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STUDIES ON NUTRITIONAL LABELING OF MEAT PRODUCTS IN ROMANIA

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Abstract: *This paper presents a part of the research results obtained within the FP7- PEOPLE-2012-IRSES- Project no. 318946-Nutritional Labeling study in Black Sea Region Countries. This study takes into consideration meat products from the nutritional labelling point of view, considering the EU requirements no. 432/2012, 1169/2011, 1333/2008 and1924/2006. From 194 analyzed meat products, 20.10 % fulfilled all mandatory criterions. A special attention needs to be paid to the 3rd criterion related to allergens that can be found in many meat based products (soy, mustard, celery, lactose, egg, gluten, etc).*

Key words: *nutritional labelling, EU regulation, meat products.*

1. Introduction

The new food safety Requirements from the last decade led to the appearance of EU regulations regarding nutritional labeling of food products. The most important Regulations are: 432/2012, 1169/2011, 1333/2008, 1924/2006 [1], and the main obligatory criteria are [3]:

- Product title;
- List of ingredients;
- Substances that cause allergies or intolerances (peanuts, milk, mustard);
- Quantity of certain ingredients; Net quantity of food products;
- Date of minimum availability; Special storing conditions;
- Name and address of manufacturer;
- Country of origin;
- Instructions for use, in cases when their omission could make the consumption of food products more difficult;
- Nutritional criteria;

The obligatory information needs to be written in a language that is easy to understand by each consumer, and if necessary in other languages [2].

This paper contains results of a study performed on meat products within the project the Project FP7-PEOPLE-2012-IRSES 318946 – Nutritional Labeling in the Black Sea Region Countries (NUTRILAB) [3]. The Nutrilab project is a multidisciplinary and comparative Joint Exchange Programme with a mission to identify and examine how nutritional labeling in EU countries and outside Europe fulfills the present legislation requirements.

2. Materials and Methods

According to the EU nutritional labeling regulation, the information needs to be written on the food product label, is

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divided into 16 obligatory criteria and 10 optional ones.

The obligatory criteria were defined:

- ✓ list of ingredients;
- ✓ substances or products causing allergies or intolerance;
- ✓ quantity of certain ingredients or categories of ingredients;
- ✓ net quantity of the food, (g, ml, kg), the date of minimum availability or the 'use by' date;
- ✓ any special storage conditions and/or conditions of use;
- ✓ name or business name and address of the food business operator;
- ✓ country of origin or place of provenance;
- ✓ instructions for use where it would be difficult appropriately use the food in the absence of such instructions;
- ✓ language, font size;
- ✓ energy value, per portion or %, kcal and kJ, fat, protein, carbohydrates.

Optional criteria (from 17-26) were defined as: saturated fatty acids, sugars, salt, poliols, starch, fibers, MUFA – PUFA, vitamins, minerals, conclusions.

The products were provided by the main supermarkets from Brasov in the period 1.01.2013 - 30.06.2014, and agreed to provide access for the working teams, on the condition of confidentiality.

The meat products have been divided into six main categories: sausages, processed meat, meat specialties, frankfurters, baloney and salami.

The studied products were photographed both on the front and back to obtain all the information from the labels. The obtained JPEG files were classified into similar directories, a structure mentioned above. The fields corresponding to each category of information were filled in with the following type of content:

- Product name: text information;
- List of ingredients: text information;
- Net quantity, the date of minimum availability….: binary character 1 or 0 depending on the presence or absence of information on the label;
- Substances that cause allergies or intolerance….: binary character Y or N, depending on the compliance or noncompliance.

Interpretation of data was performed by using "COUNTIF" for counting the symbols Y, N, 1 or 0. The criteria according to which the presence or absence of information reflects specific compliance or non-compliance with the Regulation were marked as 1 or 0.

The analyses were done within a meat product category, a subcategory of products (sausage, salami, baloney, etc) and for all products in a given category, in a specific worksheet named "analysis".

