Biopiracy Case Studies

Professor Michael Blakeney

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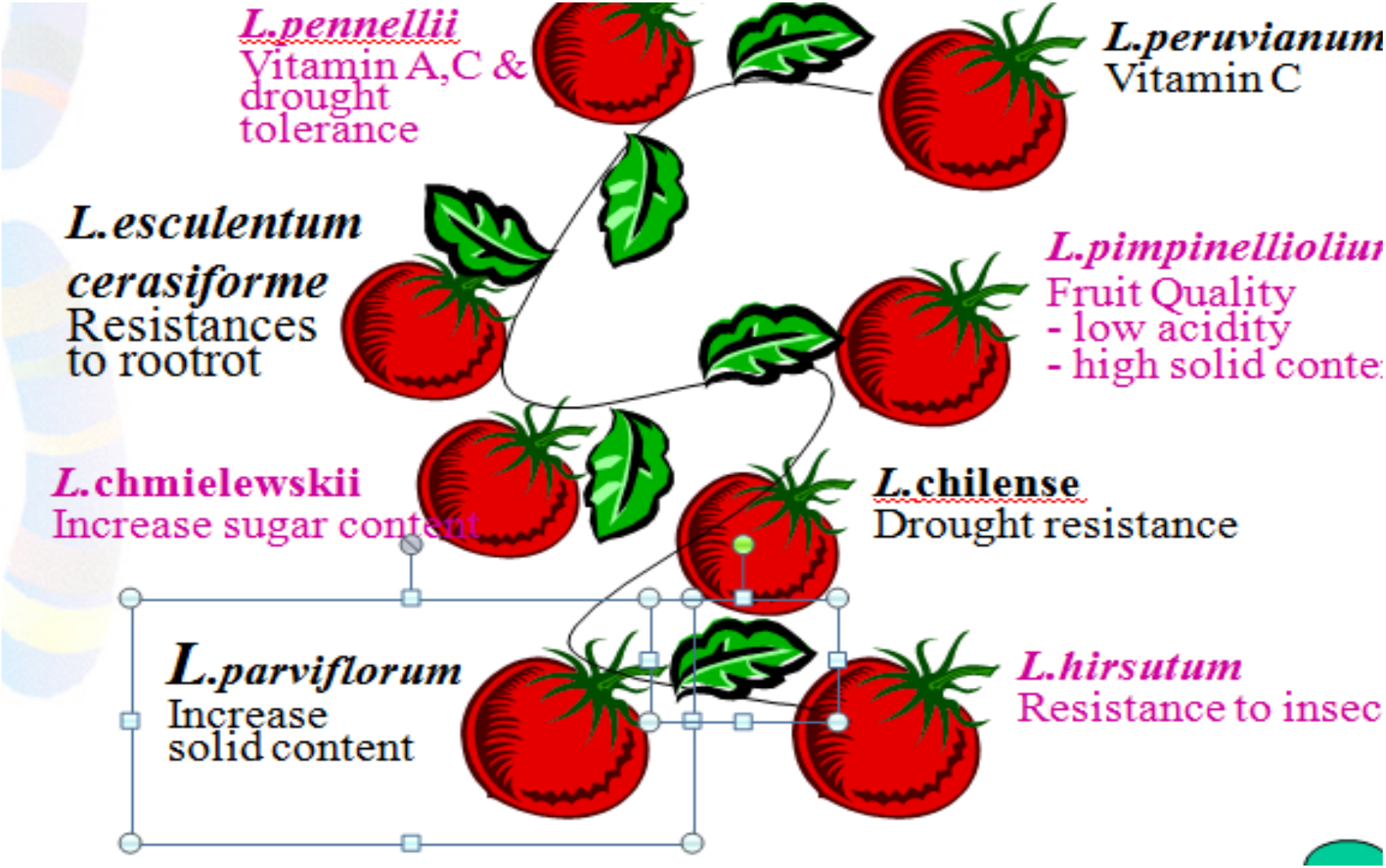
Outline

1. Plant breeding
2. Biodiversity
3. Biopiracy
4. Case studies
5. Role of patents in biopiracy

Plant breeding

Engineering the modern tomato
(*Lycopersicon esculentum*)



Plant breeding- source material

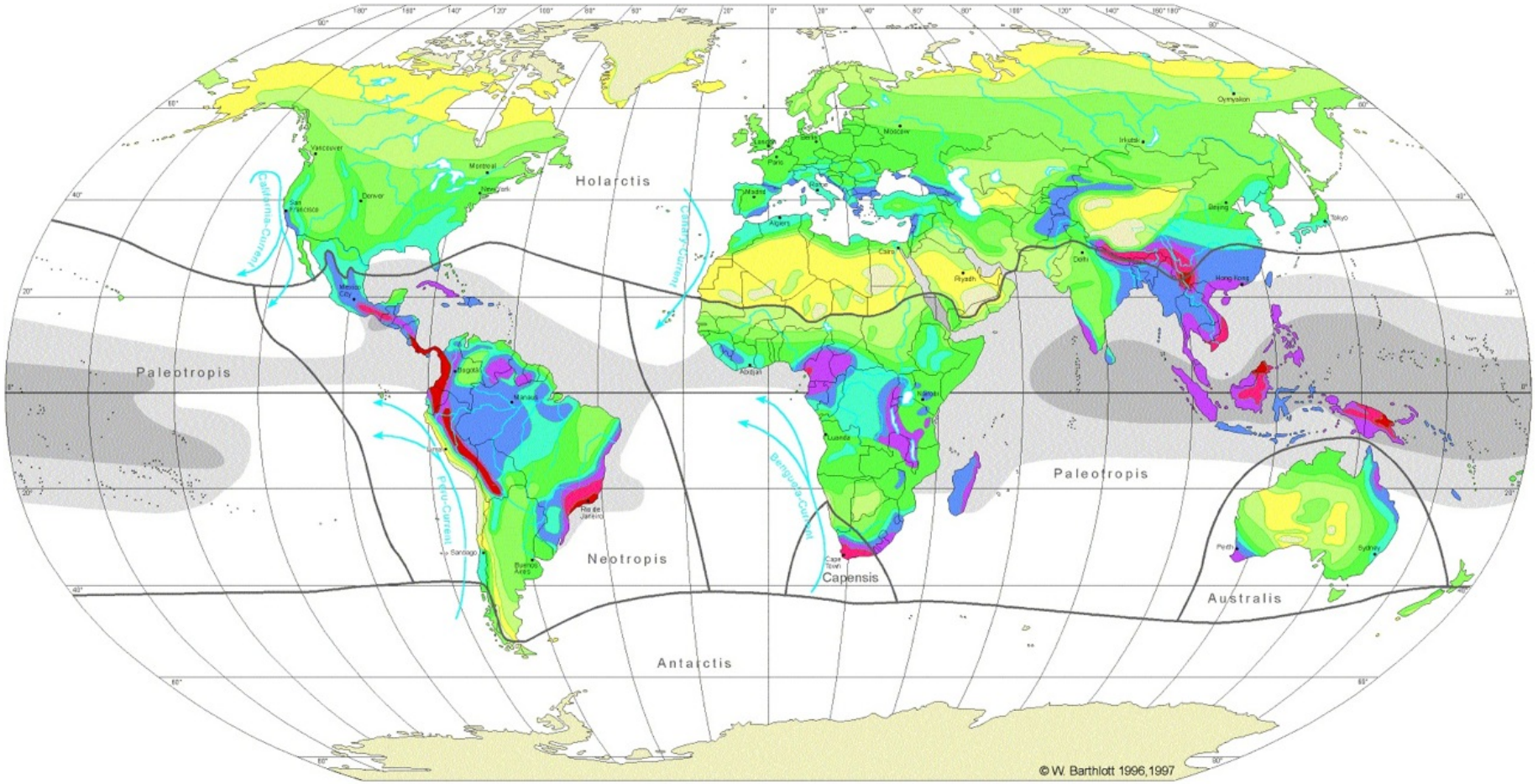
- L. pennellii - Ecuador
- L. peruvianum - Peru
- L. esculentum - Mexico
- L. pimpinellifolium – Ecuador and Peru
- L. chmielewskii - Peru
- L. chiliense - Chile
- L. parviflorum- Peru
- L. hirsutum - Ecuador and Peru

