

Hygiene tests in meat production and retail units and quality analysis of the products (2008)

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Abstract

The sanitary policy of the Health and Family Ministry pays a great attention to the concept of "food safety", according to the relating policy of the European Community. Food safety includes a minute pursuit of the products on their entire track, from the producer, to the consumer ("from farm, to fork"). Our study followed the physical-chemical characteristics of samples of these products and evaluated the results obtained at salubrity tests carried out in units of production and retail of meat products.

We used data delivered in 2008 by the territorial public health authorities, data concerning salubrity tests made in meat production and retail units, additives found in meat products and their physical chemical characteristics.

After monitoring the sanitation conditions in meat production and retail units, the results showed that all of them were in accord with the norms. Most of the plants have implemented HACCP system. Regarding the salubrity tests, from the 943 specimens, 12.8% were inadequate. It's worth to underline that 15.7% of the inadequate samples originated on the hands of the workers, showing the low level of hygiene knowledge and the low respect for hygiene rules. From the point of view of the physical-chemical tests, some samples were over the advised values for water content (maximal in summer salami – 36% of the samples), fat content(maximal for sausages – 10% of the samples) and salt(sausages -11,1% of the samples); other samples are below the suitable protein content (the lowest: for summer salami). The protein value was still low, even if the manufacturers add vegetal protein during processing, because the collagen/protein ratio goes beyond the suitable one (maximal number of samples: summer salami).

We recommend to the producers to respect the normative concerning each meat product and to improve of the nutritional vale of the products, by growing the quantity of meat included in cold cuts and by lowering the quantity of connective tissues, water and fats used in the fabrication processes.

Keywords: Hygiene, sanitary policy, food safety, implemented HACCP system

1. Introduction

The sanitary policy of the Health Ministry pays a great attention to the concept of "food safety", according to the relating policy of the European Community. Food safety includes a minute pursuit of the products on their entire track, from the producer, to the consumer ("from farm, to fork")[1]. Respecting good practice rules and putting on market only products with the due nutritional value are the cornerstones both for success in business for the producers and retailers, and for an

adequate and danger less diet, for the consumers.

Meat and meat products (cold-cuts), foods with special nutritional value, are important for the diet of the entire population. They bring high quality proteins (class one proteins), vitamins (niacin, B₁₂, D, A, etc), essential fats and the priceless iron, in a form easy to be absorbed and used by our body [2,3,4]. Eating the adequate amount of meat is, from a nutritional point of view, healthy and it signifies avoiding protein malnutrition, pellagra, iron deficiency anemia, megaloblastic anemia, and so on.

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But it is equally truth that meat is a sensible food , easy to become unsafe for the consumer, because of its chemical or bacteriological contamination. Even more, complex products like cold cuts have a complicated composition, which includes compounds needed by the technological processing or ment to make more appealing the product, transforming it in a desirable and buyable food. Respecting the due composition of the brand is essential in order to avoid the presence of low quality products on the market and equally, in preventing the onset of eventual toxic effects provoked by the additive overload of the cold cut.

Meat consume raised in the last decades, as the standard of life and food intake of modern man improved in western and emerging nations. But not only the level of intake raised, the type of “most wanted” products changed too. If our grandfathers ate mainly meat freshly cooked, for us is sometimes more time-saving to eat cold cuts. Moreover, “ready to eat” meat products are frequently more tasty and flavored, so even children prefer them. In the most consumed category of meat products for Romania, we find some types of cold cuts, minced meat and “mititei” meat, the last two being used to cook traditional Romanian products (stuffed cabbage – “sarmale”, grilled “mititei” meat, local hamburgers – “parjoale”, “chiftele”).

Even if Romania is still the last meat consumer in Europe(64,5 kg per capita, under the UE average, of 86 Kg), we need to have safe and healthy products on the market [5].

In the present study, we analyzed the physical-chemical characteristics of samples of Romanian meat products and evaluated the results obtained at salubrity tests carried out in units of production and retail all around the country.

2. Materials and Method

We used data delivered in 2008 by the territorial public health authorities, data concerning the functioning and the salubrity tests carried out in meat production and retail units, data about additives used in meat products fabrication and about their physical & chemical characteristics. The following products were taken in consideration, being on the top of consume in Romania: summer salami, “pink salami”, smoked sausages, minced meat, “mititei” meat and “toba”.