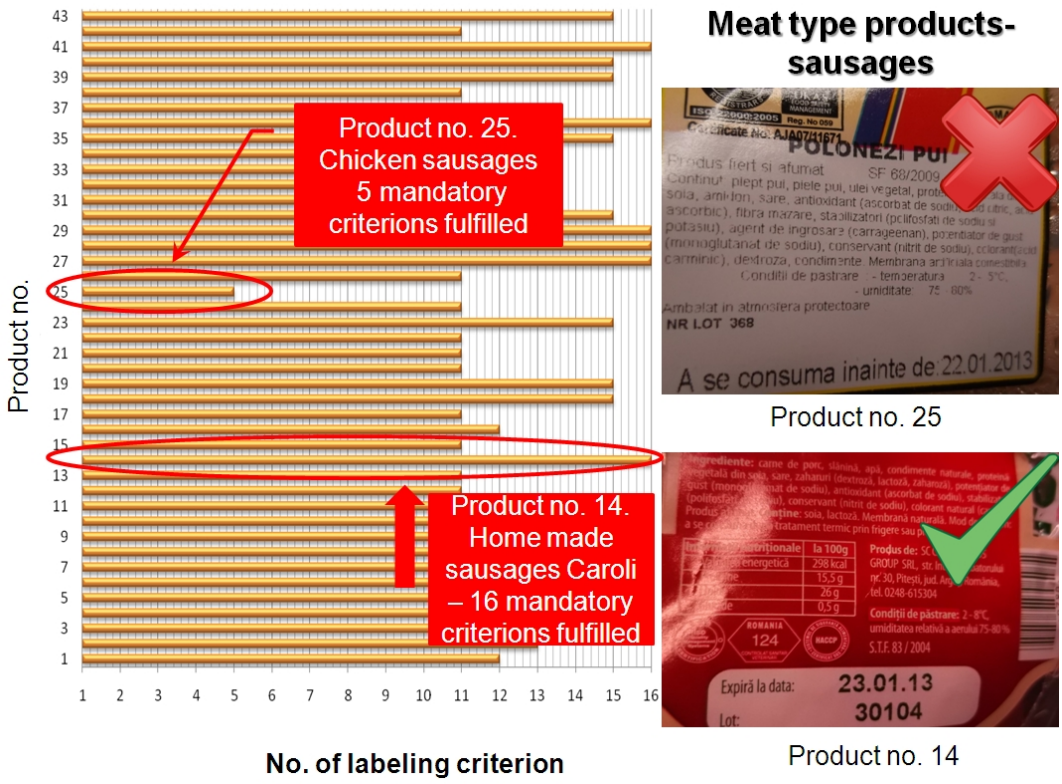
Thus, all classes of products showing compliance to a particular criterion were evaluated.

A particular interest is given to the determination of the percentage of products that meet simultaneously all the eligibility criteria imposed by the present European legislation. By adding the vertical results of assessments carried out horizontally it is possible to have all the products that fully comply with the mandatory labeling requirements. By reporting the total number of products, one can determine the percentage of products that satisfy simultaneously all the criteria for labeling.

3. Results

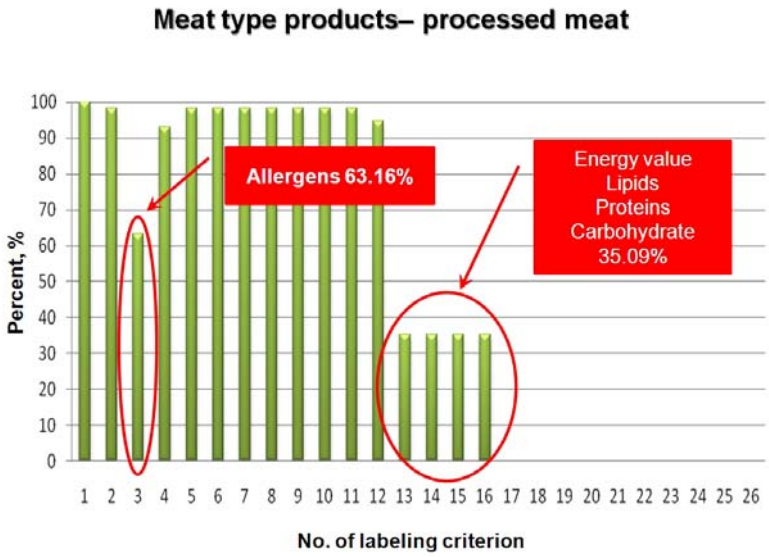
After processing the information retrieved from a total of 194 meat labels in the period 1.01.2013 - 30.06.2014, the following results, presented by product category, were obtained.

a.