Tomato Producers (2013)

Rank	Country	Production millions of tonnes[38][41]
1	China	52.6
2	India	18.7
3	United States	14.5
4	Turkey	11.9
5	Egypt	8.3
6	Iran	6.0
7	Italy	5.6
8	Spain	4.9
	World	**170.8**

Biodiversity

GLOBAL BIODIVERSITY: SPECIES NUMBERS OF VASCULAR PLANTS



Robinson Projection
Standard Parallels 38°N und 38°S
Scale 1: 130000000

Diversity Zones (DZ): Number of species per 10.000km^2

- DZ 1 (<100)
- DZ 2 (100 - 200)
- DZ 3 (200 - 500)
- DZ 4 (500 - 1000)
- DZ 5 (1000 - 1500)
- DZ 6 (1500 - 2000)
- DZ 7 (2000 - 3000)
- DZ 8 (3000 - 4000)
- DZ 9 (4000 - 5000)
- DZ 10 (≥5000)

Capensis floristic regions

sea surface temperature

- >29°C
- >27°C

cold currents

W. Barthlott, N. Biedinger, G. Braun
F. Feig, G.Kier, W. Lauer & J. Mutke 1997
modified after
W. Barthlott, W. Lauer & A. Placke1996
Department of Botany and Geography
University of Bonn
German Aerospace Research Establishment, Cologne

Cartography: M. Gref
Department of Geography
University of Bonn

Mega diversity Countries: Plant Diversity and Endemism

Country	Area (km2)	Total species	Endemics
Brazil	8,511,965	~50,000-56,000	16,500-18,500
Indonesia	1,916,600	~37,000	14,800-18,500
Colombia	1,141,748	45,000-51,000	15,000-17,000
Mexico	1,972,544	18,000-30,000	10,000-15,000
Australia	7,686,810	15,638	14,458
Madagascar	587,045	11,000-12,000	8,800-9,600
China	9,561,000	27,100-30,000	~10,000
Philippines	300,780	8,000-12,000	3,800-6,000
India	3,287,782	>17,000	5,356
Peru	1,285,210	18,000-20,000	4,000-5,000
Papua New Guinea	475,369	15,000-21,000	10,500-16,000
Ecuador	283,561	17,600-21,100	4,000-5,000
USA	9,372,143	18,956	4,036
Venezuela	912,050	15,000-21,070	5,000-8,000
Malaysia	329,749	15,000	6,500-8,000
South Africa	1,221,037	23,420	16,500
Dem. Rep. Congo/Zaire	2,344,000	11,000	3,200
Total	51,189,393		155,475-183,025

Source: Myers 2001

Biopiracy

What is biopiracy?

Biopiracy occurs when developing countries claim to be owners of traditional knowledge and biological resources and accuse MNEs and developed nations of theft.

Vandana Shiva

- Biopiracy refers to the use of intellectual property systems to legitimize the exclusive ownership and control over biological resources and biological products and processes that have been used over centuries in non-industrialized cultures.
- Patent claims over biodiversity and indigenous knowledge that are based on the innovation, creativity and genius of the people of the Third World are acts of 'biopiracy'.
- V. SHIVA, *Protect or Plunder? Understanding Intellectual Property Rights*, London, Zed Books, 2001, 49.

Case Studies

WORLD TRADE ORGANIZATION

WT/DS50/AB/R
19 December 1997

(97-5539)

Appellate Body

INDIA - PATENT PROTECTION FOR PHARMACEUTICAL AND AGRICULTURAL CHEMICAL PRODUCTS

USA v India

Appellate Body upheld the Panel's finding that India's filing system based on “administrative practice” for patent applications for pharmaceutical and agricultural chemical products was inconsistent with Art. 70.8 of the TRIPS Agreement.

Neem Tree (India)

The neem tree, *azadirachta indica,* is known in Sanskrit as "sarva-roga nivarini" or "curer of all ailments.“

Neem-leaf juice is used to prevent psoriasis and other skin disorders and to control parasitic infections.

Neem extract is applied

as an antidote to malaria.

US Patent 5,124,349, June 23, 1992

Storage stable pesticide compositions comprising neem seed extracts which contain azadirachtin as the active pesticidal ingredient

Inventors: **Carter; Charles G.** (Silver Spring, MD)**, Hull, Jr.; Clifford J.** (Laurel, MD)**, Luthra; Narender P.** (Columbia, MD)**, Walter; James F.** (Ashton, MD)

Assignee: **W. R. Grace & Co.-Conn.** (New York, NY)

Challenges to US patent

- the W.R. Grace patent is illegal because did not recognize prior Indian knowledge and therefore was not novel.
- September 1995, a coalition of 225 agricultural, scientific, and trade groups as well as over 100,000 individual Indian farmers, led by the organization the Foundation on Economic Trends, filed a petition with the USPTO for revocation for lack of novelty, and immorality.

Result of challenge

- In the USA "prior existing knowledge" is only recognised if it is published in a journal - not if it has been passed down through generations of oral and folk traditions.
- Novelty objection accepted by the European Patent Office

Hoodia-Cactus

- growing in the Kalahari desert
- used as an appetite suppressant by the San tribe
- was patented in order to sell diet pills

- Benefit Sharing: Pfizer and Phytopharm will pay 6 % of all royalties (only 0.003% of net sales)

This plant keeps him alive. Now its secret is 'stolen' to make us thin

Pharmaceutical firms stand accused of once again plundering ancient remedies to make a fortune, writes

Antony Barnett

Kung tribesmen, left, have used the Hoodia cactus, above, for generations to stave off h on hunting trips into the Kalahari desert. Its essential ingredient has now been pate by a British pharmaceutical firm, Phytopha which says its new slimming aid will have n the side-effects of traditional treatments.
Photographs by Tony Stone, NHPA and Cor

FOR THOUSANDS of years, African ribesmen have eaten the Hoodia cactus o stave off hunger and thirst on long unting trips. The Kung bushmen who ve around the Kalahari desert in south- rn Africa used to cut off a stem of the actus about the size of a cucumber and unch on it over a couple of days. They e together so they brought back what ey caught and did not eat while unting.

