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DATE: March 18, 2004

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WORLD INTELLECTUAL PROPERTY ORGANIZATION

GENEVA

## INTERGOVERNMENTAL COMMITTEE ON INTELLECTUAL PROPERTY AND GENETIC RESOURCES, TRADITIONAL KNOWLEDGE AND FOLKLORE

Sixth Session

Geneva, March 15 to 19, 2004

PATENTS AS A SOURCE OF TECHNOLOGICAL INFORMATION IN THE TECHNOLOGY  
TRANSFER PROCESS

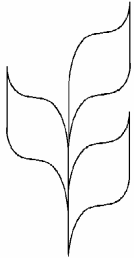
*Document submitted by the Delegation of Spain*

1. On March 18, 2004, the Spanish Patent and Trademark Office submitted a document entitled "Patents as a Source of Technological Information in the Technology Transfer Processes". The cover letter submitting the document noted that the document had previously been submitted to the seventh meeting of the Conference of the Parties (COP) to the Convention on Biological Diversity (CBD) as document UNEP/CBD/COP/7/INF/32.
2. The document is reproduced in the form received and published in the Annex to this document.

[Annex follows]



**CBD**



**CONVENTION ON  
BIOLOGICAL  
DIVERSITY**

Distr.  
GENERAL

UNEP/CBD/COP/7/INF/32  
20 January 2004

ENGLISH AND SPANISH  
ONLY

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CONFERENCE OF THE PARTIES TO THE  
CONVENTION ON BIOLOGICAL DIVERSITY  
Seventh meeting  
Kuala Lumpur, 9-20 and 27 February 2004  
Item 25 of the provisional agenda\*

**TRANSFER OF TECHNOLOGY AND TECHNOLOGY COOPERATION  
(ARTICLES 16 AND 18)**

*Patents as a source of technological information in the technology transfer process*

*Submission by the Government of Spain*

1. At the request of the Government of Spain, the Executive Secretary is circulating herewith, for the information of participants in the seventh meeting of the Conference of the Parties to the Convention on Biological Diversity, a document on patents as a source of technological information in the technology transfer process, prepared by the Spanish Patent and Trademark Office.
2. The document is being circulated in the form and languages in which it was received by the Secretariat of the Convention on Biological Diversity.

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\* UNEP/CBD/COP/7/1 and Corr.1.





MINISTERIO  
DE CIENCIA  
Y TECNOLOGIA



Oficina Española  
de Patentes y Marcas

**PATENTS AS A SOURCE OF TECHNOLOGICAL INFORMATION  
IN THE TECHNOLOGY TRANSFER PROCESS**

**Madrid. January 2004**



## **PATENTS AS A SOURCE OF TECHNOLOGICAL INFORMATION IN THE TECHNOLOGY TRANSFER PROCESS**

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## PATENTS AS A SOURCE OF TECHNOLOGICAL INFORMATION IN THE TECHNOLOGY TRANSFER PROCESS

### 1. Introduction

Since the 19th century, industrialised countries have developed a multitude of technologies. Those which involved innovation can be protected by patents.

Many of these innovative technologies are never published in books or magazines. However, they are described, both theoretically and practically, with examples and drawings, in a universal system for the publication of inventions: **Patent Documents**.

The U.S. patent file spans over 200 years. From plough to DNA. It tells the story of world science and technology since 1970. The knowledge disclosed through the patent literature is a significant contributor to the base of science and technology upon which the Nations' economy is built. Patents frequently contain information which cannot be obtained any other way. (Mukund J. Shah (USPTO)).

*Source: WIPO*

The important role which patents play in technology transfer has been repeatedly highlighted by international organizations such as **UNCTAD** (*United Nations Conference on Trade and Development*) and **WIPO** (*World Intellectual Property Organization*).

In 1964, UNCTAD had already issued a publication on:

**“ROLE OF PATENTS IN THE TRANSFER OF TECHNOLOGY TO DEVELOPING COUNTRIES”**  
(A/RES/1935(XVIII)).

In New York in 1975, UNCTAD published a book in Spanish entitled:

**“La función del sistema de patentes en la transmisión de tecnología a los países en desarrollo”.**

Though these publications can be difficult to find and may now even be obsolete, the fact is that UNCTAD has been holding expert meetings on technology transfer for several decades. Nowadays, these meetings take into account technologies that are relevant for the *Convention on Biological Diversity* (CBD).

## 2. Technological Information

Technological Information is a necessary condition for success in any process of research, industrial planning, development, manufacturing, commercialization or management.

There is a strong correlation between a country's level of technological development and its capacity to access information and use it freely.

The growing importance of the role of information in the development of the economy is one of the characteristic features of the scientific and technological change which is occurring daily. An effective exchange of information between the representatives of different fields of science and technology, and between scientists, engineers, managers and consumers of the results of research and development, has become a necessary condition of accelerated economic, scientific and technological progress.

Information today is a significant constituent element of research and development. The fact is that the conversion of science into a direct productive force has led to the intensification of the flow of information among the different spheres of science, technology, production and consumption.

Source: R. Andary. WIPO

### Sources of Technological Information .-

- \* Direct contacts.
- \* Exhibitions. Congresses. Lectures.
- \* Professional and scientific literature.
- \* Patent literature (published patent documents).

An important consideration is the selection of suitable sources of information. Since it is generally not possible to evaluate the entire scientific and technical literature, even if the greatest efforts are made, the proper selection of sources of information is highly significant. In this regard, patent literature plays an important part since it is an important integral part of the scientific and technological information available in the world today.

Source: R. Andary, WIPO

## 3. Patents as a source of Technological Information \*

### 3.1 THE DOUBLE OBJETIVE OF THE PATENT SYSTEM

In order to understand the role of patents as a source of technological information, we should



remember the double objective of the patent system:

- \* **Protecting** inventors  
(benefits individuals who innovate)
- \* **To increase society's scientific, technological and cultural patrimony**  
(society benefits as a whole, inventions are not kept secret and the inventor only receives protection for his invention if it is described in a clear and complete manner).

Patents are well known as Monopolies (legal protection) but very little as **sources of technological information**. However, this second objective is the most important as patent applications are published and disclosed before it is known whether the patent will be granted or not. Nowadays, Patent Offices give great importance to patents as a source of information.

#### Patents have two basic functions:

- \* protecting inventions
- \* providing technical information.  
Giving the correct level of importance to this second function is the aim of the patent information policy implemented by the European Patent Office, WIPO and many national patent offices (Jean-Michel Zilliox, EPO).  
*Source : WIPO*

#### Protecting inventors.-

Inventors or applicants apply for their inventions to get a twenty-year exclusive exploitation Monopoly.

However, in order for this monopoly to be granted, **the applicant must undertake to describe his invention** sufficiently for an expert in the field to be able to carry it out. The object of the invention is defined by the technical features of the claims (reivindicaciones in Spanish).

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\* This section is based on the publication "Las Patentes como fuente de Información Tecnológica" by the Spanish Patent & Trademark Office (OEPM) (see bibliography).

#### Publishing Inventions .-

Descriptions of inventions are disclosed. The Official Authority (usually, the Patent Office) **PUBLISHES** these descriptions, thus increasing the society's technological patrimony.

#### Publication of patent applications (A).-

Most patent offices **publish** patent applications 18 months after filing (usually, they are known as "A" publications).

Any person can ask for copies of the published applications or even get them on the Internet.

#### **Publication of Granted Patents (B).-**

The application procedure then continues with the novelty and inventive step examination.

After that, the application is either **GRANTED** or **REJECTED** (usually, this process takes 3 to 4 years).

- If the application is **granted**, it is published as Patent Specification (“**B**” publications). From then onwards, legal protection applies for exclusive exploitation in those countries where protection has been requested.

- If the application is **rejected**, this second publication never appears.

**As such, the technology is published before it is known whether it will be legally protected or not.**

### **3.2 PATENT DOCUMENTS**

These publications, either of patent applications or patent specifications, are known as **PATENT DOCUMENTS**.

#### **The structure of patent documents .-**

Patent documents have a uniform structure worldwide, with :

- \* **First Page** (details of the inventor, applicant, address, title, abstracts)
- \* **Full description** (technical problem, solutions, advantages, uses, etc.)
- \* **Claims** (defining the object or process for which protection is sought)
- \* **Drawings**

#### **Patents as a source of information provide:**

- \* **Technical information** : they describe technology in a clear and complete manner.
- \* **Commercial information** : they include data on the company, inventors, etc.
- \* **Legal information** : what is included in the scope of protection, when it entered into force, etc.

Nowadays, there are more than thirty million patent documents available on the Internet through **Espacenet** ([www.epo.org](http://www.epo.org)) ([www.oepm.es](http://www.oepm.es)). Patents contain more than **80% of all technical information worldwide** and are a trigger for new ideas and new solutions to known technical problems. They are considered to be one of the most complete, accessible, practical and up to date sources of information on innovative developments in all areas of technology.

**Reasons why better use should be made of patent information:**

- \* **Size of the Resource**  
Number of documents covering all areas of technology. Over the years, more than 32 million patents have been published worldwide.
- \* **80% Not Published Elsewhere**  
80% of the disclosures in patents are never published in any other form.
- \* **First Publication**  
Most patents are published after 18 months from filing and usually are the first published disclosure of the invention (Michael Blackman, Patent Office, London, UK)

*Source : WIPO*

**The International Patent Classification**

The international patent classification system subdivides technology into more than 70,000 groups. Patent documents are classified according an international classification system. This classification allows technologies described in the field we are interested in to be retrieved quickly and easily.

Patent documents bear “**classification symbols**“. For the purposes of maintaining search files and performing searches for the state of the art, industrial property offices using the International Patent Classification (**IPC**) classify patent documents according to the field or fields of technology to which their contents relate...

This classification allows the retrieval of the information contained in patent documents belonging to any given branch of technology.

*Source: WIPO*

**3.3 ADVANTAGES OF PATENT DOCUMENTS**

- \* Contain the most up to date information.
- \* Uniform format worldwide.
- \* Usually contain information not disclosed elsewhere.
- \* Source of information on new and also known technology (prior art)
- \* Describe technology in a manner sufficiently clear for it to be carried out by a person skilled in the art.
- \* Availability of information electronically.

**Advantages of Patent Literature**

A worldwide collection of patent documents contains information on the technical solutions created during the last 150 years in all the different fields of human creative technological activity. Such a unique collection of information is rightfully one of the most important elements of the world’s scientific and technological potential.