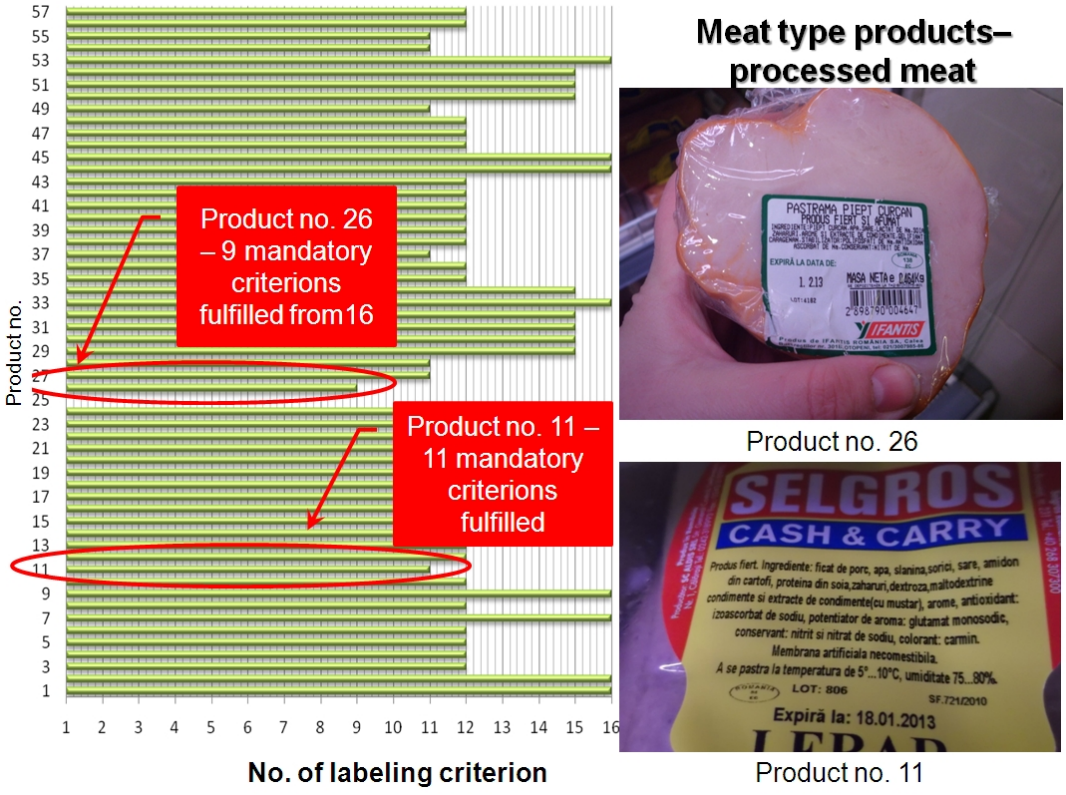


b.

Fig. 1. *Interview results for sausages*
(a-percent depending on labeling criterion; b-product number depending on labeling criterion)



a.



b.

Fig. 2. *Interview results for processed meat*
(a-percent depending on labeling criterion; b-product number depending on labeling criterion)

In figure 1a the degree of fulfilling the mandatory criteria (first 16) and of the optional ones (17-26) for sausage type products can be observed. It can be seen that the 3rd criterion (proper labeling of products containing allergens or substances that may cause allergies), is fulfilled in a proportion of only 18.6%. The criteria regarding energy value, fat content, protein and carbohydrates content (13,14,15,16), are fulfilled in a proportion of 48.84%. Also it can be seen that not even one optional criterion is fulfilled.

In figure 1b, from a total of 43 analyzed products, only 6 products fulfill all 16 mandatory criteria, product number 25 fulfills only 5 of the criteria. A number of 14 products fulfill 15 mandatory criteria, and other 18 only 11 criteria.

For the processed meat type of products, the fulfillment degree of the mandatory criteria (first 16) and the optional ones (17-26) can be observed in figure 2a. It is shown that the 3rd criterion (proper labeling of products containing allergens or substances that may cause allergies), is fulfilled to the extent of 63.16%. The criteria regarding energy value, fat content, protein and carbohydrate content (13,14,15,16), are fulfilled to the extent of 35.09%. Like in the previous case no optional criterion is observed.