Now the Hoodia, which grows to 6ft – ller than the bushmen themselves – is the centre of a bio-piracy row. mpaigners say the cactus has tracted the interest of the Western g industry, which exploits develop- countries through the international ent system.

n April, when pharmaceutical giants re being accused of failing to provide rdable Aids drugs in Africa, Phyto- rm, a small firm in Cambridgeshire, it had discovered a potential cure obesity derived from an African us. It emerged that the company had nted P57, the appetite-suppressing edient in the Hoodia, hoping it ld become a slimming miracle.

ytopharm's scientists boasted it

Dixey believed had disappeared are having their annual gathering at a farm 45 miles north of Cape Town. One of the top items on the agenda is to plan their strategy against Phytopharm and Pfizer. They are angry, saying their ancient knowledge has been stolen, and are about to launch a challenge and demand compensation.

Roger Chennells is the lawyer for the bushmen, who number 100,000 across South Africa, Botswana, Namibia and Angola. He argued their case to access white-owned farmland on the edge of the Kalahari.

Speaking to *The Observer*, Chennells said: 'They are very concerned. It feels like somebody has stolen their family silver and cashed it in for a huge profit. The bushmen do not object to anybody using their knowledge to produce a medicine, but they would have liked the drug companies to have spoken to them first and come to an agreement.

'I believe there is grounds for a legal

from medicines could transform their prospects.'

Dixey, who insisted he would now be happy to enter into talks with the bushmen community, said Phytopharm had been was first approached with the deal by the South African Council for Scientific and Industrial Research, which had been investigating the properties of the Hoodia cactus.

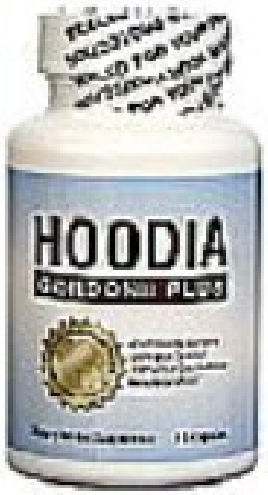
priate to do so before the drug had passed on the clinical tests and been finally approved,' he said. 'We did not want to raise their expectations with promises that could not be met.' Horak said the CSIR was committed to sharing financial benefits and had a track record

Pfizer made millions from Viagra Now

Rachel Wynberg of Biowatch s details of agreements are all con and we have no access to the Hoodia drug has the potential to b Africa's first blockbuster drug should have all been sorted out be patent was awarded and not afte

Sandy Gall, the broadcast former ITN newsreader who is ing a book on the bushmen of s Africa, described the situat

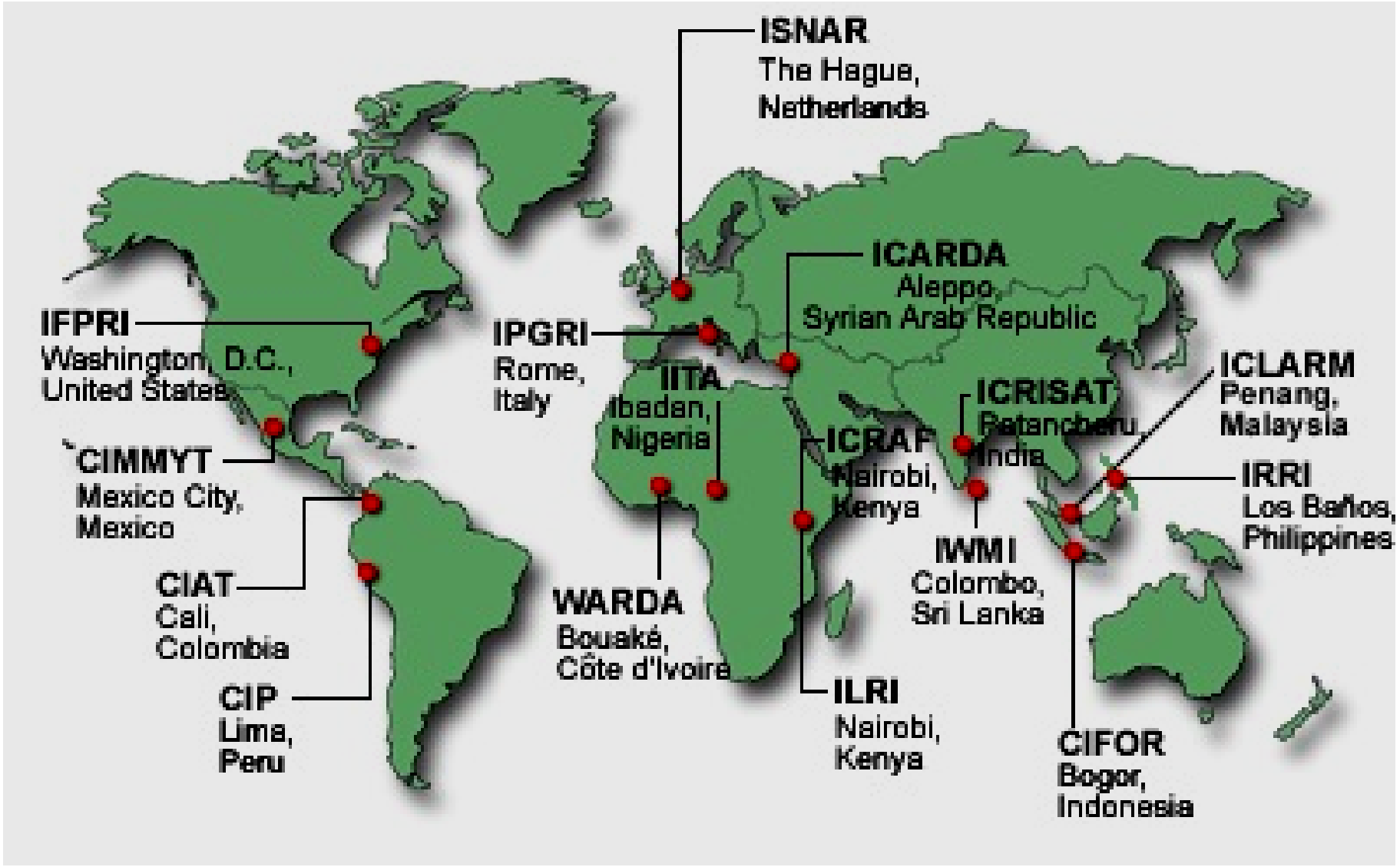
Maritz Mayer Hoodia 2000
Time Release - 60 tabs



Pacific Naturals Hoodia
Gordonii Plus - 60 Caps


Bushman's Secret
Weight & Appetite Management

Agricultural “Biopiracy”-Consultative Group for International Agricultural Research (CGIAR)



CG Centre Collections

- CIAT (Colombia)–beans, cassava
- CIMMYT (Mexico City)–maize, wheat
- CIP (Lima) –potato and other Andean tubers
- ICARDA (Aleppo)–legumes, wheat
- ICRISAT (Hyderabad)–pulses, groundnut
- IITA (Ibadan) –Bamberra groundnut, cassava, banana, cowpea
- ILRI (Nairobi) –forages
- IRRI (Los Banos)–rice
- ICRAF (Nairobi) –trees
- WARDA (Bouake)-rice

UC Davis Blight Resistant Rice

Blight resistant rice from Mali crossed by IRRI with high-yielding varieties

Patent obtained by UC Davis for “Nucleic acids, from *Oryza sativa*, which encode leucine-rich repeat polypeptides and enhance *Xanthomonas* resistance in plants. (U.S. patent 5,859,339 12 Jan 1999).

