



## The influence of "pipeline" patents concession in food area

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### Abstract.

The creation of the World Trade Organization (WTO) and the approval of the TRIPS Agreement by signatory countries, obliged several countries, among them Brazil, to change their legislation of industrial property. Brazil's patent legislation, specifically suffered great alterations, from the moment that the country have to start granting patent rights in areas where the previous legislation (Law 5772/71) didn't grant them. The approval of patents for pharmaceutical, chemical and food products was regulated in Brazil by the Industrial Property Law 9279/96, leading these areas to become niches of investment, development and financial return highly favorable to the industries, appearing from this a need to accompany the evolution of those applications and in what they can influence in the technological development of the country, being the food area of highest tactical and strategical importance not only in political and economical terms, as well as with relationship to the health and life quality of the population. The main objective of this work is to identify the influence of the concession of patents in the evolution of the food area in Brazil after the introduction of TRIPS' Agreement, the new Industrial Property Law and the Law 10.196/01. After choosed the subclasses inside of the food area that will be accompanied by the study, using the International Classification of Patents (class A) as base, established the period from 1996 to 2004 for the research, the information contained in the patents documents will be selected. At this moment the first raising made for the called *pipelines*, a special case of applications deposited between 05/14/1996 and 05/15/1997, gave us a total of 54 applications for food area inside the 1183 *pipeline* that were deposited, being 17 of them related to functional or health food.

**Keywords:** patents, functional food, *pipeline*

## 1. Introduction

### 1.1 Industrial Property

The creation of the World Trade Organization (WTO) and the approval of TRIPS Agreement (Trade Related Aspects of Intellectual Property Rights) by the signatory countries, made that some countries, among them Brazil, had to modify its legislation of industrial property.

From the moment that the country became TRIPS signatory, it was obliged by this agreement to grant patent rights in areas where the previous legislation (Law 5772/71) didn't grant them, having this legislation suffered great alterations (Bermudez, 2000).

The importance of a patent document is related to the fact that this is the guarantee of protection of the technological development, and, on compensation to the investments carried through for this development, the patent will guarantee a protection period during which the owner of it one will be able to get a proportional return to the development and the carried through investment.

The approval of patents for pharmaceutical, chemical and food products was regulated in the country by the Industrial Property Law (IPL 9,279/96), taking these sectors to become niches of investment, development and financial return mainly for the great multinationals, that invest too much money in research works and development of new products.

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Articles 230 and 231 of law 9,279/96 had instituted in Brazil, the called *pipeline*, that consisted of a temporary device by means of which had been accepted deposits of patent applications in areas that were not privileged by the previous legislation (Law 5772/71) - essentially a wide area of the chemistry-pharmaceutical and the biotechnology - exactly that such application didn't already fulfill the requirement of absolute newness, being the period of protection restricted to the one in vigor in native country of the deposit (Assumpção, 2001).

## 1.2 The food industry

The food industry is directly joined on a large extent to the multiple functions of foods in the contemporaries societies. The food besides being seen as able to satisfy hunger and to supply the caloric necessities of the individuals, also fulfill today, functions associated to the health, such as: to reduce cholesterol, to be adjusted the diabetes carrying people, not to fatten, to prevent illnesses caused by vitamins and minerals deficiencies, to supply energy and for possessing integrant components of the cellular structures. Moreover, its production must be sustainable, what implies to respect the convention to not pollute, socially be adjusted, to use recycle and aseptic packings.

The food consumption will continue to extend, in result of the world population growth, something around 95 million people per year, and, with expressive economic growth foreseen for emergent economies such as Asia and increase of the per capita income.

The revenue growth of the feeding industry (liquid of indirect taxes), composed by alimentary products more drinks, can be also considered a basic information for the evaluation of the increase of the importance of this industrial branch. In accordance with information of the Brazilian Association of Food Industry (ABIA) the revenue of the Brazilian feeding industry passed of R\$ 85,8 billion in 1998 to R\$ 157,8 billion in 2003.

