

ISAFRUIT PATENT REPORT

2.1. MICROWAVE PROCESSING OF FRUIT, FRUIT PREPARATIONS, SALADS AND DESSERTS TO PRESERVE QUALITY AND ENHANCE MICROBIAL STABILITY OF THESE PRODUCTS. (WP 3.1)

ISAFRUIT output: a process ready to be scalable at industrial level that will allow to preserve quality and enhanced microbial stability of fruit and fruit preparations using high frequency technologies (microwave and radiofrequency). The idea is to reduce the cooking effect on fruits with a short treatment, while maintaining the microbial safety

2.1.A TRENDS IN TECHNOLOGY:

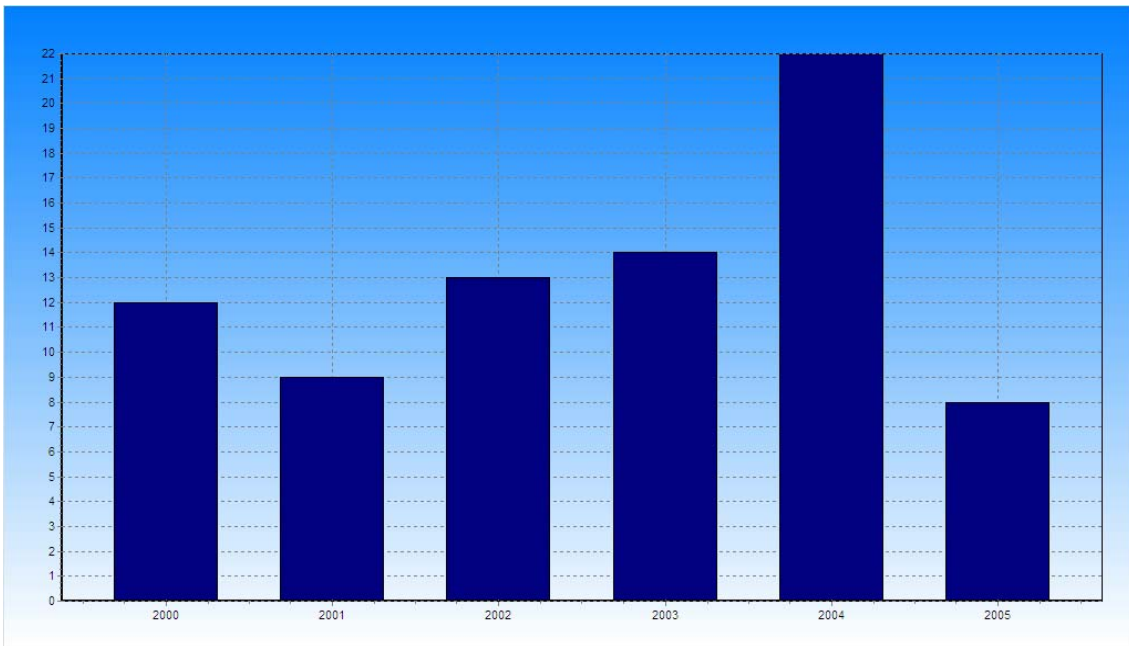


Figure 1 : Worldwide effort made in patenting technology of preserving by irradiation since 2000

Comments: Taking into account the increasing importance for the consumer of all issues relating to food safety, the figures appearing in figure 1 seem not to reflect the effort done by the food industry to achieve the standards. This may occur because:

- The food industry has incorporated, well before the year 2000, the desirable levels of technology to achieve the food safety standards.
- The technologies used by the food industry belong, in a significant part, to the state of the art, and are, therefore, not protectable by them. In this case, the appropriate industry sector to be addressed would be the one owning the intellectual property right of the equipment used by the food industry.
- The technologies used by the food industry are easy to copy and/or it is not obvious how to protect the rights acquired by a patent in this sector. If we consider that the rate of introduction of new products (foods) into the market is relatively high, and the "life" of said products is relatively short (new products take over the old ones) the benefit of a 20 year protection may not be evident for many companies.

2.1.B PATENT ACTIVITY PER COUNTRY:

