

RESEARCH REGARDING NUTRITIONAL VALUE OF AGRO-FOOD PRODUCTS

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Abstract: Agro-food products contain a mixture of organic and inorganic substances. Nutritional value is often presented under the form of percentage chemical composition, with the presence of some of trophins, accompanied by the energy potential expressed in kilocalories/100 grams of product, so that in the case of low meat consumption (beef mussels, pulp, ham degreased), the average energy value is 180 kcal/100 grams of product.

Key words: agr-food products, nutrition, nutritional value

INTRODUCTION

Agro-food products represent a mixture of organic and inorganic substances that contain substances necessary for the human body, but also indifferent substances and even anti-nutritional substances [1,4,7,]. After the role they have in metabolism, the substances necessary for the human body are divided into several groups [2,3,5,6]:

- **substances with energy role** (carbohydrates, lipids) that, through oxidation in the body, provide the caloric energy, necessary for vital processes and energy expenditure due to professional activity;
- **substances with plastic role** (protides), which participate in the formation, development, maintenance and renewal of cells and tissues from the body;
- **substances with a catalytic role** (vitamins, mineral salts) that participate in chemical reactions taking place in the body, such as vitamins and minerals;
- **substances with a sensory role**, that impress the senses.

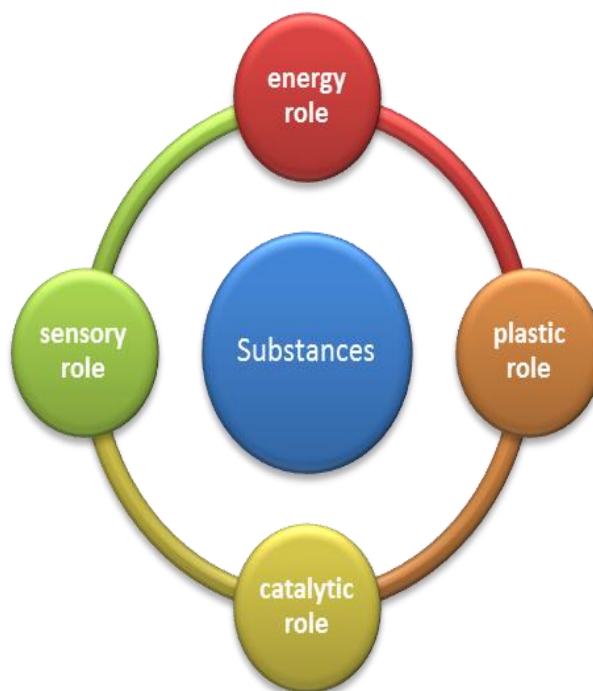


Figure 1. Substances necessary for human body

MATERIAL AND METHODS

In order to achieve this scientific approach, we have undertaken studies to determine the nutritional value of agro-food products by analyzing the average energy value of meat types and nutritional peculiarities, according to the age of consumers and their energy needs.

RESEARCH RESULTS

The researches conducted in our country and worldwide have allowed a new view of nutritional value, starting from the general study methodology of the goods, meaning from the report necessity-value-of-use-quality.

For an agro-food product, the nutritional value represents the major criterion in quality assessment. The quality of food is regarded as a degree of satisfaction of a consumer's need. It represents the set of properties and features that offer the ability to meet the explicit and implicit needs of consumers.

The concept of "4S": *satisfaction, service, safety, health* confirms the current tendency to improve the quality of agro-food products, taking into account their specificities. They are ingestible products and therefore represent the closest connection of man to the natural environment. Ensuring their quality requires the knowledge as accurately as possible of their impact, with market and with environment.

Synthesizing the opinions of nutritionists, starting from the new concept of nutritional value, we have come to the conclusion that a proper diet, an optimal diet, will have to comply with four essential laws:

A. *The quantity law*, correlation of the amount of food consumed with the needs of the human body;

B. *The quality law*, so as to provide to the body all the necessary nutrients;

C. *The law of equilibrium* means preserving the correct proportions between the quantities of different substances, that are part of the food products consumed;

D. *The adequacy law* requires that the choice, preparation and quantity of food to be closely correlated with weight, age, physiological status and the activity developed.