Enola Bean

US patent 5,894,079 (13 April 1999) for “a new field bean variety that produces distinctly colored yellow seed which remain relatively unchanged by season.” (May 28, 1999, U.S. PVP Certificate)

CIAT patent challenge the yellow bean was 'misappropriated' from Mexico in breach of Mexico's sovereign rights over its genetic resources, as recognized by the CBD

Cupuaçu

- *Theobroma grandiflorum*, is a tropical rainforest tree related to cacao. It is widely cultivated in Brazuil (Para and Amondzonas)
- The white pulp of the cupuaçu is uniquely fragrant, and it contains theacrine (1,3,7,9-tetramethyluric acid).
- similar to cocoa, traditionally used for juice, ice-cream, marmalade and gateaus
- Asahi registered the name and applied for a patent for its use

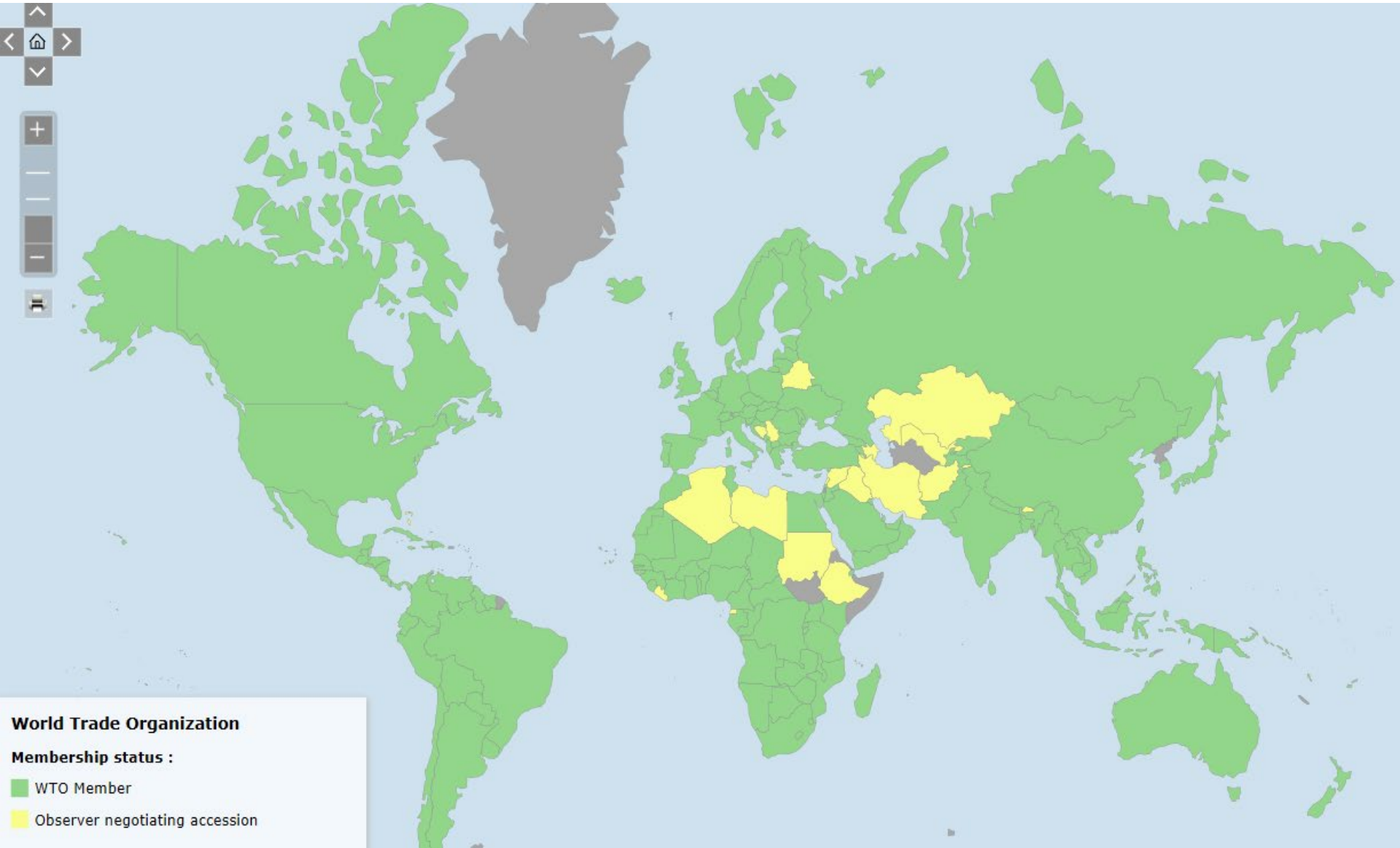
cupuaçu patents

PATENTS ON CUPUAÇU

Registered by	Registered where	Publication date	Title	Number (Click the number for more information from esp@cenet)
The Body Shop International Plc*	United Kingdom	05/08/1998	COSMETIC COMPOSITION COMPRISING CUPUACU EXTRACT	GB 2321644A
Asahi Foods Co., Ltd*	Japan	30/10/2001	LIPIDS ORIGINATING FROM CUPUAÇU, METHOD OF PRODUCING THE SAME AND USE THEREOF	JP 2001299278
Asahi Foods Co., Ltd*	Japan	18/12/2001	OIL AND FAT DERIVED FROM CUPUACU - THEOBROMA GRANDIFLORUM SEED, METHOD FOR PRODUCING THE SAME AND ITS USE	JP2001348593
Asahi Foods Co., Ltd*	European Union	03/07/2002	FAT ORIGINATING IN CUPUASSU SEED, PROCESS FOR PRODUCING THE SAME AND USE THEREOF	EP 1219698A1
Asahi Foods Co., Ltd*	WIPO - worldwide	03/07/2002	FAT ORIGINATING IN CUPUASSU SEED, PROCESS FOR PRODUCING THE SAME AND USE THEREOF	WO0125377
Cupuacu International Inc*	WIPO - worldwide	17/10/2002	CUPUA SEED-ORIGIN FAT, PROCESS FOR PRODUCING THE SAME AND USE THEREOF	WO02081606

Role of patents in biopiracy

World Trade Organization Membership



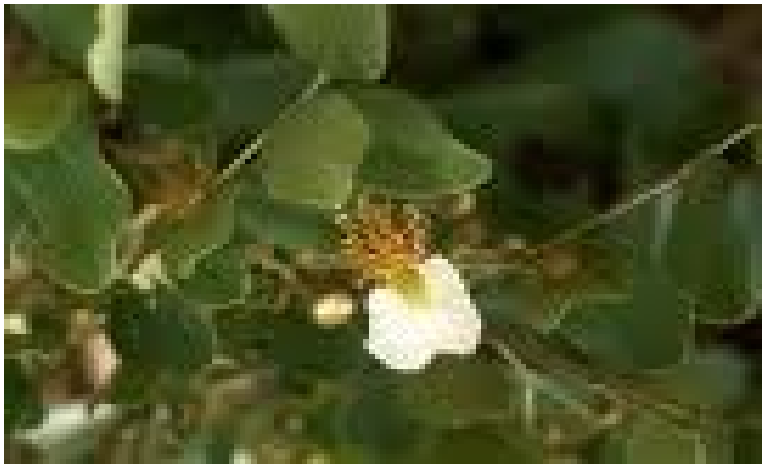
Requirements for Patentability

Article 27. 1 WTO Agreement on Trade Related Aspects of Intellectual Property Rights " patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application."

