ISAFRUIT PATENT REPORT

2.2 ALTERNATIVE TECHNIQUES TO REDUCE FBPS (FOOD BORN PATHOGENS) ON MINIMALLY-PROCESSED FRUITS (WP 3.1)

ISAFRUIT output: To ensure the microbial safety of minimally-processed fruits (mainly apple and peach), a process to eliminate or reduce foodborne pathogens using microorganisms isolated from fresh fruit (biocontrol agents) alone or in combination with other techniques such as microwave, high pressure treatments or the addition of GRAS substances (Generally Regarded As Safe) will be developed.

2.2.A TRENDS IN TECHNOLOGY

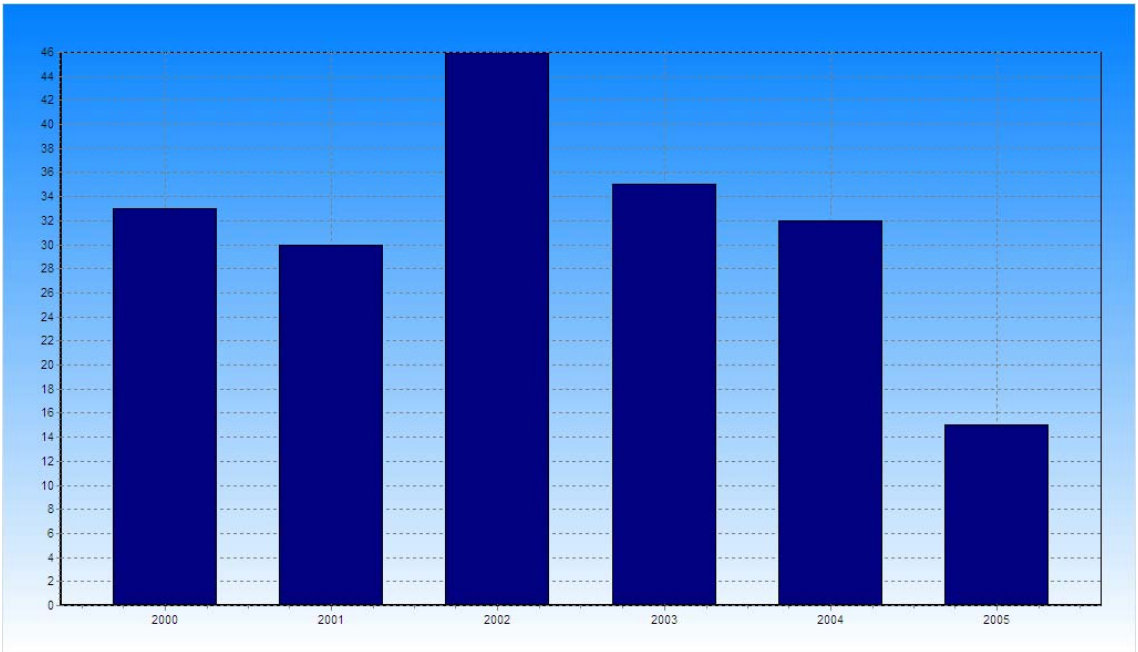

Figure 1 : Worldwide effort made in patenting on preservation by organic compounds sector since 2000

The inventive activity in this field seems to be higher than in the previous case. The trend could be considered stable, taking into account that the data for 2005 may not be complete (at the moment of making this study, some patents in 2005 may not have been published yet). This could be interpreted as an opportunity for ISAFRUIT partners to invest in protecting the expected output.

