	(Sun et al., 2016)
OTA and ZEN	OTA:2.5, ZEN: 5	–	(Shim et al., 2009a)
AFB_1 , OTA and ZEN	OTA:0.5, ZEN:1	–	(Li et al., 2013)
OTA and ZEN	OTA: 0.32, ZEN: 0.58	OTA: 0.53–12.16 ZEN: 1.06–39.72	This study

–, not mentioned

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