Moreover, the value gotten with the *in natura* food exportations, turns around 50% of the value gotten for industrialized foods. Data of ABIA for the year of 2003 showed that the country exported US\$ 12,987,006 in industrialized foods and US\$ 7,109,0972 in *in natura* foods. The Brazilian exportations are in its majority in natura/commodities products or products in the first levels of processing, that with no doubt are important products, but the country has potential to occupy also segments of ready and packed products, that can be added of high aggregated value. It is necessary to still lead in consideration, that inside of the called industrialized food, there are some products in the first levels of processing of the food chain, as for example: preparations of horticultural products and fruits, sugars, fats, oils and waxes. These products when exported will be used in its destiny, as raw material in other industries, that will produce new products of high aggregated value and that, probably will distribute them for other countries, including the exporter country.

It verifies that in food sector, Brazil occupiesa position behind countries as France, Holland, Germany and Italy, that possess a more diversified portfolio, directed toward to processed and industrialized primary products, of high aggregated value.

The food sector, in general way, is evaluated as being extremely strategical for the economy of the country, being a sector that is in development phase and constant implantation of new technologies. The globalization of the markets leads to the necessity of constant improvements of the productive processes, aiming at the attainment of products with better quality and minor price and to the increase of productivity.

The process of technological innovation in the food industry in the world is characterized by ample interface with other industrial sectors. The food industry stimulates innovations in all the agrofood chain, such as in the

raw material producers (agriculture), in additive suppliers, the sector of packings, the wholesale and retail distribution, and in goods industries (Embrapa, 2000).

### 1.3 The functional food

On the other hand it has a world trend of search for foods that not only satisfy the nutritional aspects of the population, but also the health aspects, reducing the risk of illnesses that reach great part of the population (hypertension, diabetes, cancers...) and contributing for the general maintenance of the health of it one.

These facts had stimulated the research of food properties that can favor both the aspects and the development of new products able to answer to this demand, appearing, then, the term functional food that was introduced for the first time in Japan around 1980. It had had been used as part of a program of reduction of the safe health costs, in view of the increase supported in the life expectancy of the population. To reduce the expenditures with medicines, a program called FOSHU was implanted (Foods for Specified Health Use), where the foods would have to be based on natural ingredients, to be consumed as part of the alimentary diet, and would have to fulfill specific functions in the organism, such as: improvement of the mechanisms of biological defense, prevention or therapy of some disease or disfunction, improvement of the physical and mental conditions and contribute to the general state of health and retardation in the organic aging process (Gazzoni, 2002).

The functional food market in the United States had a growth of about 200%, passing from \$US 1,3 billion to \$US 4,0 billion in sales in the period of 1999 to 2004, while the drink market had a growth of about 50%, passing from \$US 4,7 billion to \$US 6,9 billion in the same period.

On Japan, the nutraceutical food constitute a market of US\$ 4 billion, occupying an important place in the revolution of health in the country. In comparison, correct data about the functional food industry in South America isn't established yet (Leong, 2001).

It is important to stand out that we live on a time where the wealth generation is directly related to the intellectual work and the monopoly of the technologies generated from this.

It is had as an objective, to identify and to collect informations concerning the patent concession in the food area in Brazil after the introduction of TRIPS Agreement, the new Industrial Property Law (Law 9,279/96) and of Law 10,196/01, mainly in the area of functional foods, using as first research group the called *pipeline* applications, cause they were the first kind of application accepted from Law 9279/96, following the evolution of these concessions and in what they can influence in the technological development of the country, being the food area not only of strategical and tactics importance but also in terms economic and politycal, as also with relation to the health and quality of population life, in view of that a healthful population have to be a well fed one not only quantitatively as qualitatively.

The International Patent Classification (IPC) was used , in its seventh edition (1999), as base for the limit of the research. It is divided in section, sub-section, class and subclass, with being delimited about the class and more specifically of the subclasses inside of the food area to be followed. After this a selection which information contained in documents of patents will be used to compose the database of the research was made. The survey of the application and/or published patents pipeline and of the information related to these, will be carried through for the ones deposited between 14/05/1996 to 15/05/1997 (period determined by the law for the deposit of the asked application).

## 2. Methods and Analysis

The great influence of global and economic development and the adjustments in the politics is promoting changes in Brazilian food industry, stimulated by the open flow of information, investments and technology.