2.2.B PATENT ACTIVITY PER COUNTRY

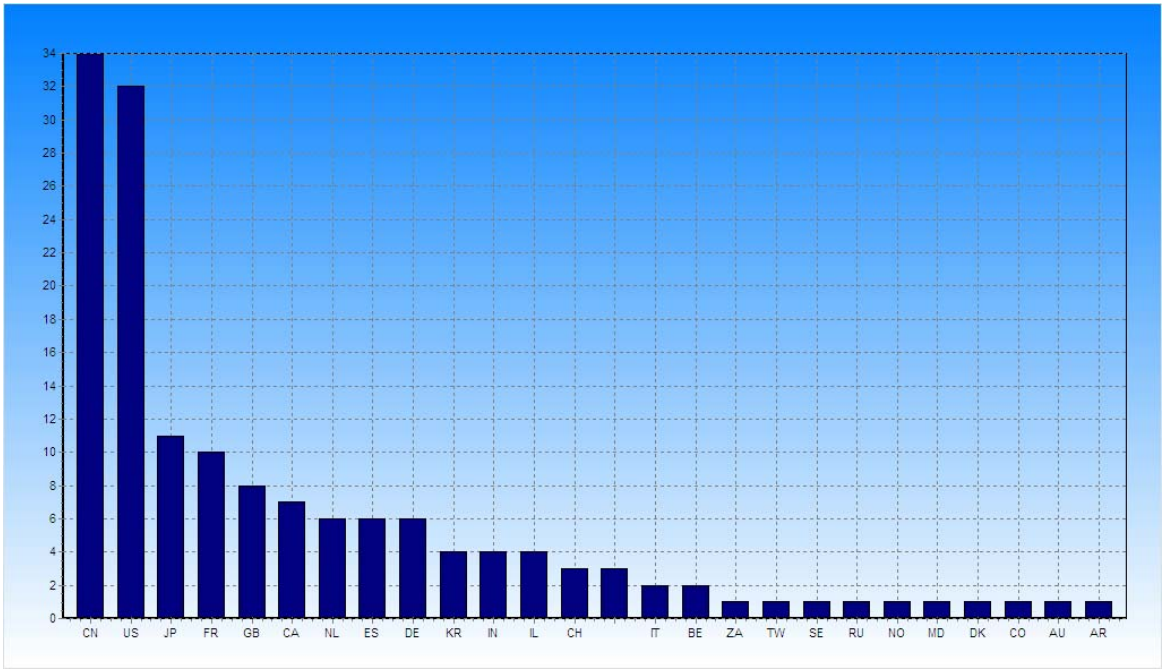

Figure 4: Patents filed per country, since 2000, one member per patent family only for preserving by organic compounds

According to the data shown in Figure 4, China is the most active country in this field (34 patents), followed closely by US (32). France is the most active European country (11).