Patent information has a number of specific features, which make it essential not only for current industrial activities and research and development but also for forecasting further technological progress (R. Andary, WIPO)

Source: WIPO

Scientists and technicians are not always aware of the richness of patent information. There is a widely held misconception that using this information can give rise to legal action from the patent owner.

Obstacles to the use of patents are: the great number of existing documents, the language in which they are written, the effort involved in locating them and the cost of obtaining copies.

However, nowadays, many of these obstacles are resolved:

Documents may be retrieved using the classification combined with keywords. There are versions of the same invention in different languages which allow us to read them.

### 3.4 LIMITATIONS OF PATENT PROTECTION

Generally speaking, patents do not extend beyond the boundaries of the country which granted the patent. (Source: WIPO).

#### Limitations to the exclusive right:

- *Time limitation* .- Patents have a **validity of 20 years** since their filing date, after which they pass into the public domain.
- *Geographical limitation* - The right only applies to the national territory of the country where protection is applied for (**national patent**), to various countries (**regional patent**), or to many countries (**PCT system**).
- *Actions* which are not considered patent infringements:
  - \* Using the invention in the private sphere with no commercial aims (private use).
  - \* Scientific experiments (experimental use).
  - \* Producing medicines in a pharmacy to make up prescriptions.

### 3.5 PROTECTION OF INVENTIONS IN OTHERS COUNTRIES

**Priority Right.**- In order to protect an invention in other countries under the *Paris Union Convention* and the *World Trade Organization*, the applicant may use the **priority right**. Under this right, the applicant has 12 months from the filing date of the first application to apply for protection in other member countries, keeping the same initial filing date for all subsequent applications.

**Patent Family.**- From the above paragraph it can be concluded that an applicant applying to protect an invention in other countries generates a **patent family** (different applications based on the same priority). In this case, each office makes its own publication. So, if we find a document in a language we do not know, we can find another from the same family in a known language.

To avoid multiple applications, regional and international patents have been created, whereby a single application is presented for various countries.

- \* **National Patent**  
A patent can be applied for in a single country such as Spain (ES), France (FR), Great Britain (GB), the United States (US), etc., giving rise to a *national patent*, each country having its own legislation. Using this application protection may be also applied for in other countries (priority right).
- \* **Regional Patent**  
An applicant can file an application in a set of countries, as is the case for the **European patent** (27 European countries whether members of the European Union or otherwise). This patent was established by the *European Patent Convention* in Munich, 1973.

The applicant designates the states where protection is sought. The European patent application (EP) is processed by the *European Patent Office*, which has its headquarters in Munich and The Hague.

\* **International Patent**

The **PCT system** allows protection to be requested for an invention in each of the Member States of the International Treaty (currently 123 countries) through a single application called an international application. It is not a grant procedure nor does it substitute nationally granted patents.

The *Patent Cooperation Treaty* (PCT) is a multilateral Treaty, administered by the *World Intellectual Property Organization* (**WIPO** or **OMPI**).

### 3.6 PATENTS IN FORCE AND PATENTS IN THE PUBLIC DOMAIN

To maintain a patent monopoly in force, the applicant has to pay an annual renewal fee, which increases annually. If the annual fee is not paid then the patent monopoly is lost and it passes into the public domain.

#### Expired Patents: Free Use

The fourth feature is that much of the information contained in patent specifications is freely available for public use, either because the owner has not paid renewal fees or because the maximum term, usually 20 years, has expired. For instance, of the nearly 2 million United Kingdom patents published so far, barely one-tenth are still in force (Michael Blackman, The Patent Office, UK.)

*Source: WIPO*

Therefore, many of the technologies described are in the public domain even though a patent has been applied for.

In effect, patent documents are available to be read and freely consulted by all. For patents which are in force, commercial exploitation is not allowed in the countries where protection has been granted. Nevertheless, in countries where protection has not been requested, they may be used freely.

It is common practice to protect inventions in industrialised countries, and not to protect them in developing countries. As applicants have to pay fees in every country applied for, they only usually chose to pay in certain industrialised countries (USA, Japan, European countries), meaning that the technology is not legally protected in the majority of developing countries, but is disclosed, accessible and can be used freely.

This is a key point and should be taken into account in order to understand the availability of described and published technologies.

## 4. The role of Patents in Technology Transfer

It is considered that the search for **technological information** is the first step in Technology Transfer. Only through consulting and studying many technologies is it possible to make decisions as to which technologies are applicable for a particular country.

**Technology Transfer .-**

Many studies have demonstrated the important role that patents play in technology transfer.

Patents are documents with complete technological information, as it is a legal requirement that they describe the invention in a sufficiently complete manner so that others are able to reproduce it.

Moreover, they give a description of the prior art, providing the reader with a broader view of the technology.

By identifying the inventor and the applicant, they facilitate direct negotiations, without third party involvement.

In conclusion, patents are a good instrument for technology transfer, and most of them are available in the public domain.

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**Technology Transfer**

For some years now, international organisations like the United Nations and its agencies, including WIPO, have been investigating means of transferring technology from industrially developed countries to those not so industrially developed. Numerous studies and proposals have been made on the use of patents in the transfer of technology to developing countries. These studies suggest that patents have an important role to play in technology transfer for the following reasons:

- (1) patents are by the nature technologically self-contained in that they are required by law to furnish such information as is required to allow for their implementation;
- (2) patents are in a convenient document form; this makes patents more suitable for exchange purposes than know-how locked up in the brains of individual technologists;
- (3) by indicating the state of the art patents can serve as a basis for new developments or advances in technology;
- (4) patents cover a wide range of technologies and therefore permit a planned program of development in the areas of technology most suitable to the transferee;
- (5) patents present the reader with both a historic development in an area of technology as well as up-to-date knowledge. This may be useful in imparting understanding of know-how to the transferee rather than restricting the transferee to mere imitation;
- (6) patents allow the transferee actually to see what he is buying.

- (7) by indicating the holder and the creators of the technology the patent document may facilitate direct negotiations, dispensing with intermediaries;
- (8) the licensing system developed in relation to patents is well developed and provides a ready-made and expedient means of ensuring participation by indigenous institutions.

The use of patent technology transfer has to be augmented by other factors such as capital investment, education of indigenous technologists and the development of entrepreneurial skills in those in managerial positions, but patents may nevertheless have a vital role to play as the actual mechanism for the transfer of knowledge.

Source : R. Andary, WIPO

## 5. Recommendations

We recommend that the Secretariat of the *Convention on Biological Diversity*, the Contracting Parties and all those interested in the field of Technology Transfer, considering the role that patents can play in this field, plan or organise capacity building activities that include training in finding and retrieving technologies described in patent documents and which may be of interest for reaching the objectives of the *Convention on Biological Diversity*.

Asha Sukhwani  
 Dto. de Patentes e Información Tecnológica  
 Spanish Patent and Trademark Office (SPTO)

## 6. Bibliography

- “**Las Patentes como fuente de Información Tecnológica**”, 1999. Oficina Española de Patentes y Marcas (Spanish Patent and Trademark Office).
- The WIPO text quoted in boxes is from the publication “**WIPO Asian Regional Seminar on the Use of Patent Information by Industry**”. New Delhi, India, March 16 to 18, 1994. World Intellectual Property Organization.

A selection of UNCTAD documents on this subject:

- \* **TD/B/C.6/24/ADD.1** (1977)  
 “Report of the Group of Governmental Experts on the Role of the Industrial Property System in the Transfer of Technology on its session held at the Palais de Nations”.

- \* **TD/B/C.6/AC.5/3** (1981)  
“Review of recent trends in Patents in developing countries: Report”.
- \* **TD/B/COM.2 /EM.9/2** (2001)  
“Institutional arrangements for Transfer of Technology: best practices for access to and measures to encourage transfer of technology with a view to capacity building in developing countries , especially in least developed countries”.
- \* **TD/B/COM.2 /L.6** (2002)  
“International policy issues: international arrangements for transfer of technology: best practices for access to and measures to encourage Transfer of Technology with a view to capacity building in developing countries, especially in least developed countries”.

## 7. Annexes

The Annexes include, as examples, the **FIRST PAGES** of patent documents with bibliographic data (applicant, inventor, title, abstract, classification, etc.). In some cases, part of the description is also included.

### Annex I

#### Examples of technologies related with the conservation and cataloging of biodiversity (Annex I)

- Bioremediation. [ 1 ]
- Method for controlling soil erosion [ 2 ]
- Monitoring wildlife biodiversity [ 3 ]
- Reforestation procedure [ 4 ]
- Bypass channel for aquatic life [ 5 ]
- Characterization of genetic diversity [ 6 ] , [ 8 ]
- Assessment of ecosystem health [ 7 ]

### Annex II

#### Examples of technologies related with biodiversity uses (Annex II):

- Cosmetic uses, dermatological, UV filters, etc [ 9 ], [10 ]
- Uses as food supplements. Nutritional supplements [ 9 ], [ 12 ]
- Therapeutic uses (hepatitis, cancer, aids, etc. [ 10 ], [ 12 ], [ 13 ], [ 14 ], [ 15 ]
- Uses for controlling plant parasites [ 11 ].
- Method of extracting active principles. Preparation of tablets [ 16 ], [ 17 ]

### Annex III

This annex summarises how to retrieve the patent documents included in annex I and II using **Esp@cenet** (*Europe's Network of Patent Databases*). This contains bibliographic data of patents published in the last two years in any member state of the European Patent Organization, all patents of the *European Patent Office* (EPO) and all patent applications of the *World Intellectual Property Organization* (WIPO - OMPI).



**Note on Annexes.-**

Considering that the interest of this document for the CBD Parties is to show the potential of patents as a source of technological information, it is important to take into account that the reproductions of patent documents included as annexes are only intended to serve as examples of technological information associated to biodiversity. In no case, does the use of these technologies necessarily imply the sustainable use of biological diversity, with particular reference to the examples contained in Annex II.

