

Determination of porcine gelatin in edible bird's nest by competitive indirect ELISA based on anti-peptide polyclonal antibody

ABSTRACT

Competitive indirect enzyme-linked immunosorbent assay (ELISA) was developed for rapid detection of porcine gelatin in edible bird's nest (EBN). Three ELISAs were developed by using polyclonal rabbit antibodies against porcine species-specific amino acid sequences of collagen 2 (I) chain (pAb1 and pAb2) and 1 (I) chain (pAb3). The limit of detection (IC₁₅) of the three ELISAs was 0.033, 0.082 and 0.052 g/mL respectively. The median inhibitory concentration (IC₅₀) of pAb1, pAb2 and pAb3 was 0.265, 0.394 and 0.228 g/mL respectively, as well as able to recognise porcine and bovine gelatins. pAb1 showed slight cross-reactivity with cave nest and egg white, while pAb2 exhibited slight cross-reactivity with blood cave nest and egg white. No cross-reactivity was observed with EBNs and egg white for pAb3. The recoveries of porcine gelatin spiked EBNs were in the range of 62.86-125.4% with intra- and inter-day coefficient of variants (CVs) of 2.965.4% and 4.769.6% respectively when using pAb3. Taking into account all abovementioned factors, pAb3 appeared sufficient for EBN authentication.

Keyword: Edible bird's nest; Gelatin; Polyclonal antibodies; Competitive indirect ELISA