

ISAFRUIT PATENT REPORT

2.4. A TRENDS IN TECHNOLOGY

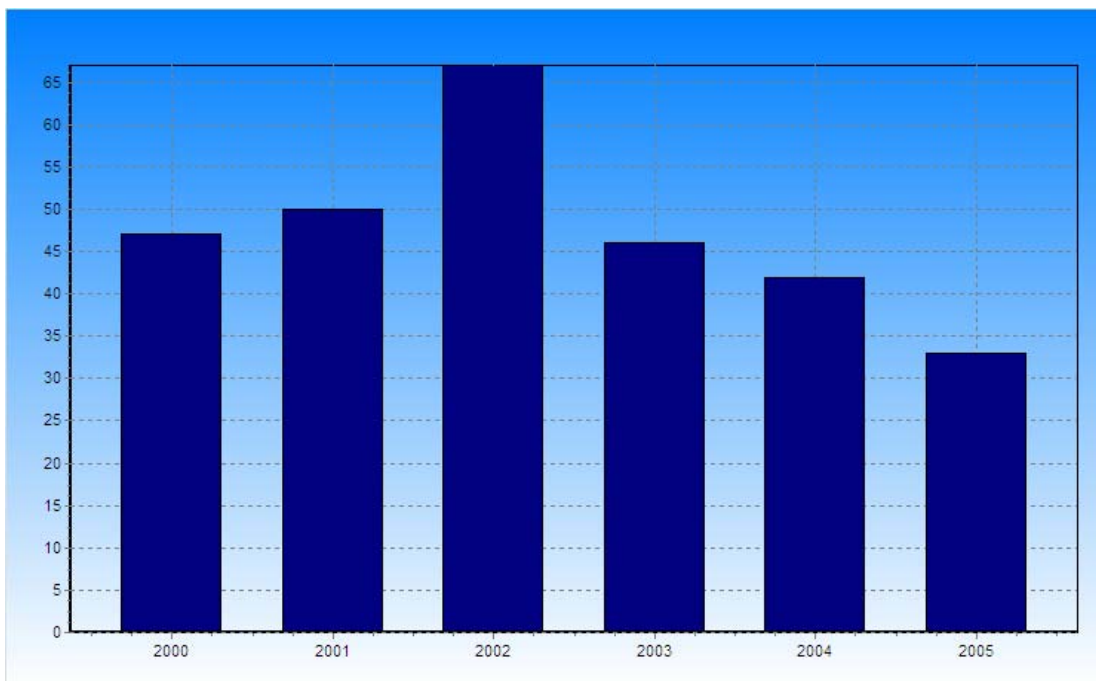


Figure 8 Worldwide effort made in patenting technology of preserving by freezing since 2000

When analysing the patents in this field we have found that the number of patents filed is relatively high, but that the distinction between fruit and other foods (vegetables) is not always easy. We believe that this is a mature technology, with a certain long tradition in vegetables and other food products, but with a smaller penetration in the fruit sector. WP 7.3 proposes an in-depth analysis, within a more restricted set of patents, using other tools.

2.4.B PATENT ACTIVITY PER COUNTRY

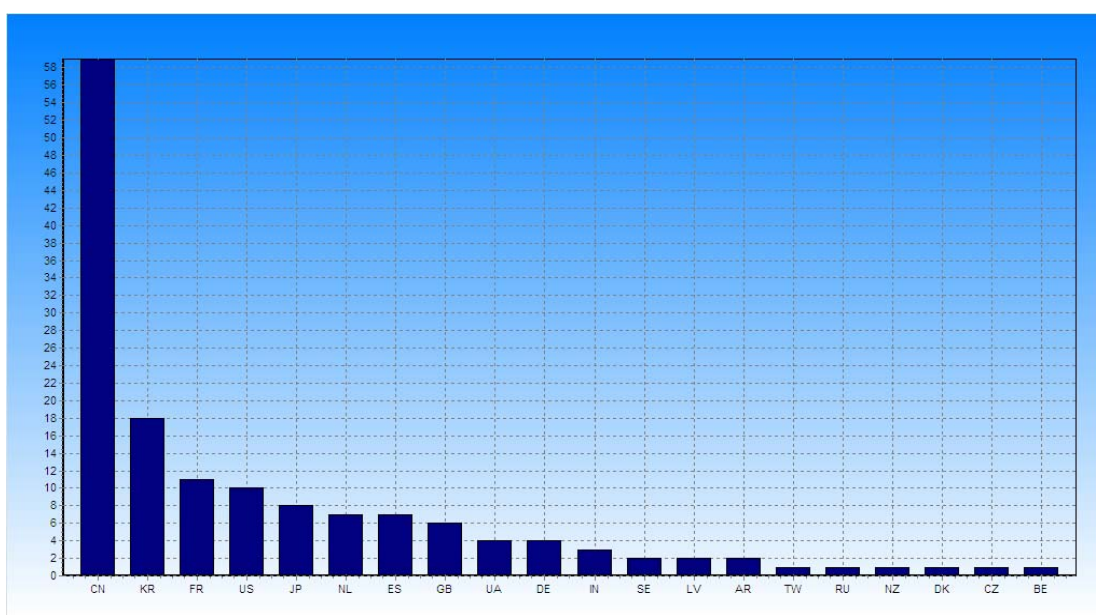


Figure 9. Patents filed per country, since 2000, one member per patent family only for preserving by freezing

Asian countries are leaders again in inventive activity. The number of patents of China, the leader, is 58 which is more than three times that of the second most patenting country which is Korea. France is the third most active country for preserving by pressure technology.