**Annex I**

[ 1 ]

<b>(12) UK Patent Application (19) GB (11) 2 382 352 (13) A</b> (43) Date of A Publication <b>28.05.2003</b>	
(21) Application No <b>0128180.7</b> (22) Date of Filing <b>23.11.2001</b>	(51) INT CL <sup>7</sup> <b>C02F 3/34 , B09C 1/10 , C12N 1/00 // ( C12N 1/00          C12R 1:77 1:885 ) B09C 101:00</b>
(71) Applicant(s) <b>The University of Surrey          (Incorporated in the United Kingdom)          Outreach, GUILDFORD, Surrey, GU2 7XH,          United Kingdom</b>	(52) UK CL (Edition V ) <b>C6F FAG FE          C1C CRBA C324 C437          C1P PD P201          C6Y Y318 Y334 Y341</b>
(72) Inventor(s) <b>James Michael Lynch</b>	(56) Documents Cited <b>EP 0125073 A2                    WO 1994/025190 A1          CA 002313110 A1                RU 002176164 C          US 6287847 B1                    US 6204049 B1          US 6143549 A</b>
(74) Agent and/or Address for Service <b>Marks &amp; Clerk          57-60 Lincoln's Inn Fields, LONDON,          WC2A 3LS, United Kingdom</b>	(58) Field of Search <b>UK CL (Edition T ) C6F FAE FAG FE FF FX          Other: WPI EPODOC PAJ</b>
(54) Abstract Title <b>BIOREMEDIATION</b>	

(57) A method of bioremediation of an area of land and/or body of water is disclosed through use of a micro-organism such as a fungus in the presence of a nutrient source. The micro-organism may be suitable for the catabolism of heavy metals or cyanide.

The fungus may be selected from *Fusarium* spp., *Trichoderma* spp. and white rot. The source of nutrients may include dried or dormant roots, corms, rhizomes, bulbs or other propagative vegetable tissue. Other nutrient sources include a plant eg a leguminous plant, such as clover or vetch.

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**BIOREMEDIATION**

The present invention relates to methods of environmental detoxification using bioremediatory organisms.

Many industrial processes produce large amounts of toxicants, and this has been true ever since the start of the industrial revolution. Since the early 1960's, there has been a growing public awareness of the effect that the by-products of industry are having on the environment and, in recent years, legislation has been passed in many countries worldwide, requiring the industries in question to control these by-products. Even so, it is often difficult to completely prevent some adverse impact on the environment.

[ 2 ]

(19)  **Europäisches Patentamt**  
**European Patent Office**  
**Office européen des brevets**



(11) **EP 1 347 101 A1**

(12) **EUROPEAN PATENT APPLICATION**  
published in accordance with Art. 158(3) EPC

(43) Date of publication:  
**24.09.2003 Bulletin 2003/39**

(51) Int Cl.7: **E02B 7/02, E02B 3/12**

(21) Application number: **01272861.4**

(86) International application number:  
**PCT/JP01/11429**

(22) Date of filing: **26.12.2001**

(87) International publication number:  
**WO 02/053842 (11.07.2002 Gazette 2002/28)**

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR**  
Designated Extension States:  
**AL LT LV MK RO SI**

(72) Inventor: **Fukui, Tomio**  
**Tokyo 154-0011 (JP)**

(30) Priority: **28.12.2000 JP 2000402632**

(74) Representative: **Piésold, Alexander J. et al**  
**Frank B. Dehn & Co.,**  
**European Patent Attorneys,**  
**179 Queen Victoria Street**  
**London EC4V 4EL (GB)**

(71) Applicant: **Fukui, Tomio**  
**Tokyo 154-0011 (JP)**

(54) **METHOD FOR SOIL EROSION CONTROL WORKS OR SHORE PROTECTION WORKS AND  
STRUCTURE FOR SOIL PROTECTION OR SHORE PROTECTION**

(57) A method for soil erosion control works capable of preventing the bed and bank of a gorge being eroded by a torrent by using steel ropes and steel nets not requiring enormous amounts of construction labor and expenses, comprising the steps of fixing at least two vertical cables (1) directly or indirectly to a base (2), fixing the plurality of vertical cables to each other by using at least two lateral cables (5) at proper intervals, and anchoring at least two nets (3) corresponding to the number of the lateral cables by using the vertical cables and the lateral cables or anchored cables connected to the vertical cables by generally opposing the nets to the water flow so that the nets are present in the torrent at proper intervals from the upstream to the downstream side.

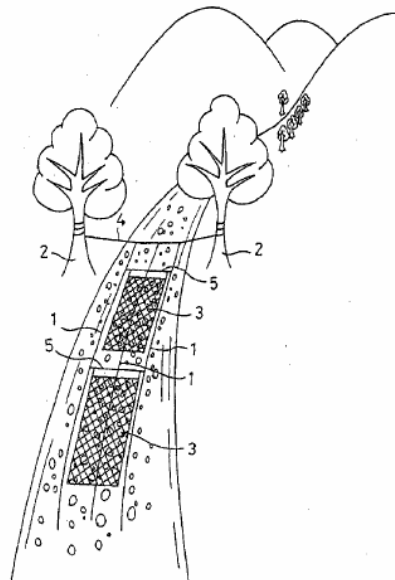


Fig. 1

EP 1 347 101 A1

[ 3 ]



US005956463A

**United States Patent** [19]  
**Patrick et al.**

[11] **Patent Number:** **5,956,463**  
[45] **Date of Patent:** **Sep. 21, 1999**

[54] **AUDIO MONITORING SYSTEM FOR ASSESSING WILDLIFE BIODIVERSITY** 5,404,422 4/1995 Sakamoto et al. .... 395/2.41

FOREIGN PATENT DOCUMENTS

[75] Inventors: **Paul H. Patrick**, Milton; **Narayan Ramani**, Mississauga; **William G. Hanson**, Islington; **Ronald W. Sheehan**, Acton, all of Canada; **Robert L. Jennette**, Edgewater, Md.

A-58865/90 7/1990 Australia .  
2089597 8/1994 Canada .  
58-158736 9/1983 Japan .  
3-276199 12/1991 Japan .  
1044250 9/1983 U.S.S.R. .

OTHER PUBLICATIONS

[73] Assignee: **Ontario Hydro**, Toronto, Canada

See Attached European Search Report With Annex.  
"Cepstral Analysis Technique for Automatic Speaker Verification"—Sadaoki Furui, *IEEE Transactions, ASSP-29*, No. 2, Apr. 1981.

[21] Appl. No.: **08/726,425**

[22] Filed: **Oct. 7, 1996**

Trouichet, et al. ("Special Signature recognition with a view to counting acoustic events," *Signal Processing V—Theories & Applications, Proc. of Eusipco-90, 5<sup>th</sup> European Signal Processing Conf.*, vol. 3, pp. 1643-1646.

Related U.S. Application Data

[63] Continuation of application No. 08/076,751, Jun. 15, 1993, abandoned.

[51] **Int. Cl.<sup>6</sup>** ..... **G10L 5/06; G10L 9/00**

[52] **U.S. Cl.** ..... **395/2.41; 395/2.55; 119/906**

[58] **Field of Search** ..... **395/2.41, 2.55; 119/906**

Sung, et al. ("Birds World: A Coupled Artificial Neural Network and Expert System (Cannes) Architecture," *Neural Networks, 1989 IEEE Int'l Conf.*, pp. II-584.

*Primary Examiner*—Allen R. MacDonald  
*Assistant Examiner*—Robert Louis Sax  
*Attorney, Agent, or Firm*—Ridout & Maybee

[56] **References Cited**

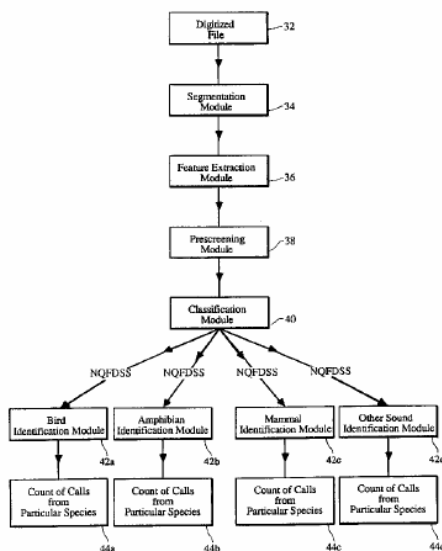
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[57] **ABSTRACT**

The invention relates to an automated system for monitoring wildlife auditory data and recording same for subsequent analysis and identification. The system comprises one or more microphones coupled to a recording apparatus for recording wildlife vocalizations in digital format. The resultant recorded data is preprocessed, segmented, and analyzed by means of a neural network to identify the respective species. The system minimizes the need for human intervention and subjective interpretation of the recorded sounds.

**30 Claims, 4 Drawing Sheets**



[ 4 ]



US005406898A

**United States Patent** [19]

[11] **Patent Number:** **5,406,898**

**Marshall et al.**

[45] **Date of Patent:** **Apr. 18, 1995**

[54] **REFORESTATION PROCEDURE**

[56] **References Cited**

[75] Inventors: **John G. Marshall**, Toronto; **Erwin B. Dumbroff**, Waterloo, both of Canada

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[73] Assignee: **University of Waterloo**, Waterloo, Canada

*Primary Examiner*—David H. Corbin  
*Assistant Examiner*—Christopher J. Novosad  
*Attorney, Agent, or Firm*—Sim & McBurney

[21] Appl. No.: **46,577**

[57] **ABSTRACT**

[22] Filed: **Apr. 14, 1993**

Reforestation of cut forest regions is effected by broadcasting comminuted slash or cone-bearing roadside logging residue from delimiting of freshly-cut trees over the region from which the trees are cut. By comminuting the slash live seeds are released from cones contained in the slash and are returned to the forested area. In this way, an inexpensive reforestation procedure is provided and biodiversity is retained.

[30] **Foreign Application Priority Data**

Apr. 14, 1992 [GB] United Kingdom ..... 9208228

[51] **Int. Cl.<sup>6</sup>** ..... **A01G 23/02**

[52] **U.S. Cl.** ..... **111/200; 111/900; 144/335; 241/7; 241/9; 241/24**

[58] **Field of Search** ..... **47/9 P, 9 M, 9; 111/200, 900; 144/335; 56/126; 241/7, 9, 24, 101.7**

**4 Claims, No Drawings**

**1**

**5,406,898**

**2**

**REFORESTATION PROCEDURE**

**FIELD OF INVENTION**

The present invention relates to a novel reforestation procedure which avoids the current high cost procedures adopted for such purposes.

**BACKGROUND TO THE INVENTION**

Current reforestation procedures involve collection of cones, release of seeds from the cones, sowing and producing seedlings, which then are transported to the site of reforestation. This procedure is labor-intensive and expensive and seedling production capacity is well below that required to replant cut overs. In addition, the genetic diversity of the cut stand is lost and replaced by a foreign progeny.