Swartzia madagascariensis

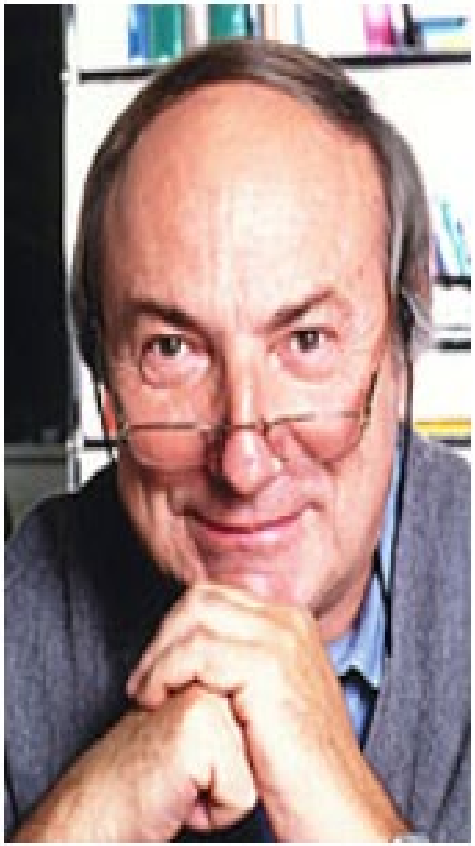
US-patent 5,929,124 granted to
Prof Kurt Hostettmann,
University of Lausanne

The invention, an antimicrobial, relied on TK from Zimbabwe concerning the medical use of root of Swartzia



Agreement - Phytera and the University of Lausanne - Phytera received exclusive worldwide license for royalties of 1.5% on net sales of any product marketed

Biography - Prof Kurt Hostettmann



Prof. Kurt Hostettmann - University of Geneva

United States Patent [19]
Hostettmann et al.

[54] **ANTIMICROBIAL DITERPENES**

[76] Inventors: **Kurt Hostettmann**, Centre 48, St. Sulpice, Switzerland, 1025; **Frederic Schaller**, Grand Fontaine 4, 1700 Fribourg, Switzerland

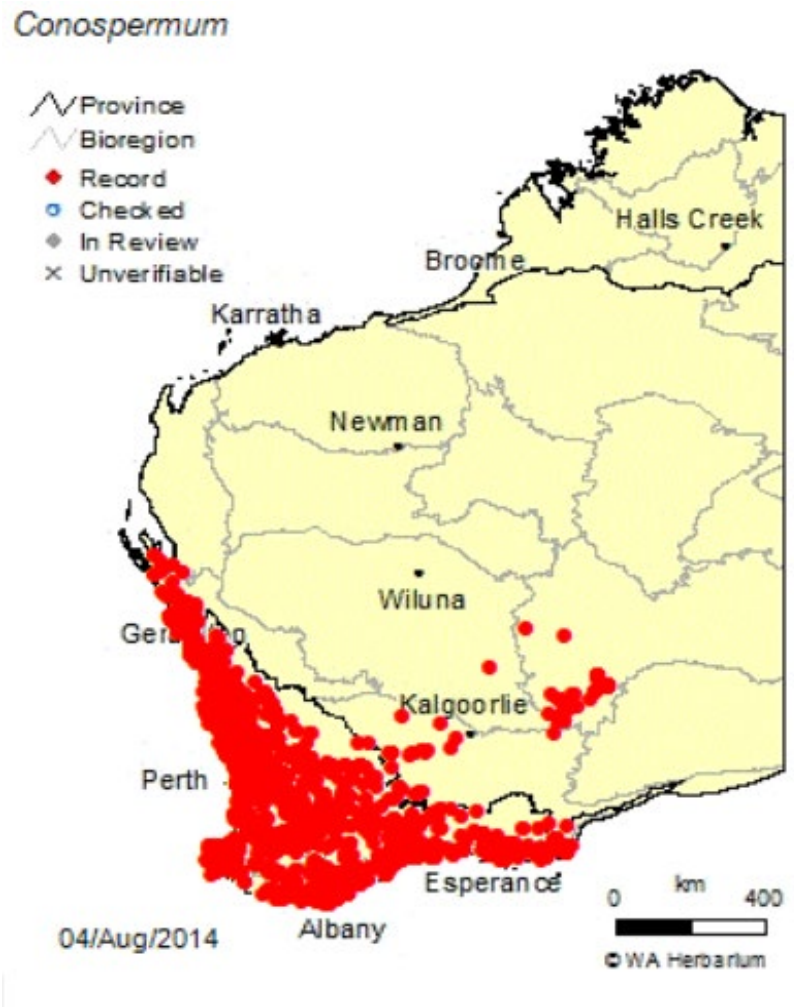
ANTIMICROBIAL DITERPENES

BACKGROUND OF THE INVENTION

The invention features diterpenoids having pharmaceutical activity. *Swartzia madagascariensis* Desv. (Leguminosae) is a tree found throughout tropical Africa. Traditional medicine describes the use of preparations including the root of the tree to treat leprosy and syphilis, and to kill termites. Saponins extracted from the fruit pods are molluscicidal, and can kill snails carrying vectors for schistosomiasis.

Smokebush

- ***Conospermum*** is a genus of 53 species in the family Proteaceae endemic to Australia. They grow as shrubs or small trees and are fairly widespread over the continent.



US Patent, 5,672, 607, September 30, 1997

Antiviral naphthoquinone compounds, compositions and uses thereof

Inventors: **Boyd; Michael R.** (Ijamsville, MD)**, Cardellina, II; John H.** (Walkersville, MD)**, Gustafson; Kirk R.** (Mt. Airy, MD)**, Decosterd; Laurent A.** (Nyon, **CH**)**, Parsons; Ian** (Ithaca, NY)**, Pannell; Lewis** (Silver Spring, MD)**, McMahon; James B.** (Frederick, MD)**, Cragg; Gordon M.** (Bethesda, MD)

Assignee: **The United States of America as represented by the Department of Health** (Washington, DC)

TECHNICAL FIELD OF THE INVENTION

This invention relates to antiviral compounds, in particular antiviral compounds obtained from plants of the genus Conospermum, specifically compounds referred to as naphthoquinones.

This invention also relates to methods of obtaining antiviral compounds, specifically naphthoquinones and derivatives thereof, in substantially pure form, from Conospermum plants.