The actions of organizations dealing with food problems demonstrate that the evolution of the nutritional value concept in nutrition science is significant.

The concept of nutritional value has evolved slowly, based on concrete and rigorously defined actions that have allowed that in modern merceology to appear the term of nutritional value, in an enlarged form, that includes four indissoluble dimensions: psychosensory value, energy value, biological value and hygienic value, all having an important role in assessing the quality of agro-food products in their impact with the market.

The psychosensory value of foods, namely the aesthetic and organoleptic value, is the one that gives the impetus to buying a product, determines its appearance. Organoleptic properties are for the normal consumer the first criterion to determine the quality. The consumer checks the food product that he wants to purchase from organoleptic point of view, following his appearance, color, consistency, taste and smell, with the help of sense organs.

The energy value of agro-food products presents their ability to deliver energy to the human body and can be expressed in kilocalories. It conditions the quantitative aspect of food, covering daily energy requirements individually.

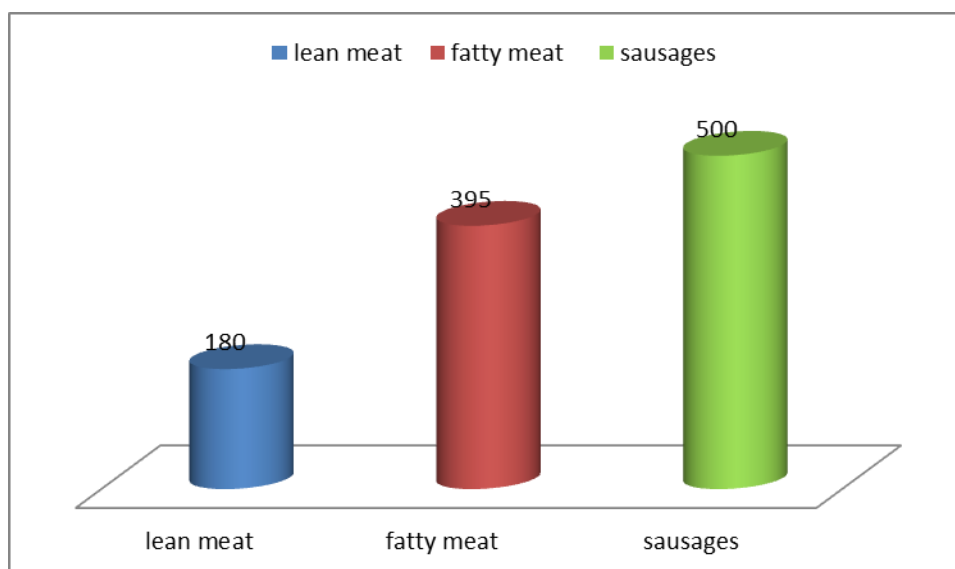


Figure 2. Average energy value of meat types (kcal/100 g of product)

In case in which we refer to lean meat (beef, pulp, skimmed), the average energy value is 180 kcal/100 grams of product, if we speak of fatty meat (duck or lamb meat) we can see an average energy value of 220-350 kcal and sausages (sausages) have an average energy value of 400-600 kcal per 100 grams of product.

The energy value is always indicated on the foods' label and is expressed per 100 grams of food. It is worth mentioning that the energy value depends on the brand of the product. In recent years, there has been a tendency to quantitatively reduce energy value, but preserving the psychosensory effects: sweet taste, greediness, greasy fat pseudosensation. (Table 1).

The energy value of foods is given by their content in energy trophins, namely: carbohydrates, lipids and proteins. So is it not justified to ask whether there is an ideal diet? The answer is yes. At present, it is possible to feed us well, maybe even better than a few years ago, when food choices were more limited.

Table 1.

