

Bibliometric Research on Developments and Trends on the Market of Traditional Food Products

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Abstract

Traditional food products are a component of the agri-food system that covers all aspects of the food production chain from land/sea to table, from raw materials handling, storage and transport through processing, control, distribution and marketing for consumption. The main objective of this study is to carry out a bibliometric study of traditional products. The research of the database of WOS indexed articles, related to the market of traditional products was done for ten years (2012 – 2022) on the trends regarding the concept of traditional product. In recent years, there has been a growing interest in the ethical, health, environmental and cultural implications of food production and consumption. This study offers the opportunity to identify the evolution of research, major trends and issues in the field of traditional food market.

Keywords: Bibliometric Study, Traditional Food, VOSviewer

1. Introduction

Scientific research works in this field are usually conducted on academically broad topics that involve many fields of research. Traditional food research thus includes knowledge about products (natural sciences/technology), people (humanities, health sciences) and social context (social sciences). In general, it is characteristic that research moves increasingly across disciplinary boundaries and along the production chain from land/sea to table [1]–[5]. For example, the environmental debate has meant a much greater research focus on the environmental aspects of food production. In addition, the food safety crisis of the 1990s created insecurity among European consumers, and against this background EU and national programs allocated large resources to create greater food security. Likewise, there have been and in recent years there has been extensive research into the health consequences of food, including lifestyle diseases [6]–[9].

In developed countries, the main trend of food consumption is homogenization both at the territorial and social level. This refers only to the categories with high food consumption, as the consumer shows an

increasingly differentiated demand in some cases, based on even contradictory consumption criteria, for traditional food products. The purpose of this paper is to research the main trends and modes of consumption, to study the structure and dynamics of consumption for traditional Romanian food products, the profile of the typical consumer and the main trends emerging in the medium term [10]–[15].

The research of the concepts addressed within the agri-food system thus contains most research from primary production as well as food, research and therefore covers research in:

- Agriculture and Plants
- Animals (including Breeding and Slaughtering)
- Fisheries and Aquaculture
- Processing (including Packaging and Storage)
- Distribution, Trade and Consumption
- Research along the chain from primary production to the final consumer.

In recent years, the vision of agriculture has been rural development, but at the same time the activities classified as services (agritourism, environmental activities, logistic or educational activities) are becoming more and more important compared to the production of goods, as well as the components intangibles (knowledge, reputation, relationships) become the key to the competitiveness of the farm as well as the rural area.

The concept of rural as a resource is a development model, which as such requires different values, a different composition of resources and predominant activities, different objects. These changes are counterpointed by changes in society, now firmly anchored in a post-industrial model.

If we refer to the food sector by thinking, it is now widespread, for example, the awareness that the grace that entrusted most nutritional choices socializes individuals in a market governed system in the absence of adequate counterweights has led to perverse results, such as be the increasing rate of obesity in the population and the increase in the incidence of food-related diseases [16]–[20].

Faced with growing insecurity, one of the answers is the search for simpler, more authentic, more natural lifestyles. And typical food products but they also fit fully into this trend. Contrary to appearances, they do not mean to create a defensive closure regarding the globalization of consumption and production. I am also an advanced response to consumers' growing search for variety, simplicity and authenticity, they find their own competitive advantage in the difficulties of the industrial system to give a consistent response to this research.

Thus, the concepts identified with the help of bibliometric research are often not only strictly related to aspects of product improvement, but also the repercussions on the local production system and in general on the territory of origin of the product, regarding the identity of the population and the local culture, sometimes on the agro-ecosystems of whose expression is the traditional product.

2. Proposed Algorithm

The concept of traditional food products is currently a component part of many national and international research programs. Moreover, the scientific literature is abundant on this subject and the

concepts used (definition, classification typology, conceptual framework, quantification methods) are difficult to identify.

The method used in this research is descriptive bibliometric analysis. Bibliometric indicators are increasingly applied by governments and various funding organizations, particularly due to their wide-scale applicability, low cost and time, and objectivity. The purpose of using these indicators is to optimize research allocations and make funding more efficient and effective. Furthermore, such bibliometric analyzes are necessary to understand the country's position in relation to global and domestic standards of scientific quality and production. From this point of view, it is clear why such an analysis is carried out not only in economically developed countries, but also in many developing countries, as well as in countries with economies in transition. Indeed, government funding of research in countries with social, economic or political challenges and limited amount of available resources should be very efficient, which cannot be achieved without correct bibliometric analyses. Currently, the Scopus database is used for extensive bibliometric analyses, which is owned by the Elsevier company as the largest universal bibliographic database with the ability to track scientific citations of publications. Although, WoS has some advantages compared to Scopus, such as depth of coverage, WoS database includes publications from 1945 and Scopus includes publications from 1966, both databases complement each other as no resource is exclusive and exhaustive.

