Residual Protein and Potential Allergenicity in Processed Products from Allergenic Source Materials 2010 – 2011

The Australia New Zealand Food Standards Code (FSC) requires labelling of all foods containing ingredients, ingredients of compound ingredients, food additives or components of food additives, or processing aids or components of processing aids from specified source materials. The regulatory process allows parties to seek an exemption from the mandatory labelling requirements of the standard if it can be demonstrated that the inclusion of material from an allergic source is not likely to present a risk of allergic reactions in allergic consumers.

The aim of this project was to analyse the potential impact of certain food processing technologies on the allergen content of various food matrices. The project analysed three food products from allergic sources for residual levels of protein. The food products were lactose from milk, alcohol from grain and refined oil from soy. These products represented three distinct food processes; recrystallisation, distillation and oil extraction and refining.

Analytical results from doubly recrystallised refined lactose from whey found whey-specific protein at concentrations in the range 1.9-5.3 mg/kg in nine out of ten samples. Total soluble protein (Bradford method) was detected in all samples, with concentrations in the range 5.9-11.3 mg/kg. No regulatory assessments of the allergenic potential of lactose from whey were identified.

Testing of ten food-grade grain ethanol samples did not detect gluten protein (limit of detection = 1 mg/L) or general soluble protein (limit of detection = 0.12 mg/L). These results are consistent with the results of protein testing reported in the scientific literature and in an EFSA assessment. Analytical evidence supports the proposition that gluten proteins and peptides are not carried over in the distillation process and are not present in grain ethanol.

Testing of refined oil from soybeans did not detect soy-specific protein (limit of detection = 1 mg/kg). The Bradford general soluble protein method did not detect protein in any oil sample above the method limit of detection (0.5 mg/kg). The scientific literature reports quite widely varying protein concentrations for soybean oil. However, the results of the current study are largely consistent with recent reports for refined soybean oil, which generally contain lower protein concentrations than crude or cold-pressed soybean oils.

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