The integration of the economic activity implies competitiveness in world level and along the development of the food chain. With the purpose to improve the production and consequently the profits, the market pressures for the specialization, diversification and aggregation of value to the production. The trend in the food industry seems to be adding also functional values to the products, searching the alimentary security and improvement of nutrients and functioning for the human being organism, as it is the case of the functional food, that have presented growth in its production.

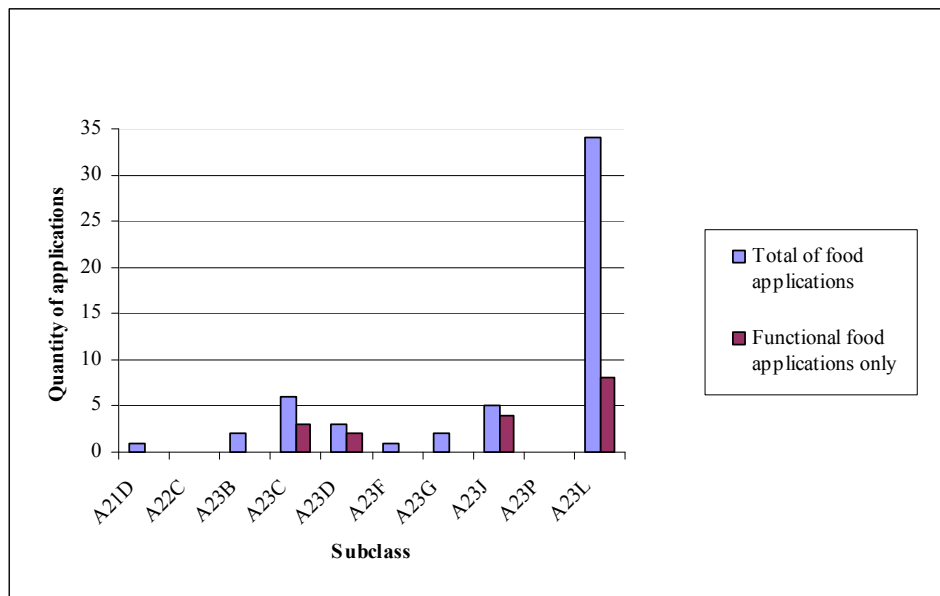
On Table 1 we can see the subclasses of the International Patent Classification used as base for the research of the application and granted patents for the food, and more specifically functional food. It was used as a parameter to delimit the research group, because all kind of food patented will be included in one of this subclasses.

**Table 1.** Subclasses of the International Patent Classification used as base for the research of the application and granted patents

Classification <sup>1</sup>	Subject
A21D	Treatment, e.g. preservation, of flour or dough, e.g. by addition of materials; Baking; Bakery products; Preservation thereof
A22C	Processing meat, poultry, or fish
A23B	Preserving, e.g. by canning, meat, fish, eggs, fruit, vegetables, edible seeds; Chemical ripening of fruits or vegetables; The preserved, ripened, or canned products.
A23C	Dairy products, e.g. milk, butter, cheese; Milk or cheese substitutes; Making thereof
A23D	Edible oils or fats, e.g. margarines, shortenings, cooking oils.
A23F	Coffee; Tea; Their substitutes; Manufacture, preparation, or infusion thereof.
A23G	Cocoa; Chocolate; Confectionery; Ice-cream.
A23J	Protein Compositions for foodstuffs; Working-up proteins for foodstuffs; Phosphatide compositions for foodstuffs.
A23L	Foods, foodstuffs, or non-alcoholic beverages, not covered by subclasses A23B to J; Their preparation or treatment, e.g. cooking, modification of nutritive qualities, physical treatment; Preservation of foods or foodstuffs, in general.
A23P	Shaping or working of foodstuffs, not fully covered by a single other subclass

<sup>1</sup> According to IPC – Intellectual Patent Classification.

Figure 1 shows the total number of food applications deposited following pipeline rules. We have obtained a total of 54 applications for food area inside the 1183 pipeline that were deposited in Brazil from 05/14/1996 to 05/15/1997. More specifically, we have 17 of them related to functional food as can be observed in the same figure. This classification of functional food applications was made based on National Health Surveillance Agency legislation for every functional food category.