Bibliometric analysis includes concepts that researchers use to describe their research, index terms or classification codes. The bibliometric analysis technique is based on a grouping that determines the connection between publications based on direct citation relationships. With the VOSviewer software we use direct citation relationships, bibliographic coupling or co-citation relationships. After the relationship between the publications is determined, the publications are assigned to the clusters. Thus, each publication is assigned to exactly one cluster. The grouping of publications into clusters is achieved by maximizing a quality function:

$$Q(x_1, \dots, x_n) = \sum_{i=1}^n \sum_{j=1}^n \delta(x_i, x_j) \left(a_{ij} - \frac{\gamma}{2n} \right)$$

Where:

- n represent the number of publications,
- a_{ij} represents the relationship between publication and publication j ,
- γ represents the resolution parameter, $-x_i$ the activity cluster company is assigned publication i ,
- The function $\delta(x_i, x_j)$ is a traffic light function, equal to 1 if $x_i = x_j$, and 0 otherwise.

The relation a_{ij} , between publication i and publication j is given by the following expression:

$$a_{ij} = \frac{c_{ij}}{\sum_{k=1}^n c_{ik}}$$

Where:

- c_{ij} has the value 1 if a publication i cites another publication j , and if we have the reverse situation where publication j cites publication i , the value of the c_{ij} parameter is 0 [21]–[26].

3. Experiment and Result

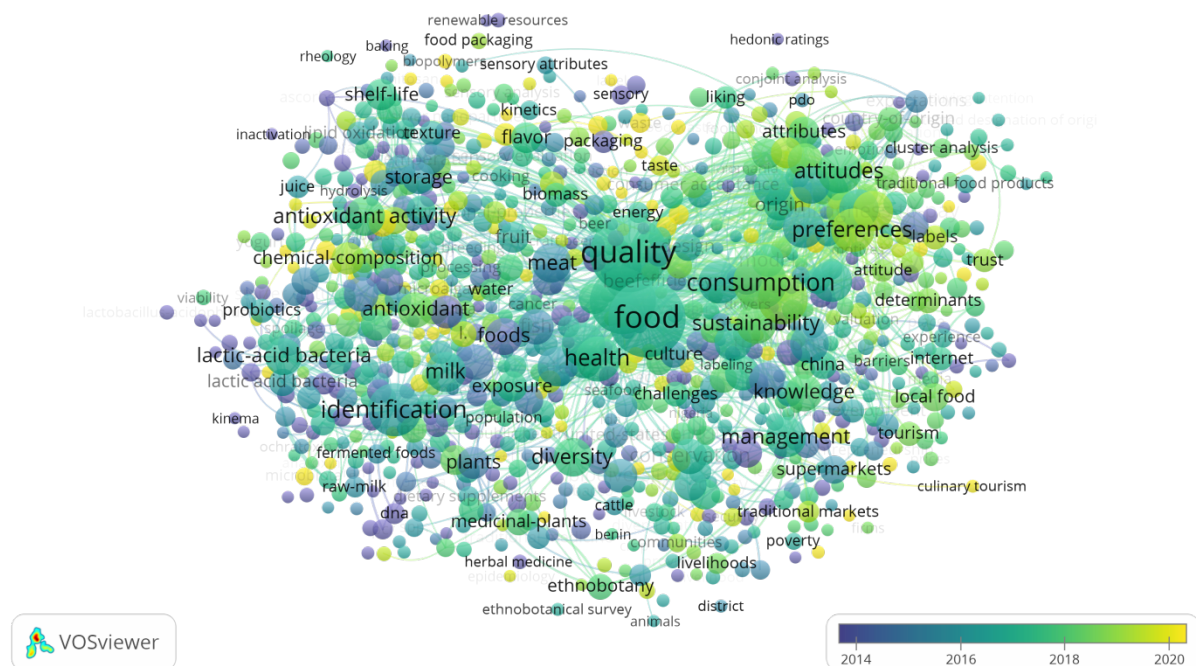
Using the presented methodology, with the help of the VOSviewer software, the specialized literature indexed in the Web of Science database was used to identify and visualize the evolution of the main trends. Thus, 2882 WOS articles from the period 2014 - 2023 were selected based on three main criteria which are:

- Topics regarding “the market of traditional food products”,
- Document type "article"
- Year of publication in the period 2014-2023.

