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cycles of French fries and traditional frozen products. Samples were collected every 4 hours, until a total of 25% polar compounds was achieved, the single limitation for compulsory discharge within EU. Besides evaluating the oils behaviour under frying and the fried products acceptance, the bath was also evaluated for acidity and fatty acid composition.

Under the assay conditions, sunflower oil was the first to achieve the rejection point, with 28h of frying, followed by soybean (30h) and corn (32h), while both rapeseed and peanut achieved 44h. The results were further discussed in terms of acidity, fatty acid composition, including *trans*, and consumer's acceptance in terms of flavour. Based on these findings, the development of new formulations is expected to be profitable for both industry and consumers: the addition of rapessed and/or peanut oil will improve oil stability while providing the consumers with healthier oils in terms of fatty acid composition.

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Keywords: Vegetable oils, Frying in real conditions, Polar compounds, trans isomers

[P038]

Polymerase chain reaction for soybean detection in heat processed meat products

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Since vegetable proteins are considerably cheaper than muscle proteins, they are frequently used as meat extenders in order to reduce the cost of the final product. Due to several interesting characteristics, soybean is reported to be the most widely used vegetable protein in the meat industry. Nevertheless, soybean is included in the group of 12 ingredients potentially allergenic, which should therefore be labelled according to the Codex Alimentarius FAO/WHO and the European Commission (Directive 2003/89/EC). In fact, it has been described that amounts of soy bellow 0.1% and 1% (w/w) can lead to allergic reactions in sensitive consumers (1).

The analytical methods used for soybean detection in foods rely mainly on protein and DNA analysis. However, it has been referred that protein-based methods can be significantly less sensitive in the evaluation of thermally processed foods because of protein denaturation. Recently, the analysis of DNA coupled with polymerase chain reaction (PCR) presents a fast, sensitive and highly specific alternative to protein-based methods.

The aim of the present work was to develop PCR techniques able to identify soybean in highly processed meat products. Specific primers designed for soybean detection based on the *lectin* gene were used. The methodology was optimized using reference binary samples with different known percentages of pork meat and soybean protein, prepared in the laboratory. To evaluate the effect of thermal treatment, identical binary mixtures were submitted to heat treatment in an autoclave at 121ºC for 5 min.

Results showed that detection of soybean was successful in all raw mixtures until the level of 0.1%. Regarding the autoclaved samples, detection was only achieved for levels ≥ 0.5% of soybean, probably due to thermally induced DNA degradation. Several commercial samples of Frankfurt or Frankfurt like sausages were tested to detect the presence of soybean in compliance with the label statements.

(1) S.J. Koppelman, C.M.M. Lakemond, R. Vlooswijk, S.L. Hefle, Detection of soy proteins in processed foods: literature overview and new experimental work, J. AOAC Int. 87 (2004) 1398.

Keywords: Polymerase chain reaction , processed meat products, soybean protein, sausage