TECHNICAL DATA SHEET
PROTEON SOY EXPRESS

Scope

PROTEON SOY EXPRESS is an immunochromatographic test in the form of rapid strips for the detection of soy proteins which uses the protein β-conglycinin as an indicator, as it is one of the main storage proteins in soybeans and has allergenic properties.

Applicability

The Proteon Soy Express test can be applied to detect soy proteins in solid and liquid foods, rinse waters and work surfaces.

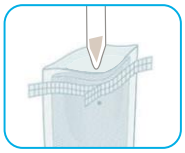
Test procedure

Detailed information on the procedure is available in the product script.

Analysis of food and rinse waters

1g/10 ml AB
1 mL/9 ml AB

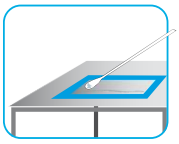
Rub the mixture
1-2 min approx



Collect the
filtered sample

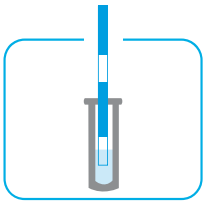
Analysis of surfaces

Dip a swab in
0.5 ml of AB

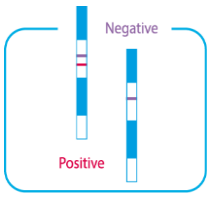


Swab the surface

Stir



Introduce the strip
and wait for 10 min
(15-25 °C)



Results

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Analytical parameters of the test

Table 1. Analytical parameters of the Proteon Soy Express test

Detection limit in food[1]	1.2 ppm soy proteins
Detection limit on surfaces[2]	0.7 µg soy proteins
Working range[3]	1.2-10000 ppm soy proteins

[1]The detection limit of the test is calculated using the POD (Probability of detection) method.

[2]In the application of work surfaces the detection limit was calculated by analyzing a stainless steel surface.

[3]Concentrations above 10 g/kg of protein can give negative results. It is recommended to carry out an additional dilution in the extraction phase of these samples.

Twelve food matrices, belonging to different food groups, were doped with known amounts of soy protein to calculate the limit of detection. For further information contact ZEULAB.

The effect of thermal processing was analyzed by studying the level of detection in baked bread and sausages subjected to pasteurization. It was made with known levels of soy, following the guidelines of the AACC (2000). Levels of 0.03% of soy proteins were detected in baked bread and 0.06% in pasteurized sausage. Therefore, Proteon Soy Express is capable of detecting soy in processed foods subjected to pasteurization and baking.

However, sterilization is not compatible with the correct performance of this test, due to the fact that the combination of high temperature and high pressure can adversely affect the structure of proteins and therefore their recognition by antibodies. ZEULAB has a complement to improve detection in this type of matrices (ZE/PRS/PLUS). Consult with ZEULAB for more information.

Specificity

Specificity was evaluated against a panel of basic ingredients. The results are shown in Table 2. All these matrices were analyzed in parallel with the Sandwich ELISA test against β-conglycinin to confirm the absence of soy proteins.

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Table 2. Results of the specificity assays of the Proteon Soy Express test

Ingredient	*Result*	*Ingredient*	*Result*	*Ingredient*	*Result*
Raw almond	NEGATIVE	Sesame	NEGATIVE	Red beans	NEGATIVE
Macadamia nut	NEGATIVE	Buckwheat	NEGATIVE	Cocoa	NEGATIVE
Cashew	NEGATIVE	Rye	NEGATIVE	Coconut	NEGATIVE
Nut	NEGATIVE	Barley	NEGATIVE	Milk	NEGATIVE
Brazil nut	NEGATIVE	Wheat	NEGATIVE	Egg	NEGATIVE
Pecan	NEGATIVE	Oats	NEGATIVE	Raw meat (chicken)	NEGATIVE
Pistachio	NEGATIVE	Cornmeal	NEGATIVE	Raw meat (beef)	NEGATIVE
Hazelnut	NEGATIVE	Lupine	NEGATIVE	Raw fish (cod)	NEGATIVE
Peanut	NEGATIVE	Integral rice	NEGATIVE	Crustacean (prawns)	NEGATIVE
Poppy seed	NEGATIVE	Rice	NEGATIVE	Kiwi	
Sunflower seed	NEGATIVE	Chickpea	NEGATIVE	Carrot	
Pinions	NEGATIVE	lentil			
Pumpkin seed	NEGATIVE	Pea			

Conversion factors

Table 3. Conversion factors between soy and soy proteins.

Soy Proteins	Soy
1 ppm	2.85 ppm

Bibliography

AACC, C., (2000). Approved methods of the American association of cereal chemists. Method 10-50D, Methods, 54, pp. 21.

Appendix F: Guidelines for Standard Method Performance Requirements. Official Methods of Analysis (2016), AOAC INTERNATIONAL, Rockville, MD, USA (http://www.eoma.aoac.org/app_f.pdf)

Appendix M: Validation Procedures for Quantitative Food Allergen ELISA Methods: Community Guidance and Best Practices. Official Methods of Analysis (2012), AOAC INTERNATIONAL, Rockville, MD, USA (http://www.eoma.aoac.org/app_m.pdf)

Guidance on food allergen management for food manufactures (2013), Food and Drink Europe, Brussels, Belgium (http://www.fooddrinkeurope.eu/uploads/press-releases_documents/temp_file_FINAL_Allergen_A4_web1.pdf)

BEDCA. Bases de datos Española de composición de alimentos. https://www.bedca.net/bdpub/index.php

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