Claims

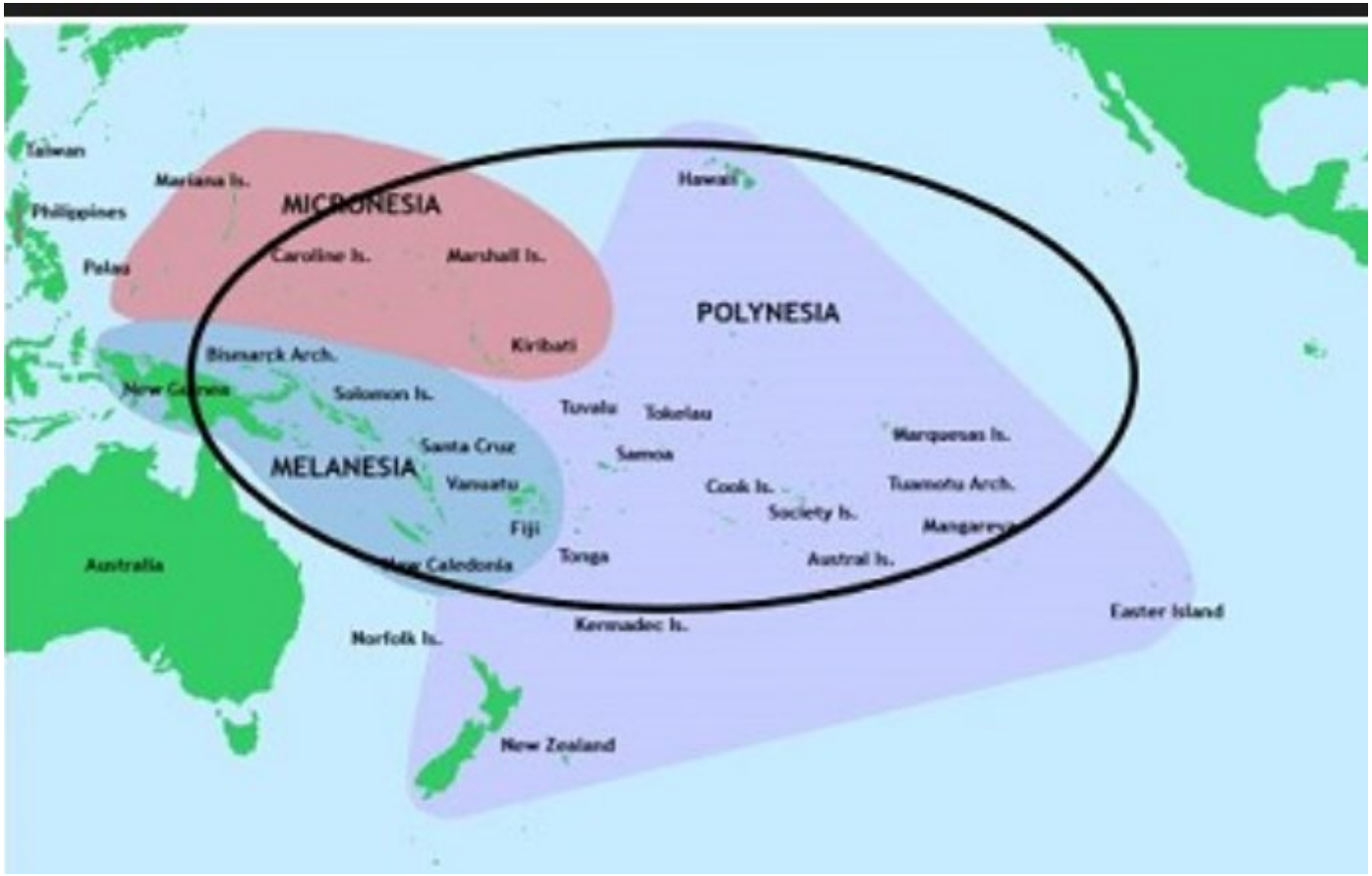
A method of preventing or treating a viral infection, which method comprises administering to a host an antiviral

Object of the invention

It is an object of the present invention to provide a novel composition, in particular a pharmaceutical composition, which prevents infection of an animal, in particular a human, with a virus, such as a retrovirus, in particular a human immunodeficiency virus, specifically HIV-1 or HIV-2.

A related object of the present invention is to provide a novel method of treating an animal, in particular a human, to prevent infection with a virus, such as a retrovirus, in particular a human immunodeficiency virus, specifically HIV-1 or HIV-2

Kava – South Pacific



Kava

US Patent 6,537,592 March 25, 2003

- **Abstract** This invention relates to a *kava-kava* lactone-containing product. Also disclosed is a method of preparing such a *kava-kava* lactone-containing product by extracting *kava-kava* lactones from crude *kava-kava* extracts with a solubilizing agent.
- **Inventors**: Ono; Mitsunori (Lexington, MA), Chen; Lan Bo (Lexington, MA)
- **Assignee**: *Kava* Pharmaceuticals, Inc. (DE)
  Appl. No.: 09/962,514 Filed: September 24, 2001

BACKGROUND

- The plant *kava-kava* (piper methysticum Forst. Piperaceae) is native to Polynesia. An intoxicating beverage made from its crushed roots has been used in ceremonies since ancient times.
  Kava-kava has been found to have significant analgesic and anesthetic effects via non-opiate pathways.

US Patent 7,105,185 September 12, 2006

A method of producing a processed *kava* product.

- Inventors: **Gow; Robert** (Naples, FL)**, Pierce; John** (Moreno Valley, CA)**, Pierce; Brian** (Moreno Valley, CA)**, Birdsall; William** (Naples, FL)
- Assignee: **HerbalScience, LLC** (Naples, FL)

US Patent 7,326,734 February 5, 2008

Treatment of bladder and urinary tract cancers

Abstract

Compositions of matter and methods wherein chalcone and flavone derivatives are administered to human or veterinary patients for the treatment of bladder or urinary tract cancer. Compounds of the invention include 2'-hydroxy-4,4',6'-trimethoxychalcone (Flavokawain A).

Inventors: Zi; Xiolin (Irvine, CA), Simoneau; Anne R. (Long Beach, CA)

Assignee: The Regents of the University of California (Oakland, CA)

FIELD OF THE INVENTION

Chalcones have been reported to be anti-inflammatory, analgesic and antipyretic, whereas flavones show many pharmacological properties. Some chalcones possess bactericidal, antifungal and insecticidal activity and some of their derivatives are reported to be antimutagenic. Piper methysticum Forst. f. (***Kava Kava***) belongs to the family Piperaceae, and grows as a perennial shrub in ***Fiji*** and other South Pacific islands.

Eighteen different kavalactones have been reported from the root extracts of ***Kava.***

EU Project to establish reciprocal protection between Melanesian countries to protect TK and EC

PINA
Pacific Islands News Association

PACNEWS

- News
- News feature
- Business
- Sports
- Views
- Archive

MSG traditional Knowledge workshop

By Online Editor
2:51 pm GMT+12, 21/10/2010, Vanuatu

Rima Ravusiro, MSG Director General (RIGHT)

The Director General of the Melanesian Spearhead Group officially opened on Tuesday a first-ever workshop that will enable culture experts from member countries and their legal technicians to study the feasibility of a reciprocal recognition and enforcement mechanism for Traditional Knowledge in Melanesia.