There are eight major keyword clusters related to the traditional products market database in the most recently accessed WoS articles from 2014 to 2023, which we determined based on thematic clusters.

Figure 1 shows the keyword co-occurrence relationship map and also describes the dominant links between keywords and groups.

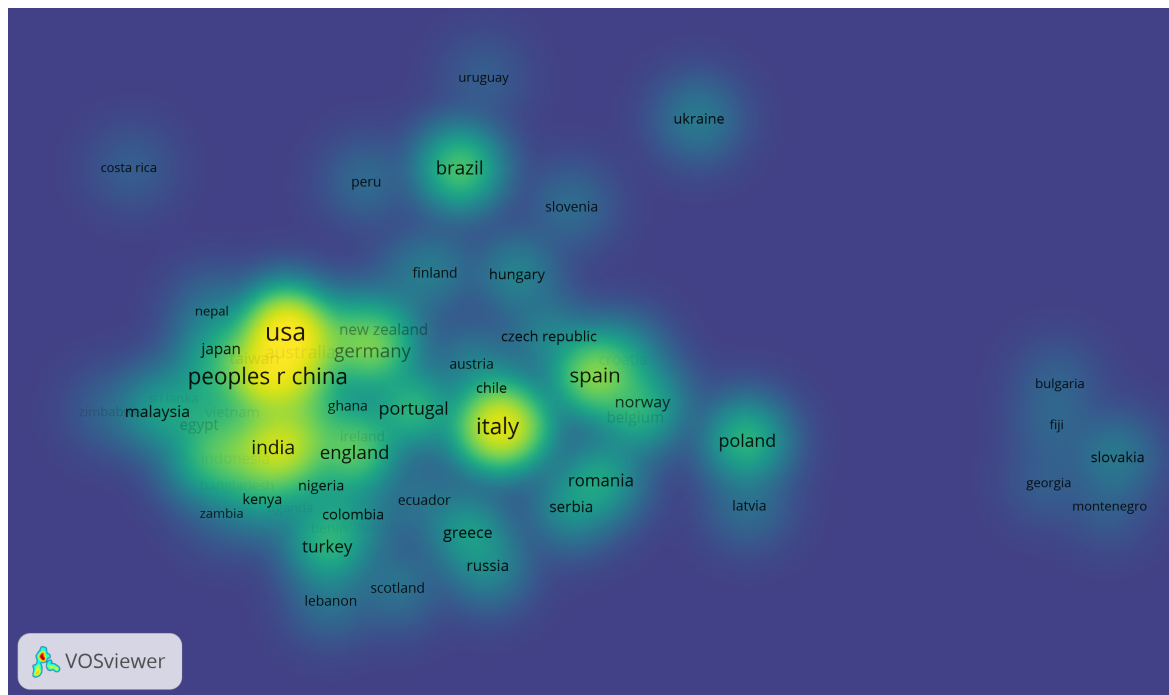
Figure 1



No single database could cover all related articles and the best form of bibliometric analysis is to use multiple databases for the search process. The bibliometric analysis of traditional food market studies established the most popular concepts as well as their evolution over time (Figure 1).

The USA, China, Italy, India, Spain, Poland and Brazil had the biggest contributions to the research and development of scientific concepts according to the bibliometric analysis regarding the market of traditional food products (Figure 2).

Figure 2: The Countries with the Greatest Contribution to the Development of Concepts Related to the Market of Traditional Food Products



VOSviewer is a tool that combines different types of interactive visualizations to support users in exploring the scientific literature. A publication clustering technique based on direct citation relationships, similar to the technique used in this paper, will be at the heart of the new tool. In this paper, using Vosviewer, we obtained a series of clusters with different levels of detail to understand the evolution of the scientific concepts encountered regarding the market of traditional Romanian food products. The dynamics of these clusters in the analysis carried out over the last 10 years reveals how interest in a subject has increased or decreased over time. Regarding traditional Romanian food products that reinvent food products and techniques from the past decades, an association with a series of very current scientific concepts can be observed in the current period.

4. Conclusion

Using VOSviewer as a bibliometric analysis tool, selected publications in the field of traditional food market can be clustered without the need for deep knowledge of clustering techniques. In addition, no advanced knowledge of information technology is required. The data set downloaded from the Web of Science online database can be provided directly as input to software tools without the need for data preprocessing. Of course, despite the ease of use of our tools, a basic understanding of clustering techniques remains essential to perform meaningful analysis and avoid misinterpretation of the results obtained.

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