2.2. C COLLABORATION WORK

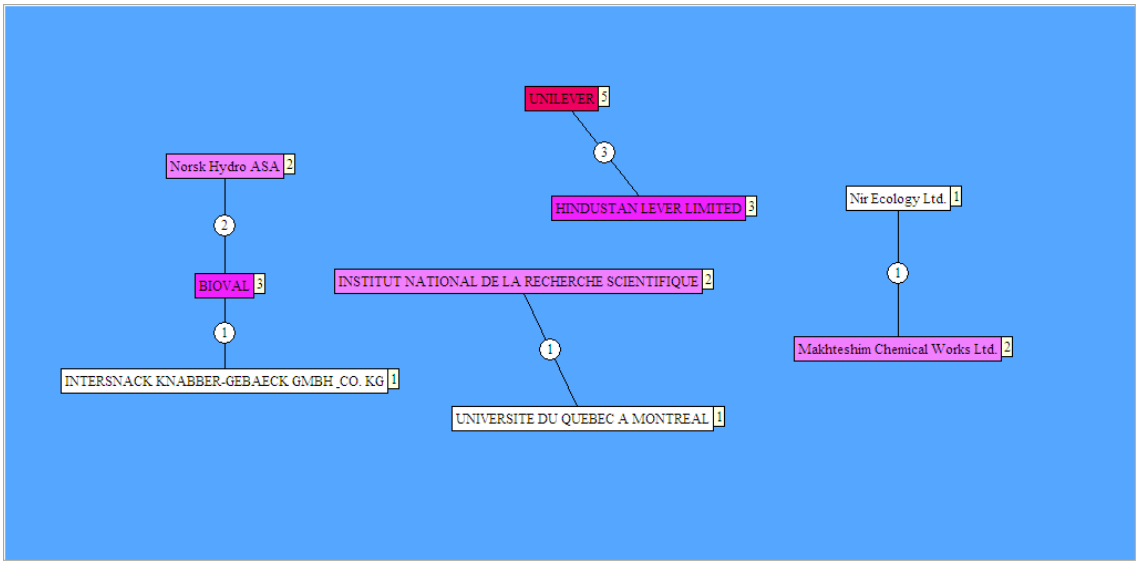

Figure 5. Organisations patenting together in preserving by organic compounds field

Nir Ecology (IL) - Makhteshim Chemical Works (IL)
Norsk Hydro ASA (NO) - Bioval (FR)- Intersnack Knabber-Gebaeck (DE)
Institut National de la Recherche Scientifique(CA) –Universite Du Quebec a Montreal (CA)
Unilever (US) – Hindustan Lever Limited (IN)

The link academia-industry appears not to be relevant for the patents analysed in this case. Figure 5 shows that the collaborations identified have occurred between industries or academia from the same country (Israel, Canada). There is an example of an international cooperation between Norway, France and Germany (industry) and from firms belonging to the same multinational (Unilever). As mentioned in the previous case, 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

2.1.D THE MOST ACTIVE ORGANISATIONS:

NAME OF THE ORGANISATION	Nºpatents	Country
XEDA INTERNATIONAL	6	FR
VSEROSSIJSKIJ NAUCHNO-ISSLEDOVATEL'SKIJ INSTITUT B	6	RU
UNILEVER	5	US
HINDUSTAN LEVER LIMITED	3	IN
BIOVAL	3	NO
RATNOJ PROMYSHLENNOSTI I SPETSIAL'NOJ PISHCHEVOJ T	3	RU
PLANET POLYMER TECHNOLOGIES	3	US
THE PENN STATE RESEARCH FOUNDATION	3	US
CITRUS SENSATION PTY. LTD.	2	AU
INSTITUT NATIONAL DE LA RECHERCHE SCIENTIFIQUE	2	CA
HUANAN AGRICULTURAL UNIVERSITY	2	CN
NATIONAL FARM PRODUCE PRESERVATIVE ENGINEERING TECHNOLOGICAL RESEARCH CENTER (TIANJIN)	2	CN
MAKHTESHIM CHEMICAL WORKS LTD.	2	IL
KABUSHIKI KAISHA HAYASHIBARA SEIBUTSU KAGAKU KENKYUJO	2	JP
ROHM AND HAAS COMPANY	2	US
NORSK HYDRO ASA	2	NO
NAUCHNO-ISSLEDOVATEL'SKIJ INSTITUT PISHCHEKONTSENTRATNOJ PROMYSHLENNOSTI I SPETSIAL'NOJ PISHCHEVOJ T	2	RU
3M INNOVATIVE PROPERTIES COMPANY	2	US
UNIVERSITY OF GUELPH	2	CA
KRAFT FOODS HOLDINGS	2	US
THE PROCTER & GAMBLE COMPANY	2	US
ECOLAB INC.	2	US
MENDEZ	2	US
FRUTAVIT LTD.	2	IL
COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH	2	IN

Table 5: List of companies and organisations with patents in the preserving by organic compounds fields

2.E RELEVANT PATENTS RELATED WITH THIS TECHNOLOGY

Patent Number	US6423310
Title	Biological coating with a protective and curative effect for the control of postharvest decay
Inventor(s)	Wilson, Charles; Ghaouth, Ahmed El
Inventor Country	US; US
Assignee	Biotechnology Research and Development Corporation |The United States of America as represented by the Secretary of Agriculture
Assignee Country	US; US
Filed Date	1999-06-02

Table 6. Patent information of a relevant patent of preserving by organic compounds field