In figure 2b, from a total of 57 analyzed products, only 12 fulfill all 16 mandatory criteria, product number 26 fulfilling only 9 of these. A number of 14 products fulfill 11 obligatory criteria, 8 products fulfill almost the maximum number, namely 15 criteria, and other 21 only 12 of these mandatory criteria.

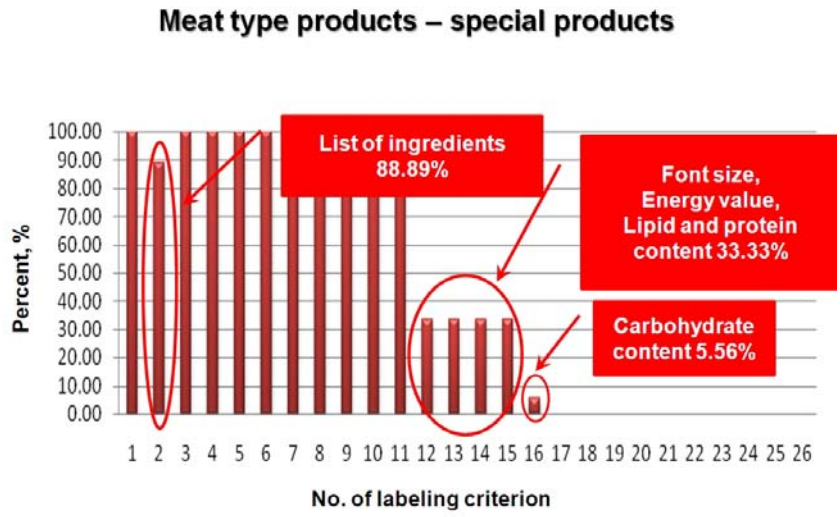
For special type products, the fulfillment degree of the mandatory criteria (first 16) and of the optional ones (17-26) can be seen in the diagram. The 3rd criterion (proper labeling of products containing allergens or substances that may cause allergies), is fulfilled to a quite large extent, namely 88.89%. The criterion regarding font size, energy value, fat content, and protein content (12,13,14,15), is fulfilled by 33.33%. For this type of products the criterion of carbohydrate content specification is barely met by 5,56%. Furthermore, neither with this type of products, optional criteria are fulfilled.

In figure 3b, it can be seen that from 18 analyzed products, only 4 satisfy all 16 obligatory criteria, product number 1 fulfilling only 10 out of 16 criteria. 9 products accomplish 12 criteria and other 2 products fulfill 15 criteria.

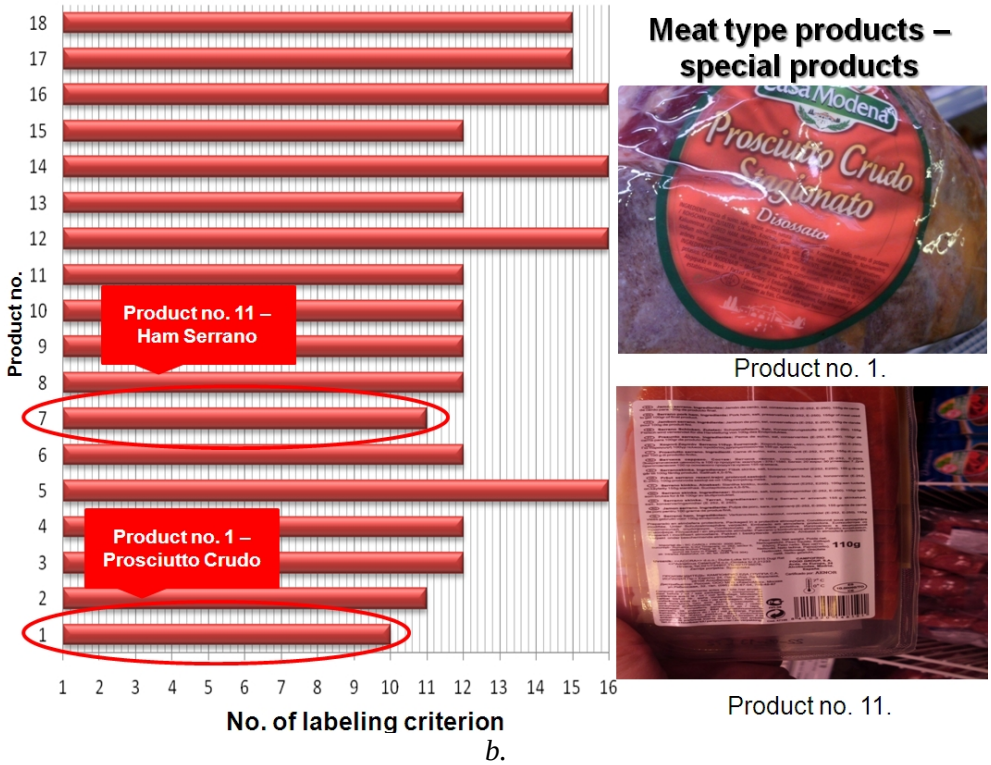
For the frankfurter kind of products, the fulfillment degree of the mandatory criteria (first 16) and the optional ones (17-26) can be seen in figure 4a. It is shown that the 3rd criterion (proper labeling of products containing allergens or substances that may cause allergies), is fulfilled to a lesser extent of 37.93%. The criteria regarding energy value, fat content, protein and carbohydrates content (13,14,15,16), are fulfilled by a little bit over 50%. Related to the above presented products, this product fulfills, with small values (3.45%.) a few of the optional criteria (17, 18, 19, 22) namely saturated fatty acids, salt, sugar and fiber.