Alternative methods of reforestation, such as aerial direct seeding, are not highly attractive options because of limitations in the amount of expensive purified seeds available, airplane distribution costs and the modest result obtained.

area of the boreal forest in which the strip cut or clear cut was made.

**GENERAL DESCRIPTION OF INVENTION**

5 In the present invention, therefore, the slash or cone-bearing roadside logging debris from the tree delimiting procedure or a full-tree chipping procedure, including branches, needles and cones, is chipped, ground or otherwise comminuted sufficiently to release live seeds from the cones, which then germinate when distributed 10 in the deforested area. A large number of seeds are released from the cones when such comminution is effected, for example, more than 2500 seeds/Kg of black spruce limbs and tops. The seed-bearing cones 15 first may be separated and processed alone to release the seeds, but this procedure adds to the cost.

The procedure permits a more natural method of achieving sustainable development and maintenance of biodiversity in boreal or mixed conifer forests, in an inexpensive manner. Such mixed conifer forest may contain a variety of cone-bearing species, including 20 black spruce, white spruce, jack pine and Douglas fir.

[ 5 ]



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(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2002/0187006 A1**

**Burns, II** (43) **Pub. Date: Dec. 12, 2002**

(54) **MIGRATORY FISH BYPASS CHANNEL WITH NATURAL FEATURES**

(52) **U.S. Cl.** ..... **405/81; 119/219; 405/84**

(76) **Inventor: Gordon Charles Burns II, Missoula, MT (US)**

(57) **ABSTRACT**

Correspondence Address:  
**William L. MacBride, Jr.**  
**33 South Last Chance Gulch**  
**Helena, MT 59601 (US)**

A method and system allowing fish to migrate upstream and downstream, bypassing dams, obstructions, either man-made or natural, safely, freely and in a natural manner. The system consists of a meandering "nature-like" channel constructed of pneumatically placed concrete, shotcrete or gunite that simulates a waterway bed condition. The construction of riffles, ledges, undercut banks and other natural-like features to provide a foundation for the placement of fish habitat, such as gravel beds, boulders, logs, and the like. The placement of sand, gravel, cobbles and such to create and provide an aquatic environment to sustain plant and aquatic life. The introduction of plants and other aquatic life to provide forage, cover and a year around natural-like environment within a river or stream-like migratory bypass channel.

(21) **Appl. No.: 10/131,535**

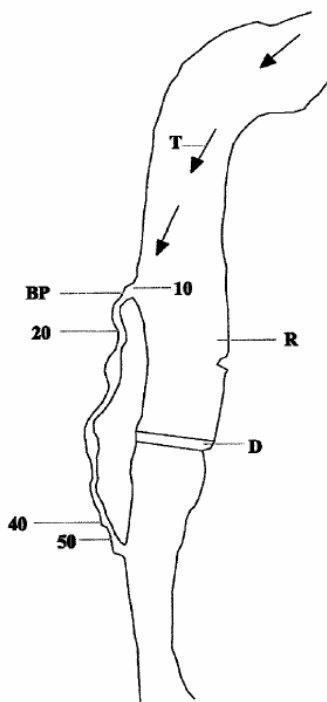
(22) **Filed: Apr. 25, 2002**

**Related U.S. Application Data**

(60) **Provisional application No. 60/287,951, filed on May 1, 2001.**

**Publication Classification**

(51) **Int. Cl.<sup>7</sup> ..... B43K 21/00; E02B 8/08; A01K 61/00; E02B 5/04**



[ 6 ]

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(43) International Publication Date  
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20020176 30 January 2002 (30.01.2002) FI  
(71) Applicant (for all designated States except US): **BO-  
REAL PLANT BREEDING LTD.** [FI/FI]; Myllytie 10,  
FIN-31600 Jokioinen (FI).

(81) Designated States (national): AE, AG, AL, AM, AT (utility model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (utility model), DE, DK (utility model), DK, DM, DZ, EC, EE (utility model), EE, ES, FI (utility model), FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK (utility model), SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.  
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

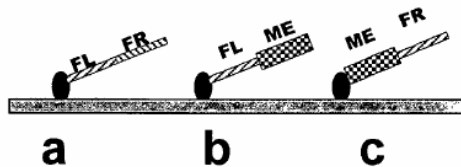
(72) Inventors; and  
(75) Inventors/Applicants (for US only): **SCHULMAN, Alan, Howard** [US/FI]; Hiihtäjäsentie 6 B 10, FIN-00810 Helsinki (FI). **PAULIN, Lars, Göran** [FI/FI]; Papinmäentie 16, FIN-00630 Helsinki (FI).  
(74) Agent: **BORENIUS & CO OY AB**; Tallberginkatu 2 A, FIN-00180 Helsinki (FI).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD AND TEST KIT FOR DEMONSTRATING GENETIC IDENTITY

WO 03/064686 A1



(57) Abstract: Method and kit for demonstrating genetic identity, genetic diversity, genomic variations or polymorphisms, especially allelic variations, and also biodiversity within a defined population pool, with co-dominant scoring. The method and the test kit apply mobile elements (MEs), such as transposons or retrotransposons, and are based on the use of one or more sets of optionally paired or parallel oligonucleotides, which are attached to a solid support. Each oligonucleotide sequence represents an insertion site junction of a mobile element. The invention is also related to the use of the method and kit for phylogenetic studies, parenthood determinations, genotyping,

haplotyping, pedigree analysis, forensic science, human medical diagnostics and in plant and animal breeding by demonstrating genetic identity, genetic diversity, genomic variation or polymorphism, and particularly providing co-dominant scoring.

WO 03/064686

PCT/FI03/00071

## **METHOD AND TEST KIT FOR DEMONSTRATING GENETIC IDENTITY**

### **Technical Field of the Invention**

The present invention is related to a method and a test kit for demonstrating genetic identity, genetic diversity, genomic variations or polymorphisms, especially allelic variations, and also biodiversity within a defined population pool, with co-dominant scoring. The method and the test kit apply mobile elements (MEs) and are based on the use of one or more sets of optionally paired or parallel oligonucleotides, which are attached to a solid support. Each oligonucleotide sequence represents an insertion site junction of a mobile element (ME). The method and the test kit are useful for genetic identity determination, phylogenetic studies, parenthood determinations, genotyping, haplotyping, pedigree analysis, forensic science, human medical diagnostics, and in plant and animal breeding.

### **Background of the Invention**

The genome of a given individual (e.g. human, animal, bacterial, plant etc.) within a given population is for the main part unique, unless highly inbred or clonally or asexually propagated. The uniqueness of a given genome is determined largely by the sequence of DNA contained, therein. Given that differences in genome uniqueness between individuals reflect differences in DNA sequence, then DNA sequence variation can be used to discriminate individuals from each other i.e. genotyping distinguishes phenotypes. Detecting DNA sequence variation can be achieved using a variety of laboratory-based procedures each with their own inherent limitations and advantages; it is a balance between these two extremes that determines the usefulness of the method chosen. Whatever the approach used the objective remains the same: to detect DNA sequence variation and to use that information to discriminate individuals from each other. The profile of DNA sequence variation that discriminates one individual from another is termed a "DNA fingerprint". As a technique, DNA fingerprinting has an immense range of applications including, but not restricted to, forensic identification, phylogenetic studies, parenthood determination, forensic science, human medical diagnostics, pedigree analysis and animal and plant



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PCT

(10) International Publication Number  
WO 02/22859 A2

- (51) International Patent Classification<sup>7</sup>: C12Q 1/00 (74) Agents: WILSON, Mark, A. et al.; Reed & Associates, 800 Menlo Avenue, Suite 210, Menlo Park, CA 94025 (US).
- (21) International Application Number: PCT/US01/42161
- (22) International Filing Date: 14 September 2001 (14.09.2001) (81) Designated States (national): AU, CA.
- (25) Filing Language: English (84) Designated States (regional): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- (26) Publication Language: English
- (30) Priority Data: 09/662,187 15 September 2000 (15.09.2000) US  
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- (71) Applicant: ENVIRTUE BIOTECHNOLOGIES, INC [US/US]; Suite H1, 2255 Ygnacio Valley Roadm, Walnut Creek, CA 94598 (US).  
*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*
- (72) Inventor: DOWNS, Craig, A.; 1833 North Lexington-Springmill Road, Mansfield, OH 44960 (US).



WO 02/22859 A2

(54) Title: ASSESSMENT OF ECOSYSTEM HEALTH BY EVALUATING MULTIPLE BIOMARKERS IN A NONHUMAN ORGANISM

(57) Abstract: A novel method for assessing the health of an ecosystem is provided. The method comprises measuring the levels of a plurality of physiological parameters of a nonhuman organism living in the ecosystem and determining whether the organism is healthy or physiologically stressed based on the levels of the tested physiological parameters. To the extent that the organism is physiologically stressed, the results of the measurement are employed to assess the type and degree of stress occurring in the ecosystem.

WO 02/22859

PCT/US01/42161

- 1 -

**ASSESSMENT OF ECOSYSTEM HEALTH BY  
EVALUATING MULTIPLE BIOMARKERS IN A NONHUMAN ORGANISM**

5 **TECHNICAL FIELD**

This invention relates generally to a method for assessing the health of an ecosystem, and more particularly relates to a method for assessing the health of an ecosystem by evaluating multiple biomarkers of a nonhuman organism in the ecosystem. The invention additionally relates to a method for identifying specific stressors, e.g., heat, light, chemical contaminants, etc., that have an impact on an ecosystem and living organisms therein. Further, the invention relates to a method for using the aforementioned information to predict the long-term effect of the identified stressors on the ecosystem.