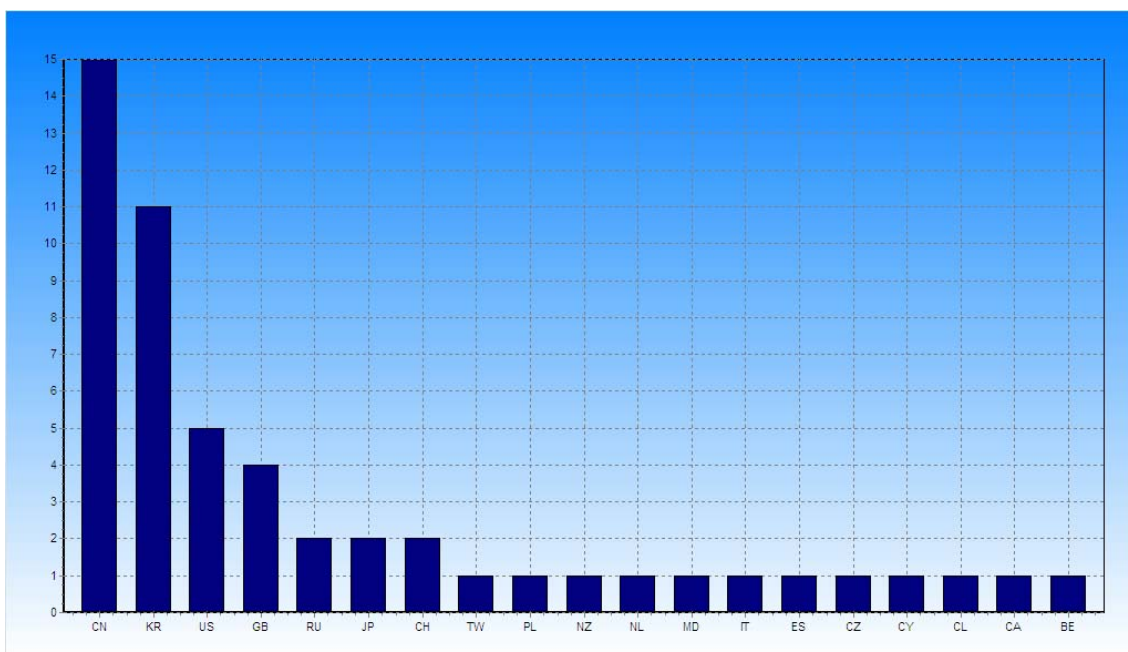


Figure 2: Patents filed per country, since 2000, one member per patent family only for preserving by irradiation

According to the data shown in Figure 2, China is the most active country in this field (18 patents), followed by Korea (11) and the United States (5). Great Britain is the most active European country (4). According to this data, Asian countries are leaders in patent activity for this technology.

2.1.C COLLABORATION WORK:

It has been analysed the existence of links between companies and institutions owning the intellectual property rights of the patents existing in the field of preservation of fruit or vegetable by irradiation. No significant links have been found. This could be considered as a strategic opportunity for public research organisations within ISAFRUIT to approach the private sector in this particular field of technology. The following sections of this report will help to identify in which countries and/or which companies are better placed to acknowledge this type of collaboration.

2.1.D THE MOST ACTIVE ORGANISATIONS:

This part of the report is to help the technology transfer offices of the partners listed above, responsible for developing a new technology in ISAFRUIT.

⇒ In the world

NAME OF THE ORGANISATION	N°patents	Country
DAEHAN ORIGINAL ULTRAED INDUSTRIAL CO.	2	KR
6231934 CANADA INC.	1	CA
ATLANTIUM LASERS LIMITED	1	CY

NAME OF THE ORGANISATION	N°patents	Country
BAMBOO RESEARCH AND DEVELOPMENT CENTRE	1	CN
CHIZHONG GROUP CO.	1	CN
DAIKOH SHOJI CORP.	1	JP
ECOLAB INC.	1	US
ENSEKI AOJIRU CO.	1	JP
FRESH APPEAL LIMITED	1	NZ
FRUIT TREE INST. GUANGDONG ACADEMY OF AGRICULTURE	1	CN
FUZHOU CHAODA MODERN AGRICULTURE DEVELOPMENT CO.	1	CN
GOSUDARSTVENNOE NAUCHNOE UCHREZHDENIE VSEROSSIJSKIJ NAUCHNO-ISSLEDOVATEL'SKIJ INSTITUT VINOGRADARSTVA I VINODELIJA IM. JA.I. POTAPENKO (VNIIVIV)	1	RU
GOSUDARSTVENNOE OBRAZOVATEL'NOE UCHREZHDENIE VYSSHEGO PROFESSIONAL'NOGO OBRAZOVANIJA	1	RU
H. J. HEINZ CO.	1	US
HANGZHOU CHUNFENG INDUSTRY CO.	1	CN
HEBEI AGRICULTURE UNIV.	1	CN
ISEKI NOUKI CO.	1	JP
KOREA FOOD RESEARCH INSTITUTE	1	KR
LANJIANGELIN ELECTRONIC CO.	1	CN
NONG SHIM CO.	1	KR
PARKER HOLDING-SERVICES CORP.	1	TW
PRODUCE SAFETY SOLUTIONS	1	US
STATE-BUN NORTH-CHINA OPTICAL INSTRUMENT FACTORY	1	CN
STATE-RUN HUABEI OPTICAL INSTRUMENT FACTORY	1	CN
THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS	1	US
THE HORTICULTURE AND FOOD RESEARCH INSTITUTE OF NEW ZEALAND LIMITED	1	NZ
UNIVERSIDAD CATOLICA DE VALPARAISO.	1	CL
UNIVERSITATEA TEHNICA A MOLDOVEI	1	MD
YOUJUNG FOOD CO.	1	KR

Table 2: List of companies and organisations outside the EU with patents in the preserving by irradiation field

⇒ In Europe

NAME OF THE ORGANISATION	N°patents	Country
BARFOOTS OF BOTLEY LIMITED	1	GB
CERTECH ASBL	1	BE
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS	1	ES
FIRMA PRODUKCYJNO-HANDLOWA PAULA SP. ZO.O	1	PL
FROSTA AKTIENGESELLSCHAFT	1	DE
NEDERLANDSE ORGANISATIE VOOR TOEGEPAST-	1	NL

NAME OF THE ORGANISATION	N°patents	Country
NATUURWETENSCHAPPELIJK ONDERZOEK TNO		
PHYTELUM LIMITED	1	GB
STERITROX LIMITED	1	GB
TELFER FOODS LIMITED	1	GB
UNIVERSITÉ CATHOLIQUE DE LOUVAIN	1	BE

Table 3: List of companies and organisations in the EU with patents in the preserving by irradiation field

2.1.E RELEVANT PATENTS RELATED WITH THIS TECHNOLOGY¹

From the analysis of the patents filed by the companies which are more active in this field, we outline the following:

Title	Method for preserving fresh fruit and vegetable
Inventor(s)	Tishel, Moshe
PUB.NUMBER	US5595775
Inventor Country	Israel
Assignee	Analyst Ltd.
Assignee Country	ISRAEL
Filed Date	1995-10-11

Table 4. Patent information of a relevant patent of preserving by irradiation

¹ The patent number is hyperlinked with the fulltext patent in espacenet (free access with an internet connexion)