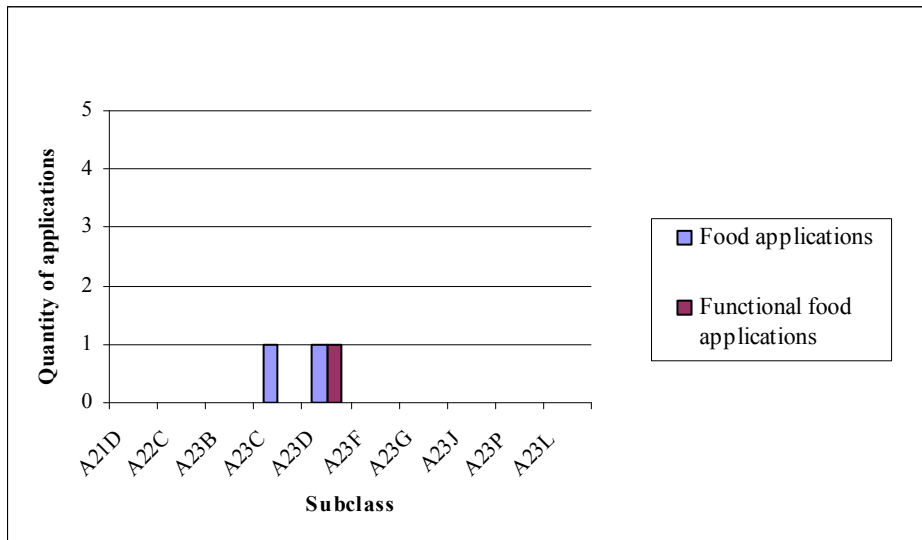
**Fig. 1.** Total quantity of food and functional food pipeline separated by subclass showed in Table 1

It's important to observe that we have almost 32% of the total food area applications related only to the category of functional food, showing that this is becoming an important subarea inside food area.

On Figure 2 it's possible to see that, from the 54 pipeline applications related to food only 2 of them have Brazil as owner of the patent and one of these is related to functional food.

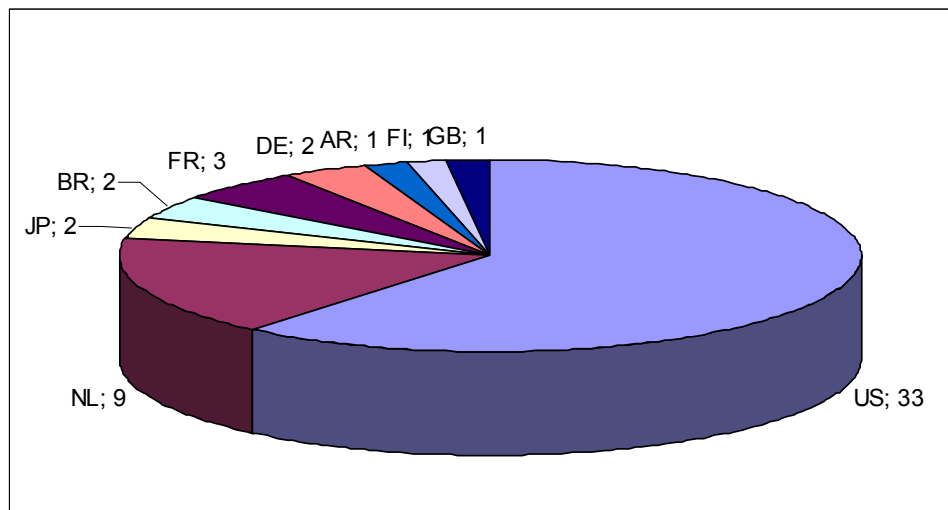
An important conclusion is necessary to point out from this data. The food pipeline application that have a brazilian resident as owner is in a small number, what represents the low development of brazilian technology or it can represents the low importance that brazilian researchers give to the patent system.

Brazilian patent application is related to edible oil and modified protein obtained from the extraction and clarified butter.



**Fig. 2.** Pipeline food and functional food applications that Brazil is the owner of the invention

We can see on Figure 3 that the United States is the most important owner of food applications, being responsible for 33 food pipeline applications inside the 54 food pipeline deposited, what corresponds to 61% of them.



