

## Development of anti-peptide 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  $\alpha 2(I)$  chain for determination of gelatin sources in confectionery products by competitive indirect enzyme-linked immunosorbent assay (ELISA). Collagen  $\alpha 2(I)$  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  $IC_{50}$  value was  $0.39 \text{ g mL}^{-1}$ , and the limit of detection ( $IC_{10}$ ) was  $0.05 \text{ g mL}^{-1}$ . 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  $\alpha 2(I)$  chain; Enzyme-linked immunosorbent assay; Gelatin; Polyclonal antibody; SDS-PAGE