

Quantitative Sandwich ELISA for the Determination of Lupine (*Lupinus* spp.) in Foods

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Abstract:

The use of lupin in foods has increased considerably during the past decade, reflected by a corresponding increase in reported lupine-induced allergic incidents. Lupine allergy may arise either by primary sensitization or by clinical cross-reactivity in peanut-allergic persons. Detection of lupine proteins in food has previously been based on the use of patient serum. A novel sandwich enzyme-linked immunosorbent assay (ELISA) for the detection and quantification of lupine in processed foods was developed, using a polyclonal rabbit antilupine capture antibody and a biotinylated conjugate of the same antibody for detection. The antibody was highly specific for lupine, apart from minor cross-reactivities to other legumes. The assay had a detection limit of 1 g/g and was successfully used to quantify lupine protein in various food matrixes. Recoveries ranged from 60 to 116%, while the intra-and interassay coefficients of variation were <6% and <21%, respectively.

Keywords: Allergen; ELISA; food allergy; lupine

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