15 **BACKGROUND ART**

Environmental and anthropogenic pressures often decrease the health and stability of ecosystems, but the precise effects of these stressors remain largely unknown. Most ecosystem health assessment focuses on either the abiotic components of an ecosystem (i.e., contaminant analysis) or ecological responses (i.e., species richness and population density) because methods to monitor these parameters are well developed (e.g., Otte et al. (1998), "Relation Between Heavy Metal Concentrations in Salt Marsh Plants and Soil," *Environmental Pollution* 82:13-22; Wilson et al. (1996), "Measuring and Monitoring Biological Diversity: Standard Methods for Mammals" (Smithsonian Institution Press, Washington, D.C.). Technological advances that would reveal how the biota respond to environmental stressors have been unavailable. This creates a gap in our knowledge of how stressors affect ecosystems, which are complex and biologically hierarchical systems (O'Connor et al. (1996), "Toward the Incorporation of Spatiotemporal Dynamics into Ecotoxicology," in *Population Dynamics in Ecological Space and Time*, Rhodes et al., eds. (University of Chicago Press, Chicago, Illinois) at pp. 281-317). For example, although traditional water and sediment analyses can document the quality and quantity of a contaminant in the environment, these analyses cannot readily describe (and therefore cannot predict) biotic responses to that contaminant. The presence of a particular

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- 18 -

Biomarker name	Group of Species					
	Plant	Coral	Dinoflagellate	Arthropod	Mollusc	Fish
Hsp90 (centrosome homologue)	X	X	X	X	X	X
Mitochondrial SODs	X	X	X	X	X	X
Cytosolic SODs	X	X	X	X	X	X
5 Chloroplast SOD	X					
P-glycoprotein				X	X	X
sHsp30						X
Mitochondrial dehydrin	X					
Chloroplast dehydrin	X					
10 GSH-peroxidase	X			X	X	X
GSH-transferase	X			X	X	X
Metallothionein I		X		X	X	X
Metallothionein II		X		X	X	X
Metallothionein III		X		X	X	X
15 Cytochrome P450 1A				X	X	X
Cytochrome P450 2E				X	X	X
Cytochrome P450 3A				X	X	X
sHsp 26		X		X	X	
20 Carbonyl (protein adduct)	X	X	X	X	X	X
Malondialdehyde (lipid break down product)	X	X	X	X	X	X
8-oxo-deoxyguanosine (DNA adduct)	X	X	X	X	X	X
25 PAH-protein (DNA adduct)	X	X	X	X	X	X
Ubiquitin	X	X	X	X	X	X

Abbreviations: Hsp= heat-shock protein, sHsp = small heat shock protein, SOD = superoxide dismutase, GSH glutathione, PAH = polyaromatic hydrocarbon.

30

**EXPERIMENTAL:**

**EXAMPLE 1**

**USING MULTIPLE BIOMARKERS TO ASSESS THE**

5

**HEALTH OF CORAL DURING HEAT STRESS**

Coral reefs constitute some of the largest ecological structures on earth, and result from interactions between symbiotic organisms composed of a dinoflagellate algae (zooxanthellae) and scleractinian corals. Over the past two decades, and especially in the 1990's, coral reefs experienced extensive degradation worldwide. One etiology for this global degradation is a syndrome known as coral "bleaching" (Dustan (1999), "Coral Reefs under Stress: Sources of Mortality in the Florida Keys," *Nat. Res. Forum* 23:147-155). Bleaching is a process whereby corals and other invertebrates harboring symbiotic algae lose their algae and/or experience degradation of the symbionts' photosynthetic pigments. In corals, loss of zooxanthellae can occur through expulsion via exocytosis, *in situ* digestion or by host cell detachment. Bleaching of corals has been linked to heat stress, cold stress, elevated visible light, light deprivation, ultraviolet light exposure, low salinity, starvation and bacterial infection. However, evidence is increasing that heat stress is a primary factor in many, if not most, large-scale bleaching events (Brown, B.E. (1997), "Coral Bleaching: Causes and Consequences," *Coral Reefs* 16, Suppl.:S129-S138).

20

In the 1980s, *in situ* observations and U.S. National Oceanic and Atmospheric Administration reports concerning Caribbean, Indian Ocean and South Pacific coral reefs suggested a relationship between pervasive coral bleaching and unusually warm periods (see, e.g., Brown et al. (1996), "Coral Bleaching Relative to Elevated Seawater Temperature in the Andaman Sea (Indian Ocean) over the Last 50 Years," *Coral Reefs* 15:151-152). Recently, Stone and co-workers established a correlation between episodes of massive coral bleaching and increased severity and frequency of El Niño events (Stone et al. (1999), "Mass Coral Reef Bleaching: a Recent Outcome of Increased El Niño Activity?" *Ecol. Letters* 2:325-330). Increased ocean temperatures, compounded with other agents of coral degradation (*e.g.*, pollution, disease, predation, etc.) pose an increasing and significant threat to the health and vitality of coral reef ecosystems worldwide.

30

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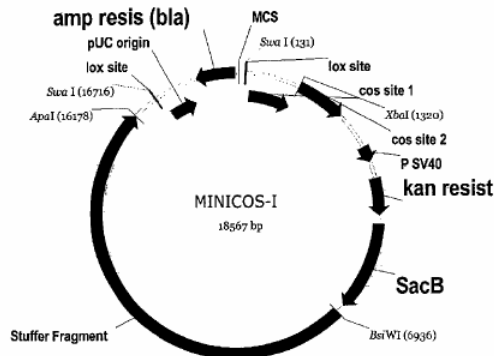
PCT

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- (30) Priority Data:  
60/363,388 11 March 2002 (11.03.2002) US
- (71) Applicant (for all designated States except US):  
**ATHENIX CORPORATION** [US/US]; Suite B, 2202  
Ellis Road, Durham, NC 27703 (US).
- (72) Inventors; and  
(75) Inventors/Applicants (for US only): **DUCK, Nicholas, B.** [US/US]; 1227 Tartarian Trail, Apex, NC 27502 (US).  
**KOZIEL, Michael, G.** [US/US]; 1601 Liatris Lane,  
Raleigh, NC 27613 (US). **CAROZZI, Nadine** [US/US];  
8308 Meadow Ridge Court, Raleigh, NC 27615 (US).
- CARR, Brian** [US/US]; 3103 Shinleaf Court, Raleigh, NC 27613 (US). **HARGISS, Tracy** [US/US]; 204 Billingsworth Turn Lane, Cary, NC 27519 (US).
- (74) Agents: **SPRUILL, W., Murray** et al.; Alston & Bird LLP, Bank of America Plaza, Suite 4000, 101 South Tryon Street, Charlotte, NC 28280-4000 (US).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: INTEGRATED SYSTEM FOR HIGH THROUGHPUT CAPTURE OF GENETIC DIVERSITY



WO 03/078582 A2

(57) Abstract: Compositions and methods for rapid and highly efficient characterization of genetic diversity in organisms are provided. The methods involve rapid sequencing and characterization of extrachromosomal DNA, particularly plasmids, to identify and isolate useful nucleotide sequences. The method targets plasmid DNA and avoids repeated cloning and sequencing of the host chromosome, thus allowing one to focus on the genetic elements carrying maximum genetic diversity. The method involves generating a library of extrachromosomal DNA clones, sequencing a portion of the clones, comparing the sequences against a database of existing DNA sequences, using an algorithm to select said novel nucleotide sequence based on the presence or absence of said portion in a database, and identification of at least one novel nucleotide sequence. The DNA sequence can also be translated in all six frames and the resulting amino acid sequences can be compared against a database of protein sequences. The integrated approach provides a rapid and efficient method to identify and isolate useful genes. Organisms of particular interest include, but are not limited to bacteria, fungi, algae, and the like. Compositions comprise a mini-cosmid vector comprising a stuffer fragment and at least one cos site.

WO 03/078582

PCT/US03/07594

## INTEGRATED SYSTEM FOR HIGH THROUGHPUT CAPTURE OF GENETIC DIVERSITY

### FIELD OF THE INVENTION

Methods to capture biological diversity in the form of genes encoding novel enzymes and proteins of commercial value are provided. Additionally, novel methods to rapidly sample and screen bacterial genomes for novel genes of interest are  
5 described.

### BACKGROUND OF THE INVENTION

Increasingly, bacterial genes are being used in various industrial and agricultural applications such as insect resistant crops, herbicide tolerant crops, or  
10 improved industrial processes. Bacteria are capable of carrying out virtually every known biochemical process and are therefore a good source of proteins and enzymes for use in a wide variety of commercial processes. Bacterial genes of utility include those that encode proteins with insecticidal activity, those that catalyze industrial processes, proteins responsible for antibiotic resistance and virulence factors. While  
15 use of biologically derived genes and proteins is increasing, it remains a cumbersome process to discover and characterize genes encoding proteins which are viable for commercial application. Traditional approaches to identify commercially viable genes and proteins have relied on following the function of interest. Newer genomics approaches have attempted to sequence genes as quickly as possible and identify  
20 their function by homology to known genes. It remains unclear how efficient it is to sequence entire genomes of a given organism to identify new genetic activities. Efforts to characterize the genomes of organisms have been ongoing since tools of molecular biology became available for this purpose. These studies often look at the relatedness of different species or at the degree of difference between two or more  
25 organisms. There have been no systematic efforts to characterize the specific genes carried by plasmids, small discrete genetic elements of bacteria, and to use such

[ 9 ]

①9

OFICINA ESPAÑOLA DE  
PATENTES Y MARCAS

ESPAÑA

①1 Número de publicación: **2 157 847**

②1 Número de solicitud: 009902683

⑤1 Int. Cl.7: **A61K 35/78**

A23L 3/3472

A61K 7/48

A61K 7/42

①2

SOLICITUD DE PATENTE

A1

②2 Fecha de presentación: **03.12.1999**④3 Fecha de publicación de la solicitud: **16.08.2001**④3 Fecha de publicación del folleto de la solicitud:  
**16.08.2001**⑦1 Solicitante/s: **UNIVERSIDADE DE SANTIAGO  
DE COMPOSTELA  
Centro de Innovación e Transferencia  
de Tecnoloxía  
Avda das Ciencias s/n  
15706 S. de Compostela, A Coruña, ES**⑦2 Inventor/es: **Franco Ruiz, Daniel;  
Moure Varela, Andrés;  
Sineiro Torres, Jorge;  
Domínguez González, Herminia y  
Núñez García, María José**⑦4 Agente: **No consta**⑤4 Título: **Extracto natural de cáscara de *Gevuina avellana* como antioxidante/filtro UV para uso  
alimentario y cosmético.**

⑤7 Resumen:

Extracto natural de cáscara de *Gevuina avellana* como antioxidante/filtro UV para uso alimentario y cosmético, obtenido a partir de cáscaras molidas, extracción con agua acidificada a pH 4.3, etanol de composición azeotrópica o metanol, evaporación de este disolvente, posterior redisolución en agua y liofilización, para su utilización como antioxidante de aceites de uso alimentario o cosmético y como filtro UV (ultravioleta).

