DESCRIPTION OF THE RESEARCH RESULTS

TITLE

Procedure of determination of soybean proteins in pork meat products treated with heat, by liquid chromatography of high effectiveness of perfusion in reversed-phase

ABSTRACT

A research group from the Analytical Chemistry and Chemical Engineering Department of Alcala University has developed a method for the detection of soybean proteins in pork products treated with heat. This method is based on liquid chromatography by means of the application of a lineal and binary gradient of high effectiveness of perfusion in reversed-phase. This allows to reach a trustworthy soybean protein quantification. The group is looking for manufacturing agreements.

DESCRIPTION AND SPECIAL FEATURES

The technology is based on an analytical method of liquid chromatography of high effectiveness (CLAE) of perfusion in reversed-phase that allows determining soybean proteins in pork products treated with heat.
The meat foodstuff is prepared for analysis in two stages:

1. The fat is removed with acetone.
2. Once the fat of the product has been removed and the product is dry, it is made soluble in a tampon, obtaining a solution of the protein extract.

In this solution we can find both, soybean and meat proteins. To separate them we use a chromatography in one column perfusion in reversed-phase using two movable steps. The wavelength used is 280nm. We obtain an 8 peak chromatogram in which peaks 2, 3, 5, 6 and 7 are for soybeans proteins and peaks 1, 4 and 8 are a mix of soybean and meat proteins. The quantifying of soybeans proteins is made by the interpolation of the addition of the peak areas 5 and 6 in the calibrated line obtained by using as reference an isolation of soybean protein.

This chromatographic analysis is remarkably fast. It is an easy, cheap, fast and reliable process of easy industrial application.

It is a big step forward the quality and safety control of food that can be applied in the pork foodstuff processing industry.

INNOVATIVE ASPECTS

This technology can be applied in meat foodstuff treated with heat while most of this kind of analysis is made on raw products or synthetic mixtures.

So far, the only method for meat foodstuff treated with heat (ELISA method) is slow, very expensive and its results are semi-quantitative. This new method is faster, cheaper and the results are reliable and quantitative. It means a huge improvement for the daily analysis and quality control of these products.

TECHNOLOGY KEYWORDS

Feeding industry technologies
Foods technologies
Foods quality and safety
Analysis and detection methods
Nutrition and health

SCIENTIFIC DOMAINS

- Information and Communication Technologies
- Industrial Manufacture, Material and Transport technologies
- Biological Sciences
- Agriculture and Marine Resources
- Agrofood Industry
CURRENT STAGE OF DEVELOPMENT OF THE RESEARCH RESULT

- Development phase
- Developed, available for demonstration
- Already on the market

FUNDING RESEARCH

- European RTD project
- Regional project
- National project
- Private funding

COMMERCIAL ASPECTS

COMPETITIVE ADVANTAGES

It is a fast method of analysis that requires a basic instrumentation, available for all quality control laboratories and it has an easy industrial application. The results are very reliable so it is easy to control the percentage of soybeans in the meat foodstuff and so be assured that it does not exceed the maximum permitted by law in accordance with the laws of each country.

CURRENT STATE OF INDUSTRIAL AND INTELLECTUAL PROPERTY

- Patent applied
- Patent granted
- Software registered
- Exclusive rights
- Secret know how
- Copyright protected
COMMENTS

Patent granted with date 16/12/2006
Reference P200401143

TYPE OF COLLABORATION SOUGHT

☑ Technical cooperation
☐ Joint venture agreement
☐ Manufacturing agreement
☐ Commercial agreement with technical assistance
☐ License agreement

COMMENTS

The group is looking for technical cooperation agreements with companies from the alimentary sector specifically, meat industry. The group offers the development and adaptation of the technology to the enterprises’ requirements.

The technical cooperation will be done mainly in the areas of food quality control and safety.

ADDITIONAL INFORMATION (PICTURES)
## OTRI Contact Details

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