Rima Ravusiro welcomed participants from Fiji, Papua New Guinea, Solomon Islands and Vanuatu at the four-day meeting held at the Melanesian Spearhead Group Secretariat in Port Vila from 19 to 22 October.

FIJI Sun
Paper | Online | Mobile

Traditional knowledge treaty

writer : Sera JANINE
9/4/2011

The Melanesian Spearhead Group Framework Treaty on Traditional Knowledge and Expressions of Culture will come into effect in three months.

This was revealed in the Special MSG Leaders' Summit communiqué last week at the Tanoa International Hotel in Nadi.

The treaty will ensure due recognition for owners and holders of traditional knowledge.

Prime Minister of Fiji, Commodore Voreqe Bainimarama and the Prime Minister of Solomon Islands Danny Philip signed the MSG Framework Treaty on TK and EC.

The Treaty was an initiative of the MSG Council of Arts and Culture and formulated in partnership with the EU TradeCom in 2010.

The MSG Leaders highlighted that the signing of the Treaty marked a symbolic and historical development for the MSG members as it attempts to protect traditional knowledge holders and owners against any infringement of their rights; and protect MSG expressions of culture against misappropriation, misuse and unlawful exploitation.

Kakadu Plum (*Terminalia ferdinandiana)*

- "billy goat plum" in the Northern Territory
- "gubinge" in Western Australia,
- A traditional high-energy food with medicinal and antiseptic properties
- The fruit has very high levels of Vitamin C

THE UNIVERSITY OF WESTERN AUSTRALIA

University News

Bush fruit gains American celebrity endorsement

Wednesday, 5 February 2014

A US television celebrity and dermatologist who is CEO of an international cosmetic company recently travelled to Broome to film a documentary on the native fruit gubinge, also known as Kakadu plum, which will be a key ingredient in a new range of skin care products her company is developing

1. (WO2007084998) COMPOSITIONS COMPRISING KAKADU PLUM EXTRACT OR ACAI BERRY EXTRACT

Latest bibliographic data on file with the International Bureau

PermaLink

Pub. No.: WO/2007/084998 **International Application No.:** PCT/US2007/060792
Publication Date: 26.07.2007 **International Filing Date:** 19.01.2007

IPC:
A61K 31/74 (2006.01)

Applicants: **MARY KAY, INC.** [US/US]; 16251 DALLAS PARKWAY, P.O. Box 799045, Dallas, TX 75379-9045 (US) *(For All Designated States Except US).*

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 July 2007 (26.07.2007)

PCT

(10) International Publication Number
WO 2007/084998 A2

(51) International Patent Classification:
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A61K 36/889 (2006.01)

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(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/760,103	19 January 2006 (19.01.2006)	US
60/760,977	20 January 2006 (20.01.2006)	US
60/760,979	20 January 2006 (20.01.2006)	US

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:

US	60/760,103 (CON)
Filed on	19 January 2006 (19.01.2006)
US	60/760,977 (CON)
Filed on	20 January 2006 (20.01.2006)
US	60/760,979 (CON)
Filed on	20 January 2006 (20.01.2006)

(71) Applicant *(for all designated States except US)*: **MARY KAY, INC.** [US/US]; 16251 DALLAS PARKWAY, P.O. Box 799045, Dallas, TX 75379-9045 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **GAN, David** [MY/US]; 3201 Gray Lane, Southlake, TX 76092 (US). **HINES, Michelle** [US/US]; 500 Drexel Drive, Lewisville, TX 75067 (US). **ARAVENA, Javier** [US/US]; 8715 San Benito Way, Dallas, TX 75218 (US). **JONES, Brian** [US/US]; 4505 Crown Knoll Circle, Flower Mound, TX 75028 (US).

(74) Agent: **KRAWZSENEK, Michael, R.**; FULBRIGHT & JAWORSKI L.L.P., 600 Congress Avenue, Suite 2400, Austin, TX 78701 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

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: COMPOSITIONS COMPRISING KAKADU PLUM EXTRACT OR ACAI BERRY EXTRACT

(57) Abstract: A topical skin care composition comprising kakadu plum extract or acai berry extract, or a combination of both, is disclosed. The composition can include a high oxygen radical absorbance capacity (ORAC) value. The composition can improve the skin's visual appearance, physiological functions, clinical properties, and/or biophysical properties.

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 July 2007 (26.07.2007)

PCT

(10) International Publication Number
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A61K 8/97 (2006.01) *A61K 36/736* (2006.01)
A61K 36/889 (2006.01)

(21) International Application Number:
PCT/US2007/060792

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60/760,977	20 January 2006 (20.01.2006)	US
60/760,979	20 January 2006 (20.01.2006)	US

(63) Related by continuation (CON) or continuation-in-part (CIP) to earlier applications:

US	60/760,103 (CON)
Filed on	19 January 2006 (19.01.2006)
US	60/760,977 (CON)
Filed on	20 January 2006 (20.01.2006)
US	60/760,979 (CON)
Filed on	20 January 2006 (20.01.2006)

(71) Applicant *(for all designated States except US)*: **MARY KAY, INC.** [US/US]; 16251 DALLAS PARKWAY, P.O. Box 799045, Dallas, TX 75379-9045 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **GAN, David** [MY/US]; 3201 Gray Lane, Southlake, TX 76092 (US). **HINES, Michelle** [US/US]; 500 Drexel Drive, Lewisville, TX 75067 (US). **ARAVENA, Javier** [US/US]; 8715 San Benito Way, Dallas, TX 75218 (US). **JONES, Brian** [US/US]; 4505 Crown Knoll Circle, Flower Mound, TX 75028 (US).

(74) Agent: **KRAWZSENEK, Michael, R.**; FULBRIGHT & JAWORSKI L.L.P., 600 Congress Avenue, Suite 2400, Austin, TX 78701 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *without international search report and to be republished upon receipt of that report*

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: COMPOSITIONS COMPRISING KAKADU PLUM EXTRACT OR ACAI BERRY EXTRACT

(57) Abstract: A topical skin care composition comprising kakadu plum extract or acai berry extract, or a combination of both, is disclosed. The composition can include a high oxygen radical absorbance capacity (ORAC) value. The composition can improve the skin's visual appearance, physiological functions, clinical properties, and/or biophysical properties.

CLAIMS

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method for preparing a dried powder from *Terminalia ferdinandiana* fruit comprising:

disintegrating *Terminalia ferdinandiana* fruit to form a slurry of flesh and dissolved solids in an aqueous phase, the slurry having a viscosity;

adding at least one enzyme to the slurry to reduce the viscosity of the slurry and increase the dissolved solids in the aqueous phase;

expressing the slurry to separate the dissolved solids from the flesh and form a juice;

concentrating the juice to produce a juice concentrate with ultrafiltration;

drying the juice concentrate to produce a *Terminalia ferdinandiana* powder.

Designated States

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, ZA, ZM, ZW.