For 2008, 10 counties sent their results to the Food Hygiene and Nutrition Department of the Institute of Public Health of Bucharest: Bacau, Braşov, Botoşani, Olt, Gorj, Hunedoara, Maramureş, Mureş, Suceava, Vaslui. We centralized the reports and analyzed them by means of Excel computing program.

After monitoring the sanitation conditions in meat production and retail units, the results showed that all of them were in accord with the norms, but that generally plants haven’t worked at their entire capacity. Most of the plants have implemented the HACCP system.

Regarding the salubrity tests, from the 943 specimens, 12.8% were inadequate. It’s worth to underline that 15.7% of the inadequate samples originated on the hands of the workers, showing the low level of hygiene knowledge and the low respect for hygiene rules.

Most of the inadequate samples were taken from equipment, followed by samples from surfaces, showing the need for more accurate and frequent cleaning and disinfection operations during the production and reselling process(figure 1).

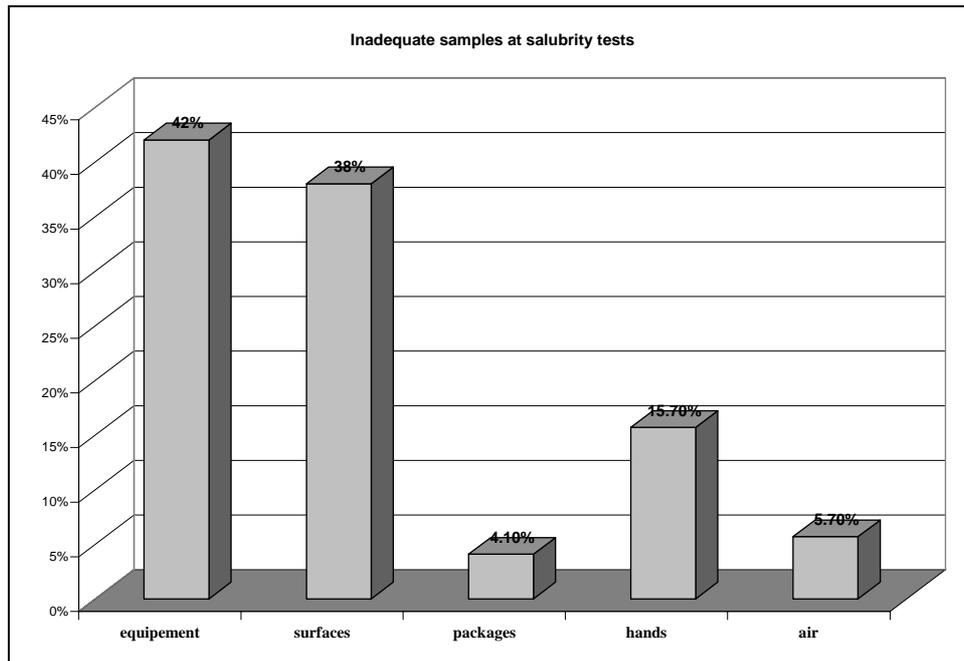


Figure 1. Inadequate samples for salubrity tests

Regarding the figures from the physical & chemical tests, some samples are over the advised values for:

- *water content*- maximal in summer salami – 36% of the samples, closely followed by “toba” – 22,2% of the samples.

- *fat content*- maximal in sausages – 10% of the samples. Added fat up to a certain amount is a must for processed meat products. But the over-use of fat is bad for consumers, taking in account that this is animal fat and contains highly atherogenic compounds, like saturated fatty acids and cholesterol[6]. As a plus, fat has a high caloric content and in our contemporary world, hit by an obesity epidemic(Globesity – [7]), consumers do not appreciate eating foods with a lot of calories.

- *salt content* - the “winners” are sausages- 11,1% of the samples. This finding is very important and points out that for Romania, as for other countries, processed food is the main source of salt for consumers. Salt over intake is, as it is generally known, a hazard factor for hypertension. A recent study showed that 30% of the hypertensive have this disease due to the salt over consumption and that 14% of strokes and 9% miocardic infarcts appear in the frame

of salt-determined hypertension. The medical world already foresees that in a few years, if serious prophylactic measures will not be taken, hypertension will strike the global population in an epidemic manner[8]. Cutting salt intake may slash the long-term risk of cardiovascular disease by up to 35 per cent, says a new multi-centre study from a group of leading US universities [9].

On this background, a salt reduction intake is suitable and a main role in order to succeed in doing it has to be played by food manufacturers. Not only they need to respect the present normative referring to salt level in food, but they also have to think to practical methods in order to reduce this level, because consumer’s main intake of salt comes through already processed food. It has been shown that a reduction with 18-20 % of the salt content is not even noticeable [10] by our sense of taste.