ES 2 157 847 A1

Venta de fascículos: Oficina Española de Patentes y Marcas. C/Panamá, 1 - 28036 Madrid

[ 10 ]



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② Número de solicitud: **9800114**

③ Int. Cl.<sup>6</sup>: **A61K 35/78**

**A61K 7/48**

⑫

SOLICITUD DE PATENTE

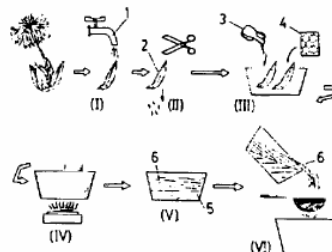
A1

<p>④ Fecha de presentación: <b>22.01.98</b></p> <p>⑤ Fecha de publicación de la solicitud: <b>16.09.99</b></p> <p>⑥ Fecha de publicación del folleto de la solicitud: <b>16.09.99</b></p>	<p>⑦ Solicitante/s: <b>Amaia Cortabarría Letona</b> <b>Azpiko Errota, 2 1º Izda.</b> <b>48230 Elorrio, Vizcaya, ES</b></p> <p>⑧ Inventor/es: <b>Cortabarría Letona, Amaia</b></p> <p>⑨ Agente: <b>Esteban Pérez-Serrano, M<sup>a</sup> Isabel</b></p>
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⑩ Título: **Procedimiento de obtención de pomada o crema terapéutica y cosmética, de hoja de aloe y producto así obtenido.**

⑪ Resumen:  
Procedimiento de obtención de pomada o crema terapéutica y cosmética, de hoja de aloe y producto así obtenido.  
Recolecta hojas inferiores de plantas del aloe, las limpia y elimina los extremos endurecidos, incorpora aceite junto con cera virgen procede a su cocción prolongada a fuego abierto lento y a una temperatura de entre 90 y 110°C, en función de la mezcla elegida y durante un periodo de entre dos horas y dos horas y media, su reposo, separación por capas de los componentes, decantación de la capa superior y el filtrado y enfriado finales de la crema o pomada.


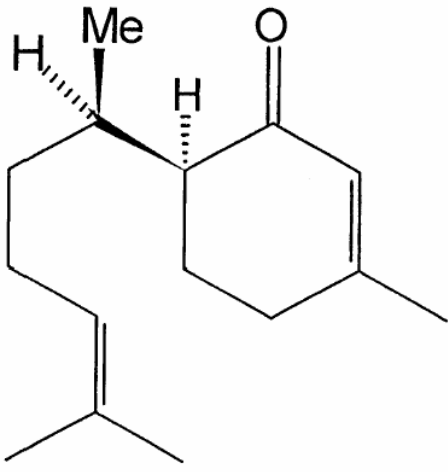
FIG. 1



ES 2 134 173 A1



[ 11 ]

<b>PCT</b> ORGANIZACION MUNDIAL DE LA PROPIEDAD INTELECTUAL <small>Oficina Internacional</small> <b>SOLICITUD INTERNACIONAL PUBLICADA EN VIRTUD DEL TRATADO DE COOPERACION          EN MATERIA DE PATENTES (PCT)</b>			
<b>(51) Clasificación Internacional de Patentes <sup>6</sup> :</b> <b>A01N 49/00</b>		<b>A1</b>	<b>(11) Número de publicación internacional:</b> <b>WO 98/28982</b>  <b>(43) Fecha de publicación internacional:</b> 9 de Julio de 1998 (09.07.98)
<b>(21) Solicitud internacional:</b> PCT/ES97/00315  <b>(22) Fecha de la presentación internacional:</b> 26 de Diciembre de 1997 (26.12.97)  <b>(30) Datos relativos a la prioridad:</b> P 9602748 27 de Diciembre de 1996 ES (27.12.96)		<b>(74) Mandatario:</b> OJEDA GARCIA, Pedro; CSIC, Calle Serrano, 113, E-28006 Madrid (ES).  <b>(81) Estados designados:</b> AU, BR, CA, CZ, NZ, PL, RU, US, Patente europea (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
<b>(71) Solicitante (para todos los Estados designados salvo US):</b> CONSEJO SUPERIOR INVESTIGACIONES CIENTIFICAS [ES/ES]; Serrano, 17, E-28006 Madrid (ES).  <b>(72) Inventores; e</b> <b>(75) Inventores/solicitantes (sólo US):</b> GONZALEZ COLOMA, Azucena [ES/ES]; Instituto Productos Naturales y Agrobiológicos, CSIC, Astrofísico Francisco Sánchez, 3, E-38205 La Laguna (ES). GUTIERREZ, Carmen [ES/ES]; Instituto Productos Naturales y Agrobiológicos, CSIC, Astrofísico Francisco Sánchez, 3, E-38205 La Laguna (ES). REINA, Matías [ES/ES]; Instituto Productos Naturales y Agrobiológicos, CSIC, Astrofísico Francisco Sánchez, 3, E-38205 La Laguna (ES). FERERES, Alberto [ES/ES]; Instituto Productos Naturales y Agrobiológicos, CSIC, Astrofísico Francisco Sánchez, 3, E-38205 La Laguna (ES). CABRERA, Raimundo [ES/ES]; Instituto Productos		<b>Publicada</b> <i>Con informe de búsqueda internacional.</i>	
<b>(54) Title:</b> USE OF 2,10-BISABOLADIENE-1-ONE, A NATURAL BISABOLANE AS REPELLENT FOR MYZUS PERSICAE APHIDES, TRANSMITTERS OF PLANT VIRUS  <b>(54) Título:</b> USO DEL 2,10-BISABOLADIEN-1-ONA, UN BISABOLANO NATURAL COMO REPELENTE DEL AFIDO MYZUS PERSICAE, TRANSMISOR DE VIRUS DE PLANTAS			
<b>(57) Abstract</b>  Use of 2,10-Bisaboladiene-1-one, a natural bisabolane as repellent of Myzus Persicae which is a transmitter of plant virus, characterized by its activity as repellent of Myzus persicae aphides which are important plant virus transmitters, to be applied on the surface of host plant leaves (Capsicum annum); it also affects the test behaviour of the insect by decreasing considerably the number of intracellular penetrations, essentially in the virus transmission, and reduces significantly its reproduction capacity.			
<b>(57) Resumen</b>  Uso del 2,10-Bisaboladien-1-ona, un bisabolano natural como repelente del áfido Myzus persicae, transmisor de virus de plantas, caracterizado por su actividad como repelente del áfido Myzus persicae, importante transmisor de virus de plantas en aplicación superficial sobre hojas de planta huésped (Capsicum annum), además afecta el comportamiento prueba del insecto disminuyendo significativamente el número de penetraciones intracelulares, fundamentalmente en la transmisión de virus, y por reducir significativamente su capacidad reproductora.			

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aplicación de copolímeros acrílicos (Reuter et al., 1993) ó los insecticidas comerciales delthametrin y permetrin (Gibson et al., 1982b; Sassen, 1983).

## 5 DESCRIPCION DE LA INVENCIÓN

El sesquiterpeno natural **2,10-bisaboladien-1-ona** (figura 1), aislado por nosotros de la planta *Senecio palmensis* como antialimentario frente al escarabajo de la patata (González-Coloma et al., 1995), es un **efectivo repelente** del áfido *Myzus persicae*, transmisor importante de virus de plantas. Además, ensayos de larga duración han demostrado que este compuesto **disminuye significativamente la tasa de reproducción** de dicho insecto.

La monitorización electrónica del comportamiento prueba "probing" del áfido (EPG) ha demostrado que este compuesto reduce dicha actividad y el número de veces que penetra las células de la hoja, lo cual es de gran importancia en la prevención de la transmisión de ciertos virus de plantas.

El compuesto se aplica superficialmente sobre las hojas de la planta huésped disuelto en acetona o en otro disolvente/excipientes adecuados para llevar a cabo el efecto descrito.

### **Ejemplo de realización de la invención.**

El compuesto se ha aislado de la planta *S. palmensis* (González-Coloma et al., 1995).

Ensayos biológicos: Se han realizado tres tipos de ensayos encaminados a detectar distintos tipos de acciones:

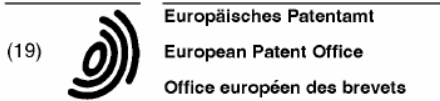
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1) Ensayos de elección: Estos experimentos se han realizado para comprobar si el compuesto es capaz de repeler al insecto cuando se aplica sobre

PCT

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Oficina InternacionalSOLICITUD INTERNACIONAL PUBLICADA EN VIRTUD DEL TRATADO DE COOPERACION  
EN MATERIA DE PATENTES (PCT)