Nutritional peculiarities depending on the age and energy needs

	Specific food needs	Energy needs (media depending on physical activity level)
Infants	Preferable maternal milk. Food diversification starting from 4 months, 6 months in case of allergic risk.	0-2 years: 100 -120 kcal/kg/day over 2 years: 180 kcal/kg/day
Children 3-7 years	Food neophobia, refusal of food. Food perceived as a means of communication. Passive refusal of new food. Nutritional balance is achieved by keeping the tastes without conflicts.	3-6 years: 1 830 kcal 6-9 years: 2 1.90 kcal
Adolescents	It is often deficient in iron, calcium, vitamin E (for boys), vitamin B6 (for girls).	Girls: 10-12 years: 2350 kcal Boys: 10-12 years: 2600 kcal
Girls	It generally supplies excessively fatty products with added sugar (especially juice), salt (fried potatoes).	Girls: 13-19 years: 2400 kcal
Boys		Boys: 13-19 years: 3000 kcal
Grown ups	Balance always respected (insufficient food diversification). Fruit and vegetables (at least 5 times/day). Milk and dairy products (three times a day). Meat, fish, eggs (1 or 2 times/day). Feculents or bread (at every meal in reasonable quantity).	Women 20-50: 2000 kcal Men 20-50: 2500 kcal
Elderly	Food should be chewed gently (often dental, digestive problems). Pay attention to excessive intake of products with added sugar.	Women 51-80: 1800 kcal
Ladies		Men 51-80: 2000 kcal
Men		

Source: processing by different authors

The biological value is given by the contribution in essential components, indispensable to normal metabolism, namely essential amino acids, essential fatty acids, vitamins and mineral elements.

Hygienic value is the subject of sanitary legislation, which prescribes the limits allowed for all the harmful components, which may exist in the finished product, due to the raw materials, the transformations during the technological process, the uncontrolled use of the food additives, by non-compliance of the technological operations.

Agro-food products present on the market by nutritional value may be:

- preponderent carbohydrates;
- preponderent protidic;
- preponderant lipid.

CONCLUSIONS

We believe that knowledge of nutritional value is, besides a decisive criterion in assessing the quality of agro-food products existent on the market, a condition that allows a good correlation of supply with demand for goods, thus ensuring the success of the producing companies.

REFERENCES

- [1]. **ENGEL J. K., BLACKWELL R. D., MINIARD P. W.**, 1990, *Consumer Behaviour*, Sixth Edition, The Dryden Press
- [2]. **MARIN DIANA**, 2014, Study on sensory and nutritional factors that influence the quality of meat, *Research Journal of Agricultural Science*, ISSN 2066-1843, vol 46, Issue 4, pp. 117-122
- [3]. **MARIN DIANA**, 2017, *Lucrari Stiintifice Zootehnie si Biotehnologii*, Research Regarding the Nutritional Value of the Food Product, 50 (1), pg. 278-281
- [4]. **PETROMAN CORNELIA, PETROMAN I., MARIN DIANA, CIOLAC RAMONA, BIDIREAC IONELA, SCHILL OLIVER**, 2014, Study regarding the sociology and the psychology of nutrition, *Tudomanyos Mozaik*, ISBN 978-963-88162-1-4 Ö, 978-963-88162-4-5, Vol. 10
- [5]. **PETROMAN CORNELIA, BIDIREAC CRISTINA, PETROMAN I., SUCAN MOISINA, MARIN DIANA, TURC B., MERCE IULIANA, CONSTANTIN CLAUDIA**, 2015, The impact of education on the behaviour of the consumer of animal origin food products, *Procedia Social and Behavioral Sciences*, ISSN 1877-0428, Vol. 190 pg. 429-433
- [6]. **ŞUCAN MOISINA, PETROMAN CORNELIA, PETROMAN I., MARIN DIANA, SOUCA LAVINIA, DUMITRESCU A., STATIE C.**, 2012, Notes on the impact of education on vegetal food consumer behaviour in the Timiş county (Romania), *Lucrări ştiinţifice Management Agricol*, ISSN 1453-1410, Seria 1, vol. XIV (2), pp. 515-520
- [7]. **SCHIFFMANN L. G., KANUK L. L.**, 1991, *Consumer Behaviour*, Prentice Hall, NJ., New York