Other samples are below the suitable protein content (the lowest: for summer salami). Even more, the protein value is low and the collagen/protein ratio goes beyond the suitable level (maximal number of samples: summer salami).

The majority of manufacturers have added vegetal protein during processing, but the general value of the final product is still very low. This is an upsetting finding of our research, and it has been a constant one at the evaluations we have made during the last few years on meat products. Not only it is unfair for the consumer, who thinks eating high value proteins from meat, but is, in fact eating collagen, a third class protein with a very low efficiency (equivalent with the protein efficiency of zein, the very low-quality protein from corn)[11].

But just thinking that cold cuts are often preferred by children or pregnant women, groups with very high protein requirements, offers us another argument to deeply criticize the producers, who are trying to make economies on the behalf of the overall value of their products. The problem of the collagen overload has to be solved in an way or another, in order to avoid, in future, that processed meat products become a real hoax for the consumers.(figure 2.).

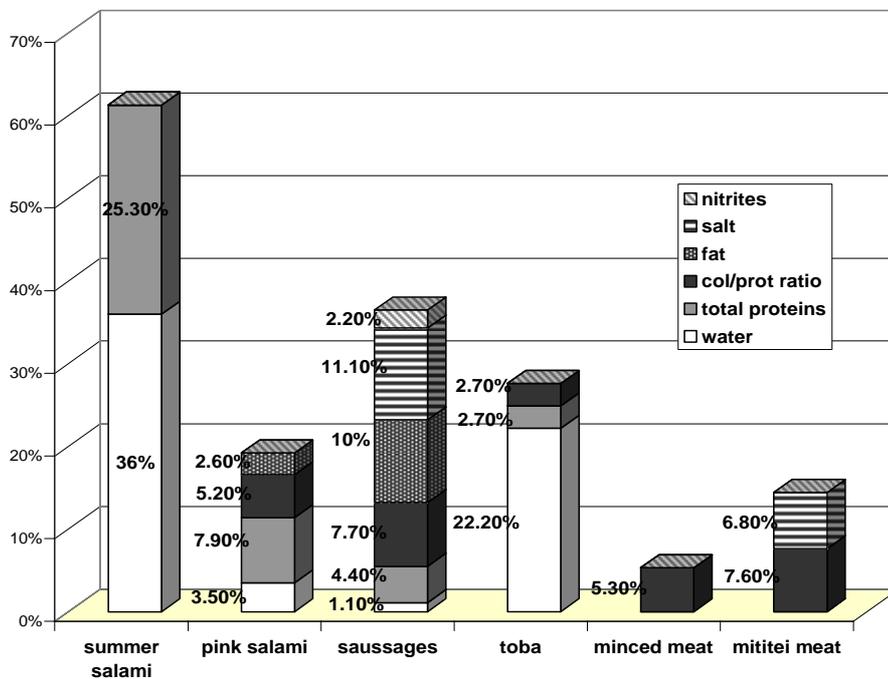


Figure 2: Percents of inadequate samples(different evaluations)

3. Conclusions

The global food and drinks market is anticipated to grow at a CAGR(compound annual growth rate) of 3.2% during 2007–10 to reach \$3,843bn in 2010 [12]. Our country cannot avoid this trend, even if we take in account the global crisis. Increasing demand for healthy products coupled with rising disposable incomes in emerging economies is fuelling demand for food products. In order to be competitive on the inner and foreign markets, Romanian meat products have to be, first of all, healthy and safe.

We recommend to the producers to respect the normative concerning each meat product and to improve of the nutritional value especially by growing the quantity of meat included in cold cuts and by lowering the quantity of connective tissues, water, salt and fats used in the fabrication processes. “Inflating” cold cuts with water and non-valuable compounds is disadvantageous for either part. Consumers are more and more aware of the important nutrients they need and have understood that analyzing food labels is not a waste of time. Even if some details related to meat

processing can be still “covered”(like adding low value connective tissues instead of muscular meat) for the average buyer, they will, in time, be revealed, especially because media is more and more eager to discuss food topics, largely appreciated by the population. And due to a growing and diversifying meat product market, very competitive and offering a numberless variety of options for the consumers, the low quality products will little by little be left on shelves, and only nutritious cold cuts will find their way to our plates and refrigerators. In conclusion, so called “savings” made during processing meat, on the behalf of quality, will prove to be, in the end, totally unfortunate and contra productive.

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