

QUANTITATIVE AND QUALITATIVE SCREENING OF THE TRADITIONAL PLUM JAM FROM ROMANIA

Ioana TOMA¹, Mariana PIPIRIGEANU², Florentina Marin HADDAD¹,
Cristina GARLEA²

¹University of Agronomic Sciences and Veterinary Medicine of Bucharest, Faculty of Biotechnology, 59 Mărăști, Boulevard, District 1, 011464, Bucharest, Romania, Phone: +40213182564, Fax:+40213182888, Mobile: 0766669752, Emails: oana.toma@madr.ro, haddad.florentina@ansvsa.ro

²CSCBA-INCE, Romanian Academy, Calea 13 September, District 5, Bucharest, Romania
Emails: marianapipirigeanu@yahoo.com, cgarlea@yahoo.com

Corresponding author: oana.toma@madr.ro

Abstract

Traditional foods are a special category of products that, besides the intrinsic value of preserving and continuing regional and national customs in today's context, must meet consumer demands, particularly in terms of food safety and nutritional value. Increasing the production of this category of food under these conditions becomes a problem for producers, especially small ones. In this context we chose the case study for the identification of the main economic operators and of the fruit-growing areas in Romania, favoring the obtaining of raw materials with special qualities in order to process them. The production of plum jam, the process of obtaining jams traditional products, the quality of the final products and their main features have been analyzed in this research article. The conclusion was that processing and certification as a traditional "plum jam-magiun" product meets consumer safety and security requirements.

Key words: processing, recording, traditional

INTRODUCTION

Romania, before becoming an EU member country, has developed national legislation to protect those categories of agri-food products that have proven to be a tradition passed on from generation to generation. Thus, the first definition of the "traditional" product was given in a normative act adopted by the Ministry of Agriculture, Forests and Rural Development in Order no. 690/2004, which states in Article 4 that "the product must be manufactured from traditional raw materials, present a traditional composition or a production and / or processing mode reflecting a traditional type of production and / or processing.

The Ministry of Agriculture and Rural Development through the Strategy for Medium and Long-term Agri-Food Sector Development Horizon 2020-2030 aims at traditional, historical and sustainable valorisation of the agri-food potential and the development of rural space [1].

Traditional food products are a special category of products which, in addition to the intrinsic value given by preserving and continuing regional and national customs, in the current market context, must meet consumer requirements, particularly in terms of food safety and nutritional value [3]. Increasing production of this category of food under these conditions becomes a problem for producers, especially small ones. It can be solved only by knowing all the data in depth.

The main quality of traditional products, together with the subsistence of producers, is to capitalize on local raw materials.

Recipes, generally simple, based on some ingredients sometimes processed as simple, become quality products, appreciated by consumers [2].

Traditional products are food products manufactured in the country using local raw materials which do not contain food additives, which have a traditional recipe, a way of production and / or processing and a

traditional technological process and which differ from other similar products belonging to the same category [11].

Traditional Romanian products are products that use Romanian raw material, contributing to the economic development of rural areas, job creation, increasing the added value of Romanian products and their market value, consumer awareness of the quality of

traditional products that are part of from the national culture, capitalizing on the local dowry. All these things support the increase of the Romanians' living standards [5].

There is good but still untapped potential for recognizing and promoting local brands by including them in EU quality systems (Table 1).

Table 1. The main systems in the field of agricultural and food quality

Traditional Specialty Guaranteed (TSG)	defines a traditional agricultural or food product whose specificity has been recognized by the European Community by its registration in the register. The name in order to be registered must express the specificity of the food or agricultural product. Traditional specialty guaranteed does not refer to an origin, but in order to obtain protection, the product must have a traditional composition (recipe) or a traditional way of production. The raw materials or the mode of production give the product the traditional character in relation to other products. To gain recognition, a product must be on the market for at least 30 years.
Protected Origin Designation (PDO)	may be the name of a region, a specific place, or a country used to describe an agricultural or food product. "The product must be: - originating in that region, specific place or country; - the quality or characteristics are due to the geographical environment with its natural and human factors, - the raw materials used must come only from the defined geographical area, - production, processing and preparation must take place only within the defined geographical area."
Protected Geographical Indication (PGI)	may be the name of a region, a specific place, or a country used to describe an agricultural or food product. The product must be: - originating in this region, specific place or country; - have a specific quality, reputation or other attributes attributable to geographical origin; - the raw materials used can also come from outside the defined geographical area; - certain operations of the production process such as packaging, freezing, storage, etc. may occur outside the defined geographical area.

Source: Regulation EP no. 1151/2012 [10].

Consumer choice of a traditional product is determined by the physiological or nutritional need, but also by other factors such as taste, income, availability, knowledge. The notion of food quality is complex due to the many factors that make it conditional: the quality of the raw materials and the used ingredients; the process of processing adopted; used equipment / production method; packaging; transport; storage conditions, etc.