In figure 4b, from a number of 29 analyzed products only 6 fulfill all 16 mandatory criteria, and the fact that for example product number 27 fulfills only 3 of these 16 criteria, and product number 28 fulfills only 6, is alarming. A number of 9 products fulfill 11 criteria out of 16 and other 8 products fulfill almost all criteria, namely 15 out of 16.

Similar research was conducted for the salami and baloney type of products. In figure 5, a comparative analysis between the main categories of meat products can be seen.

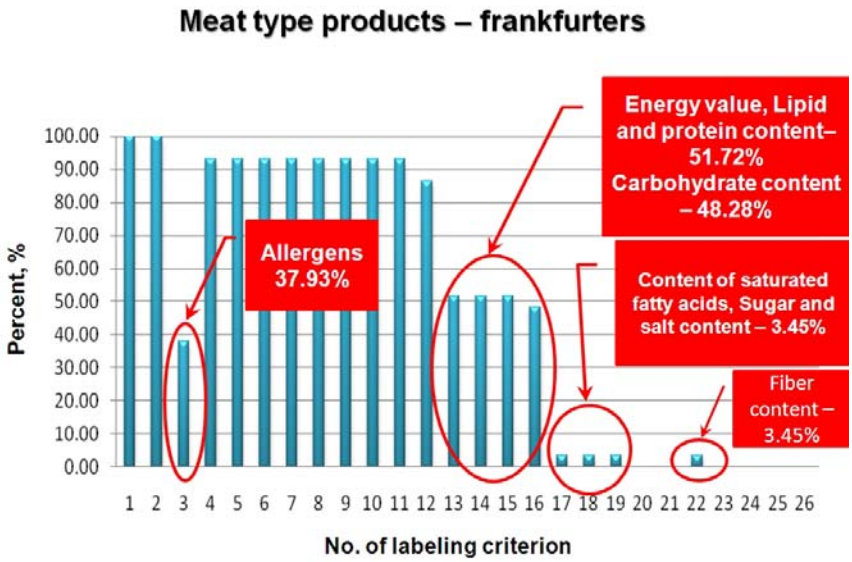


a.

