

Development of antipeptide enzyme-linked immunosorbent assay for determination of gelatin in confectionery products

ABSTRACT

The gelatin sources have become a controversial issue with regard to religious and health concern. Thus, the aims of this study were to develop and evaluate the efficiency of polyclonal antibodies against peptide immunogen of collagen 2 (I) chain for determination of gelatin sources in confectionery products by competitive indirect enzyme-linked immunosorbent assay (ELISA). Collagen 2 (I) chain protein showed resistance against heat treatment and detectable in certain commercial products when analysed by sodium dodecyl sulphate-polyacrylamide gel electrophoresis (SDS-PAGE). The established ELISA exhibited low cross-reactivity to fish and chicken gelatin. The IC₅₀ value was 0.39 g mL⁻¹, and the limit of detection (IC₁₀) was 0.05 g mL⁻¹. There were no false-positive results from forty-eight commercially processed products. The present method is useful for determination of gelatin in confectionery products.

Keyword: Collagen 2 (I) chain; Enzyme-linked immunosorbent assay; Gelatin; Polyclonal antibody; SDS-PAGE