In order to obtain plum jam, varieties of highly soluble dry substance, well-expressed flavors and pronounced coloring are used. Fruits must have a non-stained surface with a specific coloring, mature (because they have a high sugar content), free from diseases,

insects, etc. Plums must have specific flavor and taste without showing traces of mold and fermentation [9]

MATERIALS AND METHODS

The purpose of this research is to achieve a quantitative and qualitative analysis of traditional products in Romania. For this purpose, literature and databases have been researched to collect information on raw materials used for the production of plum jam, the process of obtaining jams traditional products, the quality of the final products and the main features.

The main databases used were from the Ministry of Agriculture and Rural Development.

According to data centralized by the specialized department of the Ministry of Agriculture and Rural Development (MADR) based on order no. 690/2004, for the period of 9 years, 1,541 meat products have been certified as "traditional products", followed by milk products 1,535, bread and pastry products 750, drinks 285, fruits and vegetables (jams, jam) 193, and fish 11.

The tree species with the highest weight in the plantations structure in Romania are apple, plum, cherry and cherry.

Plum culture as a surface is concentrated in the following areas:

- development macroregion 4 consisting of counties: Dolj, Gorj, Mehedinti, Olt, Valcea, Arad, Caras Severin, Hunedoara, Timis;

- in the south of the country, in the counties: Arges, Calarasi, Dambovita, Giurgiu, Ialomita, Prahova, Teleorman.

Important plum areas are located in the counties: Arges, Valcea, Buzau, Prahova, Dambovita, Caras Severin, Gorj, Mehedinti, Olt and Vrancea. According to INS data, plum tree production increased from 372.6 thousand tons in 2005 to 477.8 thousand tons in 2017 [4].

In Fig. 1. It is represented schematically the total plum production in the main counties in Romania in 2015 in tons.

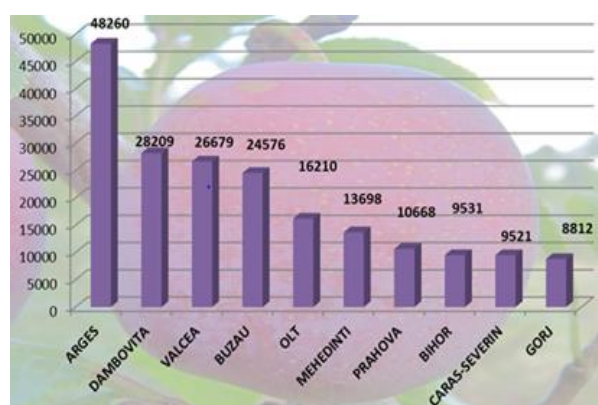


Fig. 1. Total production of the first counties cultivated with the plum species in 2015 in tons.

Source: Romanian Statistical Yearbook, 2007-2013 [6]
 Own determination.

The important areas cultivated with the plum species are located in the following counties: Arges, Valcea, Buzau, Prahova, Dambovita, Caras Severin, Gorj, Mehedinti, Olt and Vrancea. The evaluation of the agricultural areas related to the plum crops was considered useful (Fig. 2).

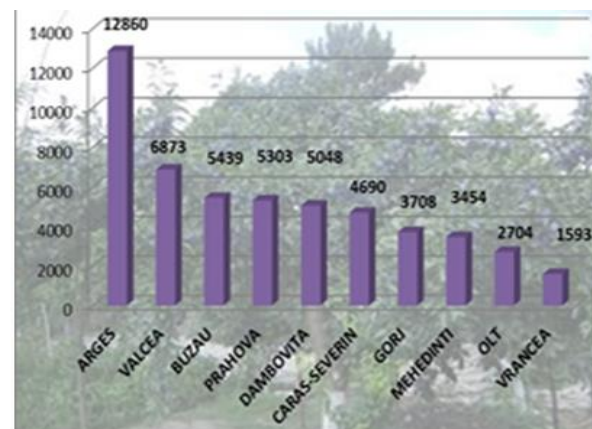


Fig. 2. The surface of the first counties cultivated with plum species in 2015, hectares.

Source: Romanian Statistical Yearbook, 2015 [7].

RESULTS AND DISCUSSIONS

In Romania there are 72 economic operators that deal with the processing of vegetables and fruits. According to statistical data from the National Registry of Traditional Products (RNPT), there are 9 producers certified in the production of "plum jam-magiun" and 2 derivatives (dried plums), distributed in the country according to the chart in Fig. 3 below.