(51) Clasificación Internacional de Patentes <sup>6</sup> : <b>A61K 35/78, A23L 1/29</b>	<b>A1</b>	(11) Número de publicación internacional: <b>WO 99/06058</b>
		(43) Fecha de publicación internacional: 11 de Febrero de 1999 (11.02.99)
(21) Solicitud internacional: PCT/ES98/00220	(74) Mandatario: ISERN JARA, Nuria; Calle Orense, 64, E-28020 Madrid (ES).	
(22) Fecha de la presentación internacional: 29 de Julio de 1998 (29.07.98)	(81) Estados designados: BR, CA, MX, UA, US, Patente euroasiática (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Patente europea (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(30) Datos relativos a la prioridad: P 9701693 30 de Julio de 1997 (30.07.97) ES P 9801139 2 de Junio de 1998 (02.06.98) ES	<b>Publicada</b> <i>Con informe de búsqueda internacional.</i>	
(71) Solicitantes (para todos los Estados designados salvo US): HELSINT, S.A.L. [ES/ES]; Calle Pedro Antonio de Alarcón, 9, E-18005 Granada (ES). HELECHOS INTERNACIONAL HONDURAS, S.A. de C.V. [HN/HN]; Carretera al Hatillo, Km. 6 El Picacho, Tegucigalpa M.D.C. (HN).		
(72) Inventores; e (75) Inventores/solicitantes (sólo US): YESARES FERRER, Miguel [ES/ES]; Calle Pedro Antonio de Alarcón, 9, E-18005 Granada (ES). MENDOZA MEDINA, Jorge, A. [HN/HN]; Carretera al Hatillo, Km. 6 El Picacho, Tegucigalpa M.D.C. (HN). RUIZ CACERES, Giovanna, Marisol [HN/HN]; Carretera al Hatillo, Km. 6 El Picacho, Tegucigalpa M.D.C. (HN). ALCAIDE GARCIA, Antonio [ES/ES]; Calle Castelló, 84-4º Izq., E-28006 Madrid (ES). YESARES MORILLAS, Miguel Enrique [ES/ES]; Calle Pedro Antonio de Alarcón, 9, E-18005 Granada (ES).		
(54) Title: HYDROSOLUBLE FRACTIONS OF <i>PHLEBODIUM DECUMANUM</i> AND USE THEREOF AS NUTRITIONAL COMPLEMENTS IN AIDS AND CANCER PATIENTS		
(54) Título: FRACCIONES HIDROSOLUBLES DE <i>PHLEBODIUM DECUMANUM</i> Y SU EMPLEO COMO COMPLEMENTO NUTRICIONAL EN PACIENTES DE SIDA Y CANCER		
(57) Abstract		
<p>The hydrosoluble fraction obtained from the fronds of a cultivated variety of <i>Phlebodium decumanum</i> which has been purified and standardized and identified as EXPLY-37 is appropriate to prepare formulations which are useful as nutritional supplements of general application and in particular for patients who suffer from a general weakening and cachectic syndrom such as aids patients and oncologic patients. The formulations may optionally contain ground <i>Phlebodium decumanum</i> rhizome and/or an extract of <i>Phlebodium decumanum</i> rhizome and the appropriate excipients for the presentation of said formulations in the form of powder, capsules or syrups.</p>		
(57) Resumen		
<p>La fracción hidrosoluble obtenida a partir de los frondes de una variedad cultivada de <i>Phlebodium decumanum</i>, purificada y estandarizada, identificada como EXPLY-37, es adecuada para elaborar formulaciones útiles como complementos nutricionales de aplicación general, y, en particular, para enfermos que presentan debilitamiento general y síndrome caquético, tales como enfermos de SIDA y pacientes oncológicos. Las formulaciones pueden contener, opcionalmente, rizoma de <i>Phlebodium decumanum</i> triturado y/o extracto de rizoma de <i>Phlebodium decumanum</i>, y los excipientes apropiados para la presentación de estas formulaciones en forma de polvo, cápsulas o jarabes.</p>		



(19)

Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11)

EP 0 919 240 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:  
02.06.1999 Bulletin 1999/22

(51) Int Cl.®: A61K 35/78

(21) Application number: 98307766.0

(22) Date of filing: 24.09.1998

(84) Designated Contracting States:  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE  
Designated Extension States:  
AL LT LV MK RO SI

(72) Inventor: Kumon, Shigetomi  
Saijo City, Ehime Prefecture (JP)

(74) Representative: West, Alan Harry et al  
R.G.C. Jenkins & Co.  
26 Caxton Street  
London SW1H 0RH (GB)

(30) Priority: 12.11.1997 JP 326981/97

(71) Applicant: ASAHI CORPORATION  
Saijo City, Ehime Prefecture (JP)

(54) Anticancer composition

(57) Powdered bamboo is used as an active ingredient in compositions for reducing the incidence of cancer of the colon and rectum. The bamboo powder is preferably of lower unbranched culm portions of three-year-old and older bamboo, or is of bamboo cut during the

three months before the appearance of shoots. Pumpkin seed powder, garlic powder, powdered cheese, wheat flour and water may be mixed with the bamboo powder and the mixture allowed to mature, to form an especially beneficial product.

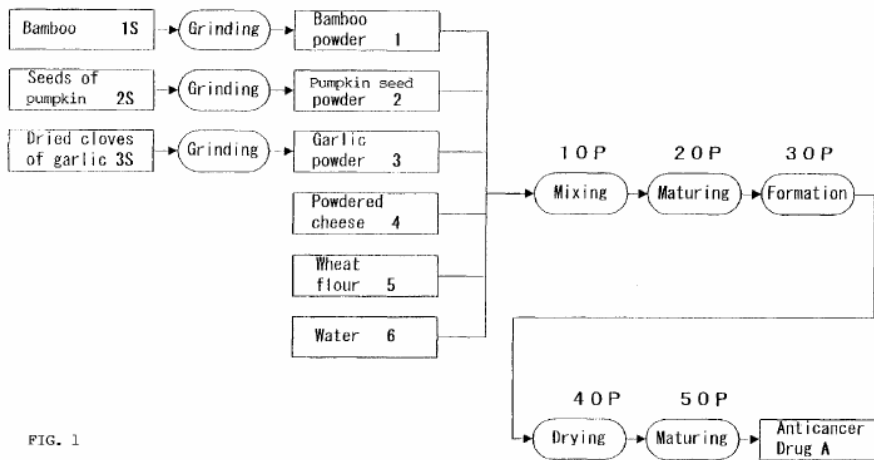


FIG. 1

EP 0 919 240 A1

(11) **EP 0 890 360 A1**(12) **EUROPEAN PATENT APPLICATION**(43) Date of publication: **13.01.1999 Bulletin 1999/02** (51) Int. Cl.<sup>6</sup>: **A61K 35/78**(21) Application number: **97302687.5**(22) Date of filing: **21.04.1997**(84) Designated Contracting States:  
**DE FR GB IT NL**(71) Applicant:  
**Dabur Research Foundation**  
**Sahibabad, Ghaziabad, 201 010 (IN)**(72) Inventors:  
• **Mehrotra, Raj**  
**Lucknow - 226 003 (IN)**• **Katiyar, Chandra Kant**  
**Sahibabad, Ghaziabad 201 010 (IN)**  
• **Gupta, Ajaya Prakash**  
**Sahibabad, Ghaziabad 201 010 (IN)**(74) Representative:  
**Harrison, David Christopher et al**  
**MEWBURN ELLIS**  
**York House**  
**23 Kingsway**  
**London WC2B 6HP (GB)**(54) **A polyherbal pharmaceutical composition useful in the treatment of conditions associated with hepatitis E and hepatitis B virus infections**

(57) The invention provides a novel polyherbal composition useful for treating acute Hepatitis E virus infection including acute liver failure due to HEV infection, healthy Hepatitis B virus carriers who develop superadded hepatitis E virus infection, Acute hepatitis B virus infection, and animal hepatitis B virus, therapeutic effects on hepatitis B virus infection and also used as a hepatoprotective agent, said composition comprising essentially extracts of plants *Rheum emodi* Wall., *Phyllanthus amarus* Linn., *Eclipta alba* Hassk., *Andrographis paniculata* Nees., and *Picrorhiza kurroa* Royle ex Benth., and optionally *Fumaria officinalis*, *Tinospora cordifolia* Miers., *Terminalia chebula* Retz., *Cichorium intybus* Linn., *Tephrosea purpurea* Linn. and *Boerhaavia diffusa* Linn.

**EP 0 890 360 A1**

Common Name	Botanical Name	Range of extract in mg per dose
Pitpapra	<i>Fumaria officinalis</i> Linn	5-50
Gilo	<i>Tinospora cordifolia</i> Miers	5-50
Haritaki	<i>Terminalia chebula</i> Retz.	5-50
Kasni	<i>Cichorium intybus</i> Linn	10-50
Sarpaunkha	<i>Tephrosea purpurea</i> Linn	10-50
Punarnava	<i>Boerhaavia diffusa</i>	10-50

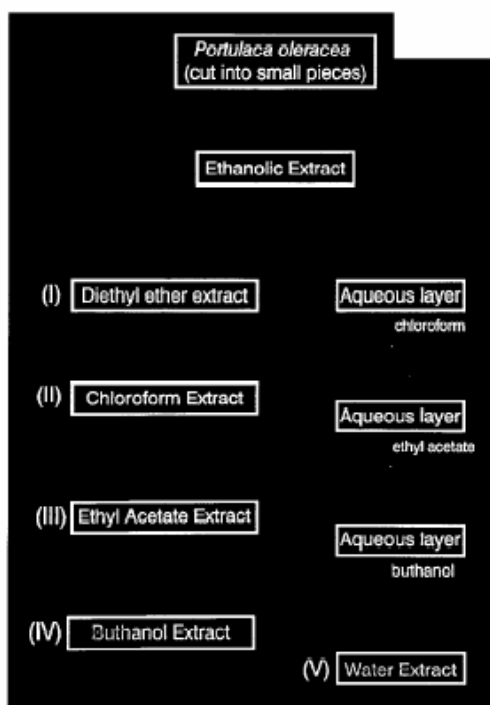


**C I P O**  
CANADIAN INTELLECTUAL  
PROPERTY OFFICE

(12) (19) (CA) **Demande-Application**

(21) (A1) **2,191,923**  
(22) 1996/12/03  
(43) 1998/06/03

- (72) Yoon, Ji-Won, CA  
 (72) Ham, Seung Shi, CA  
 (72) Jun, Hee Sook, CA  
 (71) Eastwood Biomedical Research Inc., CA  
 (51) Int.Cl.<sup>6</sup> A61K 35/78  
 (54) **PORTULACA OLERACEA ET CROISSANCE DES CELLULES TUMORALES**  
 (54) **PORTULACA OLERACEA AND TUMOR CELL GROWTH**



(57) Historiquement, *Portulaca oleracea* a eu de nombreuses applications médicales différentes. La présente invention a trait à l'usage inédit de *P. oleracea* pour le traitement du cancer. Plus précisément, il est révélé que *P. oleracea* a un effet spécifique et distinct sur l'inhibition et/ou la suppression de la croissance des

(57) *Portulaca oleracea* has been used throughout history for many different medicinal purposes. This invention is directed to the novel use of *P. oleracea* for the treatment of cancer. More specifically it is disclosed that *P. oleracea* has a specific and distinct effect on the inhibition and/or suppression of gastric tumor cell



Industrie Canada Industry Canada



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WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US97/22777 (22) International Filing Date: 11 December 1997 (11.12.97) (30) Priority Data: 08/764,932                      13 December 1996 (13.12.96)      US (71) Applicant: VIVA AMERICA MARKETING, INC. [US/US]; 1239 Victoria Street, Costa Mesa, CA 92627 (US). (71)(72) Applicant and Inventor: ZHU, Junsheng [NZ/US]; 530 Wilson Street #3, Costa Mesa, CA 92627 (US).	(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>	

(54) Title: METHOD OF PREPARATION OF BIOLOGICALLY ACTIVE GINKGO BILOBA PRODUCT

## (57) Abstract

This invention provides a method for preparing a biologically active ginkgo biloba extract that is not subject to environmental restrictions and is efficient. The method involves extracting purified ginkgo biloba from ginkgo biloba leaf through a series of steps using alcohol as a solvent, including filtration, vacuum distillation, adsorption with silica gel, centrifugation, and chromatography. The invention also provides for a method of making dietary supplements from the ginkgo biloba product and of administering these supplements.

