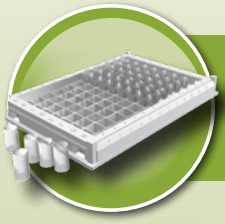
Test kits to detect soya also in strongly heated food

Soya belongs to the so called “Big 8” allergens and following the food labeling directive soya has to be labeled as ingredient worldwide.



ELISA

detects different relevant and also heated soya proteins

PCR

to approve ELISA results

R-Biopharm – for reliable analysis.

Allergens from soybeans

The soybean *(Glycine maxima)* from the legume family consists of about 35 % proteins and is therefore a great plant source of protein for human consumption. It is often used to produce oil, but also to produce soya sauce, soya milk, tofu, miso, tempeh or soya lecithin as an emulsifier.
Nowadays more and more soya products reach the supermarket. Parallel to this worldwide more and more soya allergies appear. The allergies appear with e.g. swelling in the mount, vomiting or cardiovascular symptoms.

This fact and the allergen labeling directive make a measurement of soya traces in food essential.

Gly m1 to Gly m6 are described as allergenic proteins. The main storage proteins are beta-conglycinin (Gly m5) and the thermostable glycinin (Gly m6) which can e.g. induce anaphylactic reactions in allergic patients. The soybean contains 30 % of these proteins. Beta-Conglycinin represents the major allergen in children. Furthermore the Kunitz Soybean Trypsin Inhibitor and a thiol protease are described as allergenic proteins. Dose-response experiments showed that various amounts of soya protein induce allergies, whereby 450 mg to 50 g can affect objective symptoms. If these proteins are determined e.g. by ELISA, soya allergic people must avoid such foods.

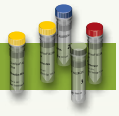
Testsystems

ELISA (Sandwich)

detects different relevant soya proteins,
like ß-Conglycinin (Gly m5), Glycinin (Gly m6), Kunitz Soybean Trypsin Inhibitor

detects denaturized soya proteins from raw material, soya flour, protein concentrates i.a. and is therefore also suitable for processed, strongly heated samples
(e.g. sausages, bakery goods, soups, sauces, margarine, ice cream, beverages)

ELISA specificities:	
detection limit (LOD):	0.31 mg/kg (ppm) soya protein
limit of quantification (LOQ):	2.5 mg/kg (ppm) soya protein
cross reactivity:	0.0017 % beans and 0.0003 % common tare but not to peanut, lentil, pea, lupine
test duration:	30 min



PCR (real-time)

to approve ELISA results

also suitable for fermented, DNA containing samples

PCR specificities:	
detection limit (LOD):	< 4 mg/kg (ppm) soya

The ELISA procedure

Sample preparation (add buffer, 10 min 100°C, centrifuge, dilute)

ELISA pipetting
(1. Standars and samples,
2. Conjugate,
3. Substrate/chromogen,
4. Stop reagent)

ELISA incubation
(3 x 10 min)

ELISA washing
(3 x 3)

ELISA measurement
(450 nm) and documentation
(RIDA®SOFT Win)

Example results

Waffle pastry (Soya declared on package)	5946 mg/kg soya protein
Noodle snack (Soya declared on package)	7.1 mg/kg soya protein
Crisp bread (undeclared)	< 2.5 mg/kg soya protein
Margarine (undeclared)	< 2.5 mg/kg soya protein
Soya sauce (fermented)	< 2.5 mg/kg soya protein

Soya traces can be examined certainly also in strongly heated samples. But hydrolyzed and fermented samples which only contain small protein fragments can not be determined using the described sandwich ELISA system. A competitive System is needed therefore. For further information please refer to the validation report.

r-biopharm

R-Biopharm's Product Portfolio for the soya detection

Product	Description	No. of Test/ Amount	Art. No.
RIDASCREEN®	**ELISA, Microtiter Plate**		
New! FAST Soya (Sandwich ELISA)	Quantitative determination of soya protein in food inclusively strongly heated samples, but not fermented or hydrolyzed samples. The test detects e.g. ß-Conglycinin, Glycinin and the Kunitz trypsin inhibitor. Beans and common tare show weak cross reactivity. Detection limit: 0.31 mg/kg (ppm) soya protein in sausages, ice cream, chocolate, bakery goods, bakery mixtures, soups, sauces, dressing, margarine, beverages	48 determinations Sample preparation: 25min Incubation time: 30min	R7102
SureFood® ALLERGEN	**Qualitative real-time PCR**		
Soya	Qualitative DNA determination Detection limit: < 5 DNA copies, ≤ 4 mg/kg (ppm) soya, depending on the matrix	100 reactions*	S3101

* contains 100 rections Inhibition Control MIX (ICM) additionally

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