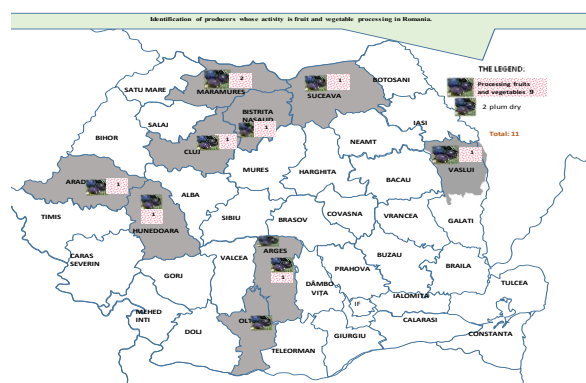


Fig. 3. Identification of producers whose activity is fruit and vegetable processing in Romania

Source: Own determination.

Between 2014 and 2016 were analyzed the products from 72 economic operators.

Of the products manufactured by these economic operators, following the screening, 9 traditional “plum jam-magiun” products were identified, certified by the Ministry of Agriculture and Rural Development between 2014 and 2016. In Table 2 are presented the traditional “plum jam-magiun” products, certified at national level: their description, the process of obtaining and the main sensory characteristics.

Table 2. Organoleptic properties of “plum jam-magiun”, registered as a traditional product

Organoleptic properties of “plum jam-magiun”, registered as a traditional product			
appearance	color	taste and smell	consistency
Magiun area of Arad County Obtaining: by boiling in copper boilers, without the addition of sugar or other ingredients			
consistent, homogeneous paste (without stones, burns and impurities, visible cuts or foreign bodies)	color specific to the Bistritan, Rosu, Bumbuleu, Neguț and Crandan varieties	sweet, sweet and sour with a well-pronounced taste and aroma	A uniform, paste-like meal that stretches easily without the syrup
Magiun area of Arges County Obtained: from plums of the Anaspet and Stanley varieties rich in carbohydrates and vitamin C, without added sugar.			
homogeneous paste throughout the product without clumps or peel, glossy on the surface due to the local method	the color of the product is dark brown due to prunes at the maturity of the baking, being influenced by the long cooking time	the taste is sweet and aromatic sweet given by well-ripened plums with a specific flavor	the product does not show any foreign smell of burn, fermentation or mold
Magiun area of Bistrita Nasaud County Obtained: of bistrita plums whose core is carnos, aromatic and sweet by boiling in brass boilers, without being chopped and without the addition of sugar.			
homogeneous, viscous mass without impurities,	dark brown to light brown strong	loud	strong flavor characteristic of Bistritan plums
Magiun area of Cluj County Obtained: Raw plums without added sugar			

homogeneous table, with completely disintegrated fruits, of which no syrup is separated, no signs of fermentation or molding, no foreign bodies	brown, corresponding to the fruit (plum), uniform throughout the table	taste and pleasant flavor, specific to plum, sweet, slightly sour, without taste and foreign smell	viscose
Magiun area of Hunedoara County Obtained from the Houneson plums, scrubbing, pistachio removal by poultry and boiling			
homogeneous mass,	color, brown, uniform	tasteful characteristic	characteristic smell
Magiun area of Maramures County obtained from the plum of the Bistrita variety without sugar			
homogeneous, viscous mass without impurities and no signs of fermentation or mold stains	dark brown to dark brown, glossy, also influenced by boiling time	taste sweet, sour, pleasantly tasted ripe Bistritan with no foreign taste	a pleasant, strong flavor characteristic of Bistritan plums
Magiun area of Maramures County obtained from the plums freshly oiled bistro variety of the certified organic orchard, with a maximum content of sugars, organic acids, vitamins and minerals.			
homogeneous, viscous mass without impurities	dark brown to light brown strong	loud	strong flavor characteristic of Bistritan plums
Magiun area of Suceava County obtained from boiled plums until it dips after which it is sugar-free			
with a specific, homogeneous and well-bound texture	dark brown to light brown strong	sweet and sour	homogeneous and well-bound texture
Magiun area of Vaslui county Obtain a season: from plums "Romanian eggplants" (pears) from plums of Bistrita. Rich in vitamins C, A, B1, B2, K, fibers and minerals such as sodium, potassium, calcium and iron, but also organic acids, antide and cellulose. Spoons are boiled with bio sugar (1kg of sugar per 10kg of podvile)			
homogeneous aspect	burgundy color to black	taste predominantly sweet sardine and sweet smell of fresh fruit	dense consistency

Source: Own determination.

All traditionally certified products meet the parameters of the admissibility conditions for

organoleptic properties and the physico-chemical characteristics, soluble substance, in refractometric conditions, at 20 ° C (in syrup) min% 55.

