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ASPA 25th Congress Book of Abstract

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ASPA 25th Congress

Monopoli (BARI – ITALY), June 13–16, 2023

Guest Editors

Angela Gabriella D'Alessandro, Pasquale De Palo, Aristide Maggiolino, and Marcello Mele

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ASPA 25th Congress Book of Abstract

The 25th congress of the Animal Science and Production Association

"Animal Production Science: Innovations and sustainability for future generation" is under patronage of Loghi patrocini

Monopoli (BARI – ITALY),

June 13–16, 2023

Venue

Torre Cintola Natural Sea Emotions

Località Capitolo – Monopoli (BARI – ITALY)

O272

Development of a highly sensitivity analytical method for the determination of PAHs in BABY food (meat puree) by optimized QuEChERS extraction and determination by GC/MS-MS

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Polycyclic Aromatic Hydrocarbons (PAHs) are very important environmental pollutants which can contaminate several types of food. Their presence in specific foodstuffs can also be due to particular cooking practices (i.e. grilling). PAHs are mutagenic and carcinogenic, thus the European Union and the US Environmental Protection Agency (EPA) added these compounds in the priority list of pollutants, so that their presence in food must be steadily monitored. In Europe, the Regulation (EU) No. 835/2011 establishes maximum residue levels (MRLs) for PAHs in food products.

Due to their presence also at very low levels, the analytical determination of PAHs requires high method sensitivity and selectivity. The aim of this study was the optimization and validation of a novel analytical method for the detection and quantification of 4 PAHs (benzo[a]anthracene, chrysene, benzo[b]fluoranthene, benzo[a]pyrene) in baby food, based on GC-MS/MS. Different extraction/purification methods and several detection parameters were compared in order to optimize method sensitivity by means of GC-MS/MS.

The full dataset was evaluated by comparing data using Box Plot which is a very useful tool of graphic representation used for managing quantitative data and to optimize analytical methods. In this regard, the capability of comparing many distributions in the same graph, highlighting the most significant characteristics such as symmetry, range, variance and possible outliers can be considered as the main strength of such tool.

Validation parameters such as specificity, linearity, LODs and LOQs, precision, recovery and ruggedness were determined. From the tests carried out, it was found that the method is very sensitive, reaching concentrations up to 100 ng kg^{-1}. Indeed, the LODs and LOQs were in the range 58–108 ng kg^{-1} for chrysene and benzo[a]pyrene, respectively. The accuracy parameters were satisfactory, in accordance with Regulation N° 183/2011, in terms of both CV% (<6.5%) and recovery percentage (in the range 73–110%).

In conclusion, this method optimization allowed the development of a very sensitive and accurate analytical method for the detection of 4 PAHs in baby food which particularly need the assurance of chemical contaminants absence.

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O485

Effect of aS1 casein level on stretchability of goat curd

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Protein genetic variants of goat milk have been studied for more than 40 years and it is known that α_{s1}-CN presents a remarkable variability that is also connected to different level of synthesis. In fact, dairy goats can present a low, medium or high α_{s1}-CN content connected to more than 10 different genetic variants influencing the expression of this protein fraction. These genetic variants affects both the milk composition and the coagulation properties. In fact, fat globule size and the presence of the polar lipids varies based on α_{s1}-CN content; larger fat globule and low polar lipids are connected to high amount of this protein. Several studies reported a correlation between the milk coagulation properties and α_{s1}-CN content, with shorter coagulation time in the presence of low level but firmer curds in conjunction with high level. Recently, protocols for manufacturing high moisture mozzarella from goat milk have been developed, but no investigation has been performed on the stretching behaviour of goat milk in comparison with cow milk. The present work resumes the outcomes of a study carried out in Apulia and Basilicata Region, aimed at finding goat milks with different profiles of α_{s1}-CN and evaluating the stretching properties of the curd derived therefrom. Electrophoresis was used for casein characterization and Texture Profile Analysis (TPA) for evaluating the stretching properties. More than 30 milk samples were collected and three of them used for the cheesemaking trials al laboratory level. The results of TPA revealed significant differences in the stretching properties in connection with the α_{s1}-CN profile. This study shed light on the stretching properties of goat milk and could be useful for dairy manufacturers for standardizing the protocols for the production of goat pasta filata cheeses.

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Essential and toxic mineral content of colostrum and milk in dairy sheep

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