



## Proteomics as a tool to improve investigation of substantial equivalence in genetically modified organisms: the case of a virus-resistant tomato

### Aim of the study

The aim of the study was to verify the usefulness of proteomics in evaluating the “substantial equivalence” of transgenic food.

### Analyte

Tomato seedlings

### Methodology

As a model for testing this kind of approach, we compared protein expression of two types of tomato plants, having the same genetic background, except for a virus resistance trait introduced by genetic engineering. Proteins were extracted from seedlings of the two types and analyzed by 2-DE (two-dimensional electrophoresis).

After staining, gels were compared by image analysis and statistical analysis. Most abundant proteins were identified by mass spectrometry.

### System Tomato (*Solanum lycopersicum*)

**Customer** This study was performed in collaboration with Istituto di Virologia Vegetale, Consiglio Nazionale delle Ricerche, Torino, Italy; Dipartimento di Chimica IFM, Università di Torino, Torino, Italy; Dipartimento di Biologia Strutturale e Funzionale, Università dell’Insubria, Varese, Italy.

### Results

When proteins extracted from seedlings of the two types were analyzed by 2-DE (two-dimensional electrophoresis), no significant difference, either qualitative or quantitative, was detected, indicating that in this case the expression of major proteins was unmodified by the genetic manipulation. Furthermore, most abundant proteins were identified by mass spectrometry, in order to obtain a representative tomato seedlings proteome map.

### Advantage of the methodology

Proteomic approach allowed a more in depth analysis for the verification of “substantial equivalence” of transgenic food, i.e., its complete correspondence, from an alimentary point of view, to the “traditional” one from which it derives.

#### Contact us:

ABLE Biosciences is part of GEM FORLAB Srl

Registered and administrative office: Via Maestri del Lavoro, 25 12022 Busca (CN)

Business office: Via Ribes, 5 - 10010 Colletterto Giacosa (TO) (c/o Bioindustry Park - Building U)

VAT No./Tax Code 03701860045

Ph. +39 0125 53915 - Fax 0171/944810

E-mail: info@gemforlab.com

WEB: <http://www.gemforlab.com>