Table 3. Physico-chemical characteristics of “plum jam-magiun”, registered as a traditional product by county

Physico-chemical characteristics			
Product- Plum Jam (Magiun)	Acidity %	Humidity %	SU %
Magiun, area of Arad County	1.11	42.59	57.67
Magiun, area of Argeş County	1.75	50.10	55.43
Magiun, area of Bistriţa Năsăud County	1.40	51.42	55.41
Magiun, area Cluj County	1.8	50.42	74.42
Magiun, area of Hunedoara County	1.10	48.7	56.37
Magiun, area of Maramureş County	1.31	51.00	55.41
Magiun, area of Maramureş County	1.36	50.20	55.45
Magiun, area of Suceava County	1.37	53.20	56
Magiun, area of Vaslui County	0.51	56.14	57

Source: Own determination.

The products were analyzed by physico-chemical and organoleptic methods by an accredited and authorized laboratory according to the national legislation in force.

Figure 4. shows the results of dry matter analyzes in traditional products [8].

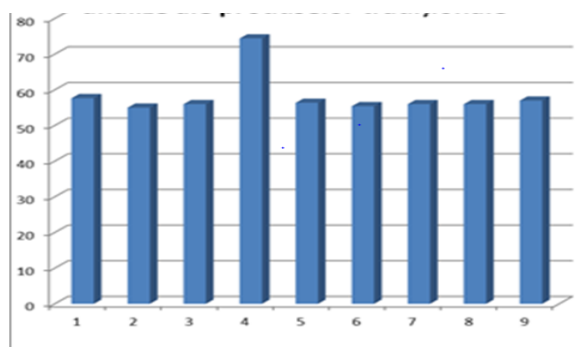


Fig. 4. Dry matter from traditional products- SU %.

Source: Own determination.

CONCLUSIONS

The valorification of Romania's agricultural potential leads to the revitalization of rural areas through the use of local raw materials, the creation of new jobs, the increase of value

added and the market value of agri-food products, consumer awareness of the quality of traditional products belonging to the culture of the people Romanian, are defining elements for the development of national strategies and programs to ensure the implementation of policies to encourage traditional Romanian products.

The use of local dowry, the protection of natural resources and, last but not least, the raising of living standards in rural areas should be a permanent preoccupation of all actors involved in the agri-food sector and beyond.

Processing and certification as a traditional "plum jam-magiun" product meets consumer safety and security requirements.

REFERENCES

- [1] Alexandri, C., Davidovici, I., Gavrilesco, D., 2004, Agricultural Economics Treaty, Expert Publishing House, pp. 1 – 96.
- [2] Belc, N., 2016, Bio-Economics of Sustainable Processing and Consumption, “Romania educată” UEFISCDI, University of Timisoara, pp. 1-19.
- [3] Dinu, V., 2018. Food Safety in the Context of the European Union. *Amfiteatru Economic*, 20(47), pp.5-7.
- [4] Ministry of Agriculture and Rural Development, 2013, Order No. 724/2013 on the certification of traditional products, <http://www.madr.ro/docs/ind-alimentara/produse-traditionale/ordin-privind-atestarea-produselor-traditionale.pdf>, Accessed on 2019.
- [5] MADR, 2014, Ghid de bune practici pentru atestarea produselor traditionale, <http://www.madr.ro/docs/ind-alimentara/produse-traditionale/ghid-de-bune-practici-atestare-produse-traditionale-18.02.2014.pdf>, Accessed on 2019.
- [6] National Institute of Statistics, Romanian Statistical Yearbooks 2007-2013, www.insse.ro, Accessed on 2018.
- [7] National Institute of Statistics, Romanian Statistical Yearbook, 2015, www.insse.ro, Accessed on 2018.
- [8] Order No.852 of 27.05.2014 to approve the Norm on the nature, content and manufacture of ” plum jam “ intended for human consumption.
- [9] Order no. 852/623/216/2014 of the Ministry of Agriculture and Rural Development, of the Ministry of Health and of the National Authority for Consumers Protection for the approval of the Norm regarding the nature, content and manufacture of “plum jam-magiun” intended for human consumption (Ordin nr.852/623/216 din 2014 al Viceprim-ministrului, Ministrului agriculturii și dezvoltării rurale, al Ministrului sănătății și al președintelui Autorității Naționale pentru Protecția Consumatorilor pentru aprobarea Normei cu privire la natura, conținutul și

fabricarea magiunului de prune destinat consumului uman),http://www.cdep.ro/pls/legis/legis_pck.htp_act?ida=124379, Accessed on 2019

[10]Regulation (EU) No. 1151/2012 of the European Parliament and of the Council of 21 November 2012 on quality schemes for agricultural products and foodstuffs,<https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX%3A32012R1151>, Accessed on 2019

[11]Zamfir, C., 2014, Determinants of Quality of Life, Romanian Sociology, 13(1), pp. 5-28.