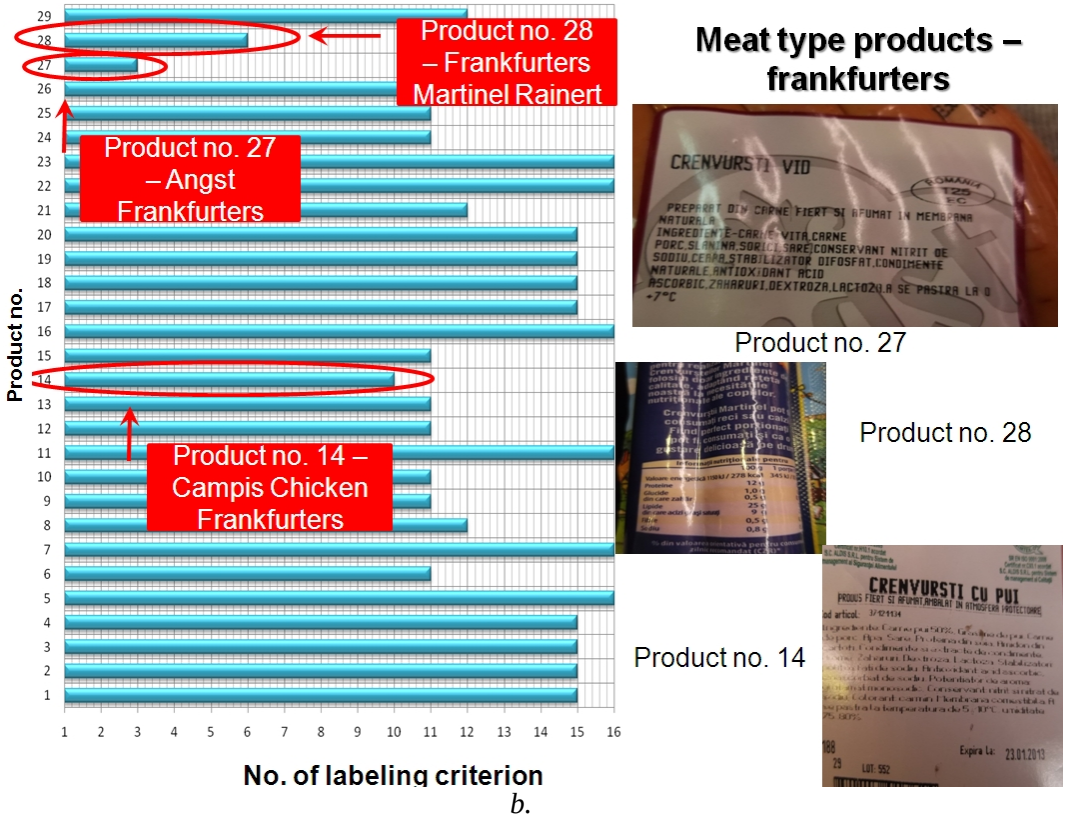


b.

Fig. 3. *Interview results for special products*
(a-percent depending on labeling criterion; b-product number depending on labeling criterion)



a.



b.

Fig. 4. *Interview results for frankfurters*
(a-percent depending on labeling criterion; b-product number depending on labeling criterion)

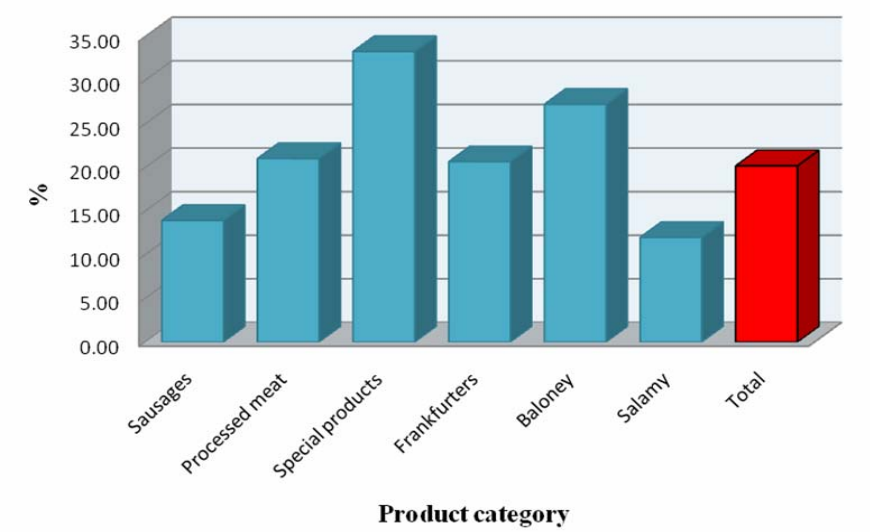


Fig. 5. *Comparative analysis of components within the same product range (meat)*

4. Conclusions

Comparative analyses of meat type products show that the percentage of sausage type products that fulfil all 16 mandatory criteria is only 13.95%, in contrast to the special products which fulfil the mentioned criteria to an extent of 33.33%. The overall average fulfilment of criteria is 20.10% (39 products from a total of 194). A special attention should be paid to the 3rd criterion related to allergens that can be found in many meat based products (soy, mustard, celery, lactose, egg, gluten, etc).

Acknowledgements

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