**Fig. 3.** Distribution of the totality of food application by native country<sup>2</sup>

Analyzing the distribution of functional food pipeline application that is showed by Figure 4 we can observe that the United States have 13 of the 17 functional food pipeline application deposited in Brazil, what corresponds to 76% of them. The mayor of them are related to soya and milk products and vitamins.

<sup>2</sup> BR is Brazil; US is United States; NL is Netherlands; JP is Japan; AR is Argentina; FI is Finland; GB is Grain Britain; DE is Deutsche; FR is French

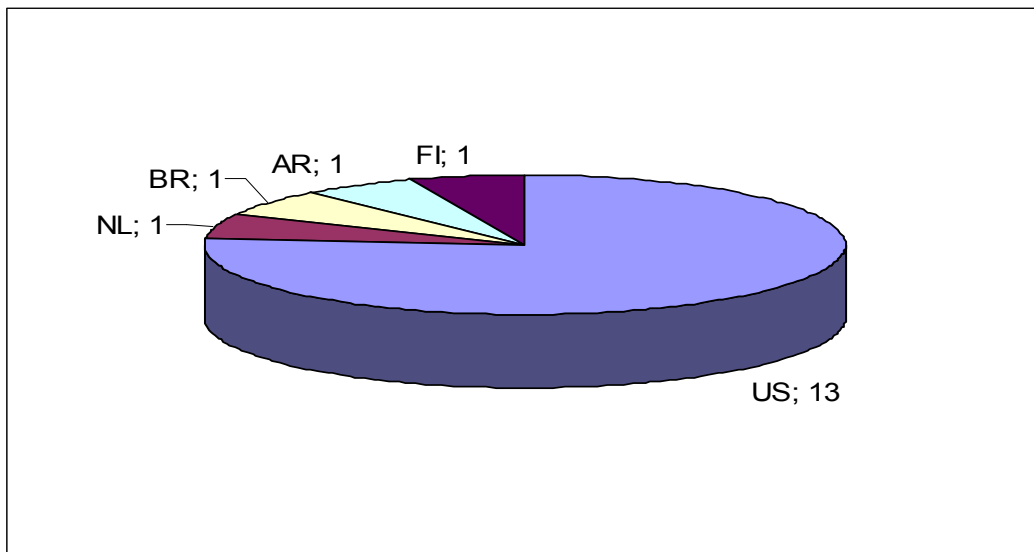


Fig. 4. Distribution of functional food applications by native country

### 3. Conclusions

As a general conclusion we observe that in both categories, food in general and functional food specifically, the United States showed a big superiority in the deposit of patents applications in Brazil. Brazil don't have expression in this kind of application.

The development of food products, with functions that are beyond the nutritional and sensorial qualities and taking in consideration the related aspects to the relation diet/health/illness is a reality, where it has a necessity to do more research that proves the effect of biologically active composites in the prevention or treatment of illnesses.

All data and facts presented above, demonstrate the importance of the food segment in the industrial complex of the country and can let us to think and conclude what motivate the increase in the interest of the developed countries on getting patent rights in Brazil for the food area. Brazil is considered one of the most promising and income-producing markets of the world among the developing countries. However, the great world trend, also of Brazil, in the search for products of better performance, with attributes directed toward the nutritional improvement and of health of the populations, makes with that the research and the development of new products will become an inevitable way for the growth.

The values invested in this search, will only bring favorable return to the great industrial food complexes, from the moment where they become owners of the new technologies of products manufacture, and consequently to protect them through industrial property rights, more specifically by patents. This will guarantee to the great investors the monopoly on the production in an area of vital importance for human being.

However, during many years, the developing countries, among them Brazil, had given little incentive to the protection of the research work, to the accompaniment of the technological trends and consequently to the privilege of being the owner of the monopoly on the knowledge, able to generate more technological development and growth for the country.

This is the age where the production of the world wealth is directly on to the production of the intellectual knowledge, knowledge that is becoming along the age, one of the biggest factors of world hegemony (Vidal, 1996).

It's important to increase the number of patents where the owner is a Brazilian industry or researcher, cause it will guarantee a good return to the country. The development of a country is directly linked with the technology that it produce.

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