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PCT/US97/22777

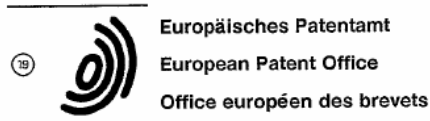
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FIGURE 1

## Ginkgo Biloba Extraction Methodology

- 1 Mix ginkgo biloba and alcohol to form a ginkgo biloba solution  
↓
- 2 Extract the ginkgo biloba solution to form a first ginkgo biloba filtrate  
↓
- 3 Vacuum distill the first ginkgo biloba filtrate to yield a slurry  
↓
- 4 Filter the ginkgo biloba slurry to form a second ginkgo biloba filtrate  
↓
- 5 Add an adsorbent to the second ginkgo biloba filtrate to form a ginkgo biloba cake  
↓
- 6 Wash the ginkgo biloba cake with alcohol and filter to form a third ginkgo biloba filtrate  
↓
- 7 Vacuum distilling the third ginkgo biloba filtrate to form a first ginkgo biloba solid  
↓
- 8 Add alcohol the first ginkgo biloba solid to form a first ginkgo biloba liquor  
↓
- 9 Centrifuge the first ginkgo biloba liquor and decanting the ginkgo biloba supernatant  
↓
- 10 Vacuum distill the ginkgo biloba supernatant to yield a second ginkgo biloba solid  
↓
- 11 Purify the second ginkgo biloba solid through alcohol resuspension and chromatography to yield a purified ginkgo biloba extract  
↓
- 12 Isolate a final dried ginkgo biloba product from the purified ginkgo biloba extract

[ 17 ]



11 Publication number: **0 436 129 A1**

12

**EUROPEAN PATENT APPLICATION**

21 Application number: **90123140.7**

51 Int. Cl.<sup>5</sup>: **A61K 35/78**

22 Date of filing: **03.12.90**

30 Priority: **04.12.89 DE 3940094**

71 Applicant: **MONTANA LIMITED**  
**Little Island Industrial Estate**  
**Little Island, Co. Cork(IE)**

43 Date of publication of application:  
**10.07.91 Bulletin 91/28**

72 Inventor: **O'Reilly, Joseph, Dr.**  
**"Cooline", Lower Annmount**  
**Glounthaune, Co. Cork(IE)**  
 Inventor: **Jaggy, Hermann, Dr.**  
**Kapellenweg 7**  
**W-7525 Bad Schönborn(DE)**

64 Designated Contracting States:  
**AT BE CH DE DK ES FR GB GR IT LI LU NL SE**

74 Representative: **Vossius & Partner**  
**Siebertstrasse 4 P.O. Box 86 07 67**  
**W-8000 München 86(DE)**

54 **Active component concentrates and new active component combinations from Ginkgo biloba leaves, their method of preparation and pharmaceuticals containing the active component concentrates or the active component combinations.**

57 The invention relates to highly concentrated active component concentrates and new active component combinations from Ginkgo biloba leaves as well as their method of preparation and the pharmaceuticals containing these active component concentrates or active component combinations.

Example 7

Coated tablets:

1 tablet contains:

Ginkgo biloba active component concentrate in Examples 3 - 5	20.00 mg
microcrystalline cellulose	50.00 mg
lactose	40.00 mg
colloidal silicic acid	12.50 mg
talcum	2.25 mg
magnesium stearate	0.25 mg
hydroxypropyl methylcellulose	8.00 mg
ferric oxide pigment	0.05 mg
talcum	0.25 mg

weight of a coated approx. 133.30 mg  
 tablet



### Annex III

All the aforementioned examples can be found on the Internet through **Esp@cenet**, at the following websites:

- \* <http://www.epo.org> (website in English). European Patent Office (EPO).  
<http://www.espacenet.com> . Direct access through the European Patent Office.
- \* <http://www.oepm.es> (website in Spanish). Oficina Española de Patentes y Marcas (OEPM) (Spanish Patent and Trademark Office)

This tool allows us to search for patents, by their publication number or by their application number, the applicant, the classification or with keywords.

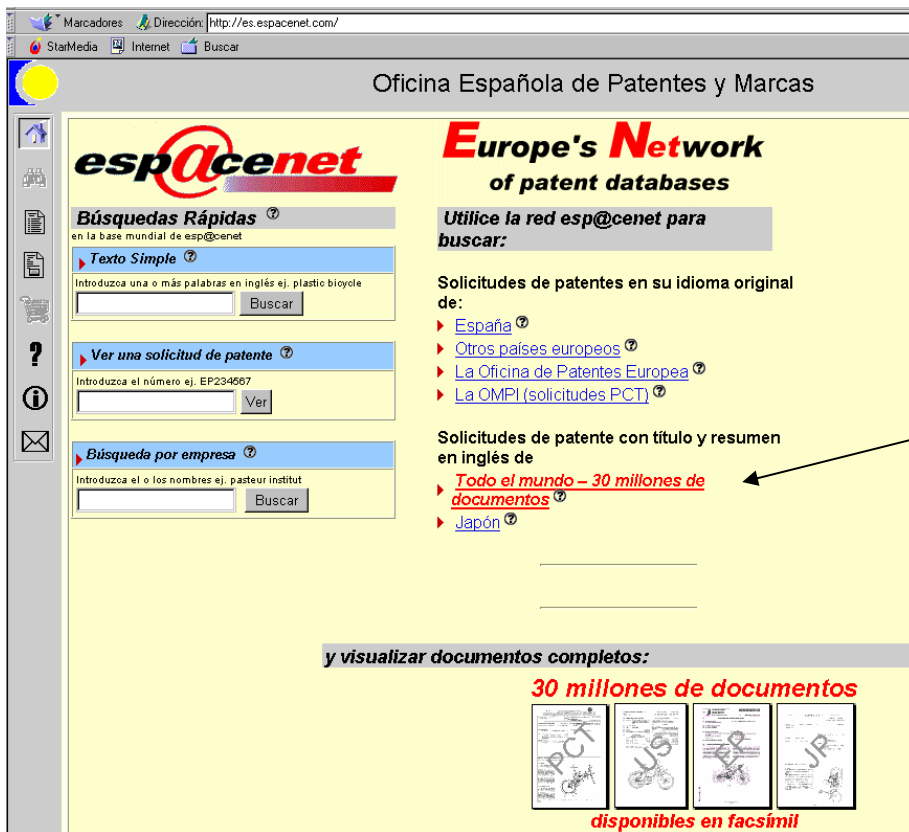
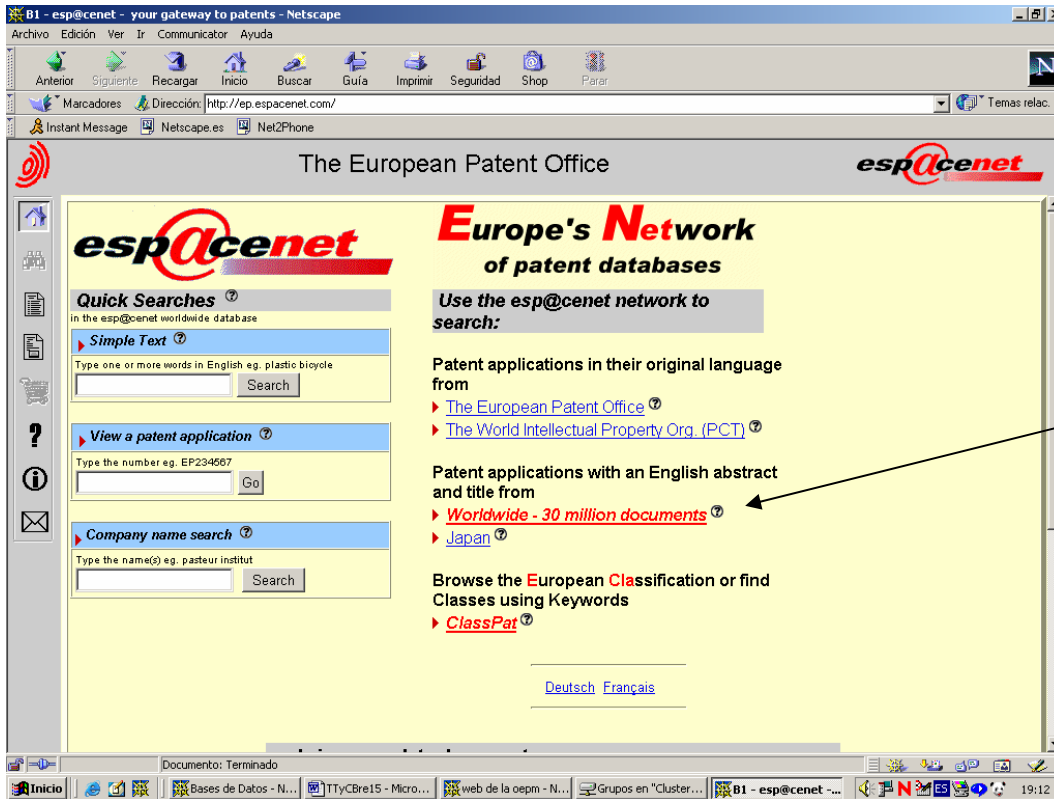
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- \* Spain ES, United Kingdom GB, United States US, France FR, Japan JP, China CN, etc.
- \* EP – European Patent - published by the European Patent Office.
- \* WO - international application published under the Patent Cooperation Treaty (PCT) by WIPO.

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				SZ	Swaziland
				TD	Chad
				TG	Togo
				TJ	Tajikistan
				TM	Turkmenistan
				TR	Turkey
				TT	Trinidad and Tobago
				UA	Ukraine
				UG	Uganda
				US	United States of America
				UZ	Uzbekistan
				VN	Viet Nam
				YU	Yugoslavia
				ZW	Zimbabwe

The option "**Worldwide - 30 million documents**" is the one which contains the largest number of documents. All the pages of most of these documents can be viewed.



[End of Annex and of Document]