2.4.C COLLABORATION WORK

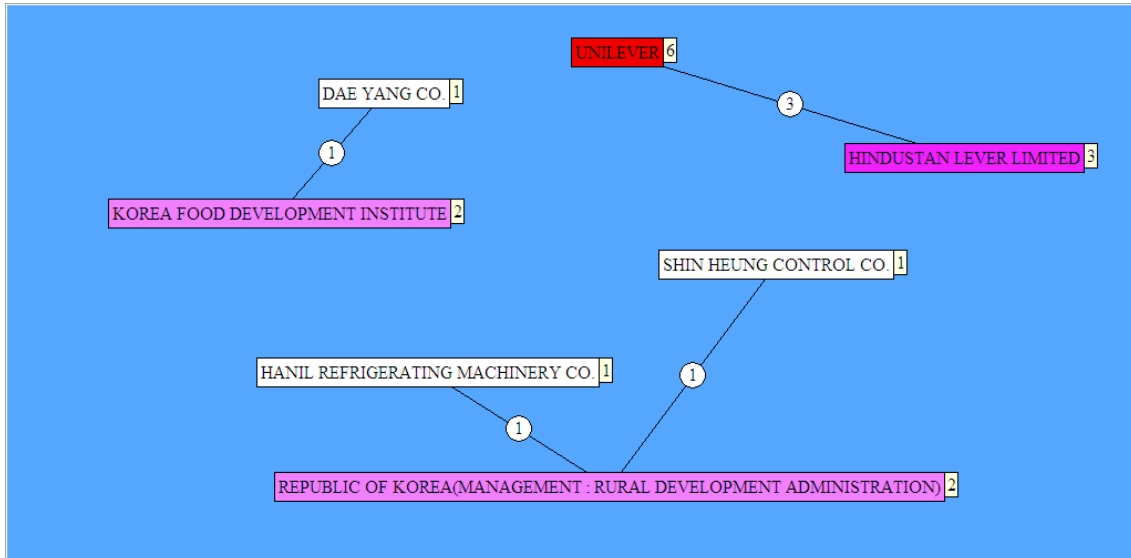


Figure 10 Organisations patenting together in preserving by freezing

Dae Yong Co.(KR)-Korea food Development Institute (KR)
 Unilever (US)- Hindustan Lever Limited (IN)
 Hanil Refrigerating machinery Co (KR)-Republic of Korea (Management Rural Development Administration (KR)- Shin Heung Control (KR)

Figure 10 shows a collaboration trend between Korean companies. It should be noted that leading country in Europe (FR with 11 patents), is not active in collaboration, neither with local industries nor academia. This could be considered as an strategic opportunity for public research organisations within ISAFRUIT to approach the private sector in this particular field of technology

2.4. D THE MOST ACTIVE ORGANISATIONS

⇒ In the world

NAME OF THE ORGANISATION	N°patents	Country
UNILEVER	6	US
SONG SHUXIAO	5	CN
MATSUSHITA REFRIG CO LTD	5	JP
Q P CORP	4	JP
L'AIR LIQUIDE	4	FR
MAYEKAWA MFG CO LTD	3	JP
HOSHIZAKI ELECTRIC CO LTD	3	JP
TAVRIA STATE AGRICULTURAL ENGINEERING	3	JP

ACADEMY		
HINDUSTAN LEVER LIMITED	3	IN

Table 9. List of companies and organisations outside the EU with patents in the preservation by freezing field

⇒ In Europe

NAME OF THE ORGANISATION	N°patents	Country
L'AIR LIQUIDE	4	FR
TAVRIA STATE AGRICULTURAL ENGINEERING ACADEMY	3	UA
NIENSTEDT GMBH	2	DE
TRADE DESHIDA	2	ES
IMECA	2	FR
FRITSON AG	1	CH
WIESENHOF-PILZLAND VERTRIEBSGESELLSCHAFT MBH	1	DE
MESSER GRIESHEIM GMBH	1	DE
FRANZ ZENTIS GMBH & CO KG	1	DE
LINDE AKTIENGESELLSCHAFT	1	DE
SFK SYSTEMS A/S	1	DK
SOCIETE DES PRODUITS NESTLE S.A.	1	CH
FROSTA AKTIENGESELLSCHAFT	1	DE
DIRAFROST F.F.I. N.V.	1	BE
EXOLIVA	1	ES
MATERIEL POUR L'ARBORICULTURE FRUITIERE	1	FR
C.I.M.S.	1	FR
KERRY INGREDIENTS FRANCE SOCIETE ANONYME	1	FR
ADMINEX OASIS LIMITED	1	GB
PIZZOLI S.P.A.	1	IT

Table 10. List of companies and organisations in the EU with patents in the preserving by freezing field

2.4.E RELEVANT PATENTS RELATED WITH THIS TECHNOLOGY

Patent Number	CN1245018
Title	Method for treating fruit and vegetable
Inventor(s)	Saldo A.
Inventor Country	FR
Assignee	Kceda International Co
Assignee Country	FR
Filed date	13-07-1999

Table 11. Patent information of a relevant patent of preserving by freezing field