

TECHNICAL DATA SHEET

PROTEON ALMOND EXPRESS

Scope

PROTEON ALMOND EXPRESS is an immunochromatographic test in the form of rapid strips for the detection of almond proteins which uses the protein Pru du 6 as an indicator, as it is one of the main allergenic properties in almond. This protein is resistant to heat treatments.

Applicability

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

Test procedure

Detailed information on the procedure is available in the product script. The test procedure is presented schematically below:

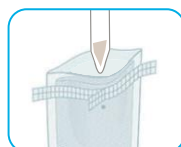
Analysis of food and rinse waters



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

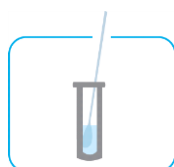


Rub the mixture
1-2 min approx

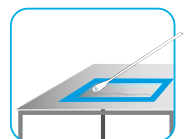


Collect the
filtered sample

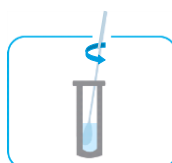
Analysis of surfaces



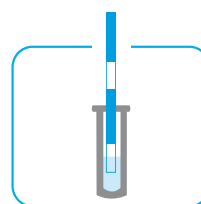
Dip a swab in
0.5 ml of AB



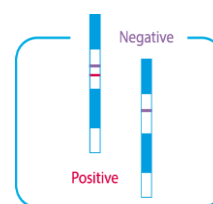
Swab the surface



Stir



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



Results

Analytical parameters of the test

Table 1. Analytical parameters of the Proteon Almond Express test

Detection limit in food¹	0.7 ppm almond proteins
Detection limit on surfaces²	0.9 µg almond proteins
Working range³	0.7-10000 ppm almond proteins

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

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

³Concentrations 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.

The limit of detection was confirmed by analyzing different matrices fortified with almond. Among the validated matrices are, dairy products, vegetable drinks, salad dressings, juices and alcoholic beverages. For further information contact ZEULAB.

The effect of thermal processing was analyzed by studying the level of detection in baked cookies made with known levels of almonds following the guidelines of the AACC (2000). Almond protein levels of up to 1.9 ppm protein were detected.

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 Pru du 6 to confirm the absence of almond proteins.

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

<i>Ingredient</i>	<i>Result</i>	<i>Ingredient</i>	<i>Result</i>	<i>Ingredient</i>	<i>Result</i>
Raw hazelnut	NEGATIVE	Sesame	NEGATIVE	Chickpeas	NEGATIVE
Cashew	NEGATIVE	Buckwheat	NEGATIVE	Pea	NEGATIVE
Walnut	NEGATIVE	Oats	NEGATIVE	Kiwi	NEGATIVE
Pecan nut	POSITIVE*	Wheat	NEGATIVE	Carrot	NEGATIVE
Brazil nut	NEGATIVE	Corn	NEGATIVE	Coconut	NEGATIVE
Pistachio	NEGATIVE	Rye	NEGATIVE	Cocoa	NEGATIVE
Poppy seeds	NEGATIVE	Barley	NEGATIVE	Lecithin	NEGATIVE
Pumpkin seeds	NEGATIVE	Lentils	NEGATIVE	Hake	NEGATIVE
Pinions	NEGATIVE	Soy	NEGATIVE	Chicken	NEGATIVE
Sunflower seeds	NEGATIVE	Beans	NEGATIVE	Egg	NEGATIVE

*Cross reaction <0.01% (The test can give a positive result above 10,000 ppm of pecan)

Conversion factors

Table 3. Conversion factors between almond and almond proteins.

Almond	Almond proteins
1 ppm	0.19 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>