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Why you want it

As the skin ages, cells begin to divide more slowly. Repeated free-radical damage, caused mainly by UV exposure but also occurring as the result of normal cell function, causes skin to become stressed. As a result, this supportive network of collagen and elastin becomes compromised. In the skin, vitamin C plays an essential part in decreasing the damage associated with free radicals, as well as aiding in the synthesis of collagen and in defending the supportive network that gives skin its definition and fullness.

How it works

TimeWise® Replenishing Serum+C contains ingredients known to help strengthen existing collagen and elastin*. This powerful antioxidant complex includes extract of pomegranate, which has been used for centuries to combat oxidative stress, and extract of Kakadu plum, reported to have the highest level of vitamin C of any fruit. The formula also contains argan seed extract, a botanical that has been shown effective in helping to support collagen and elastin.

*Based on in vitro testing

The ingredients that make a difference

TimeWise® Replenishing Serum+C is the result of extensive research by scientists in the Mary Kay Research & Development laboratories working closely with botanical experts from around the world. In their search for the most effective natural sources of vitamin C, they made some important discoveries.

While TimeWise® Replenishing Serum+C contains ingredients known to help strengthen existing collagen and elastin,* it also contains ingredients that can help protect collagen from deteriorating. The formula is enriched with a potent blend of multiple botanical sources, known for their endogenous high levels of vitamin C, that help guard against the damaging effects of free radicals.

Pomegranate – Often referred to as a "superfruit" because of the large number of vitamins it contains, this fruit has a high level of vitamin C, along with other vitamins and antioxidants. It has been used for centuries to help reduce the effects of oxidative stress.

Kakadu Plum extract – Derived from the Kakadu plum, a fruit reported to have one of the highest concentrations of vitamin C. For example, the amount of vitamin C in 3 ½ ounces of Kakadu plum is 3000 mg, while the same amount of orange contains just 50 mg.

Camu Camu extract – The fruit of the camu camu tree is known to have the second highest level of vitamin C of any fruit. The tree grows in the rainforests of South America and is extremely tolerant of the extreme weather conditions found there.

Acerola Cherry extract – Especially rich in vitamins C and A, this fruit has been shown to have powerful antioxidant benefits.

Black Currant Berry extract – These berries contain high levels of vitamin C and other vitamins and minerals.

Argan seed extract – A botanical extract derived from the argan tree, which grows only in Africa. Groves of argan trees provide the last barrier against the desert.

How to use it

Used together with the TimeWise® Miracle Set, you have an age-fighting powerhouse. Apply three pumps to face and throat in the morning and evening after cleansing, toning and exfoliating and before moisturizer. Each vial is designed to last one week.

How it works

TimeWise® Replenishing Serum+C contains ingredients known to help strengthen existing collagen and elastin*. This powerful antioxidant complex includes extract of pomegranate, which has been used for centuries to combat oxidative stress, and extract of Kakadu plum, reported to have the highest level of vitamin C of any fruit. The formula also contains argan seed extract, a botanical that has been shown effective in helping to support collagen and elastin.

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Pomegranate – Often referred to as a "superfruit" because of the large number of vitamins it contains, this fruit has a high level of vitamin C, along with other vitamins and antioxidants. It has been used for centuries to help reduce the effects of oxidative stress.

Kakadu Plum extract – Derived from the Kakadu plum, a fruit reported to have one of the highest concentrations of vitamin C. For example, the amount of vitamin C in 3.5 ounces of Kakadu plum is 3000 mg, while the same amount of orange contains just 50 mg.

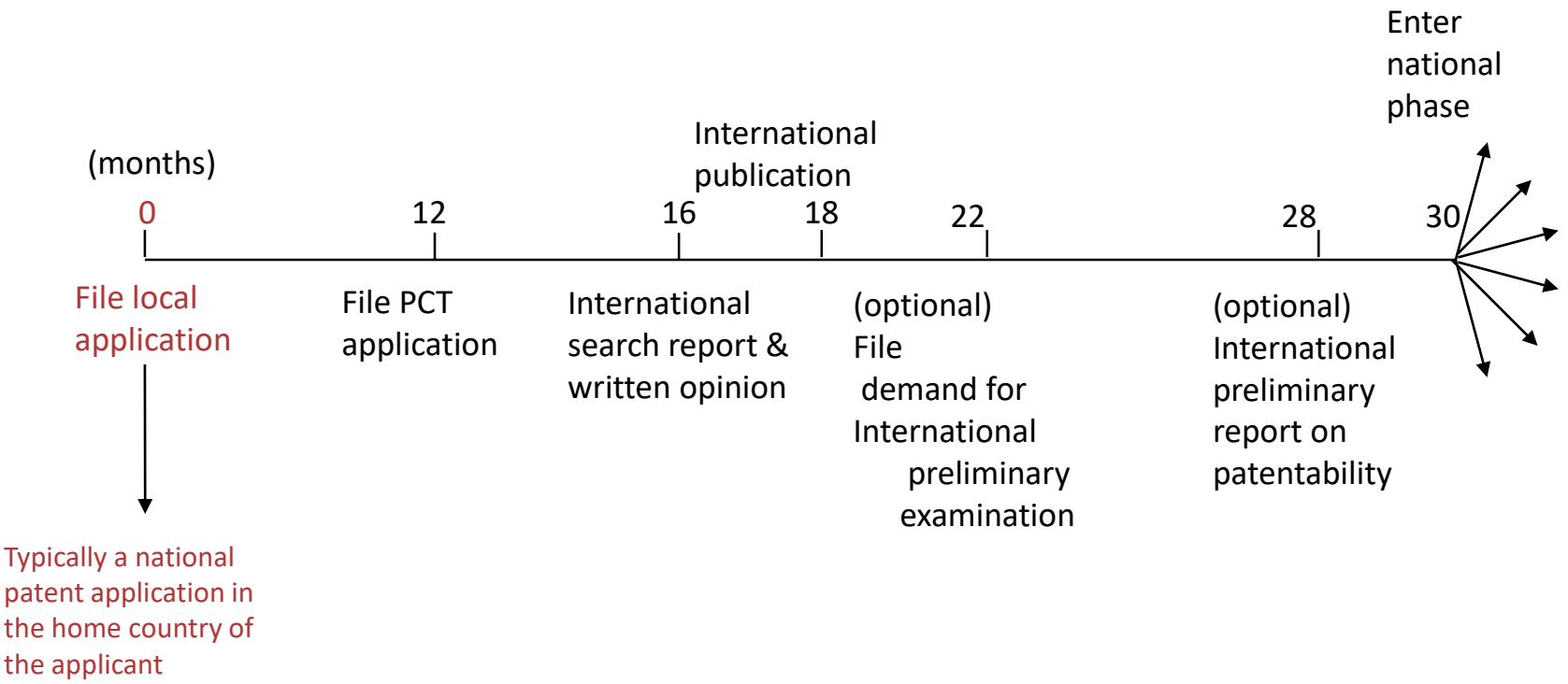
Camu Camu extract – The fruit of the camu camu tree is known to have the second highest level of vitamin C of any fruit. The tree grows in the rainforests of South America and is extremely tolerant of the extreme weather conditions found there.

Acerola Cherry extract – Especially rich in vitamins C and A, this fruit has been shown to have powerful antioxidant benefits.

Black Currant Berry extract – These berries contain high levels of vitamin C and other vitamins and minerals.

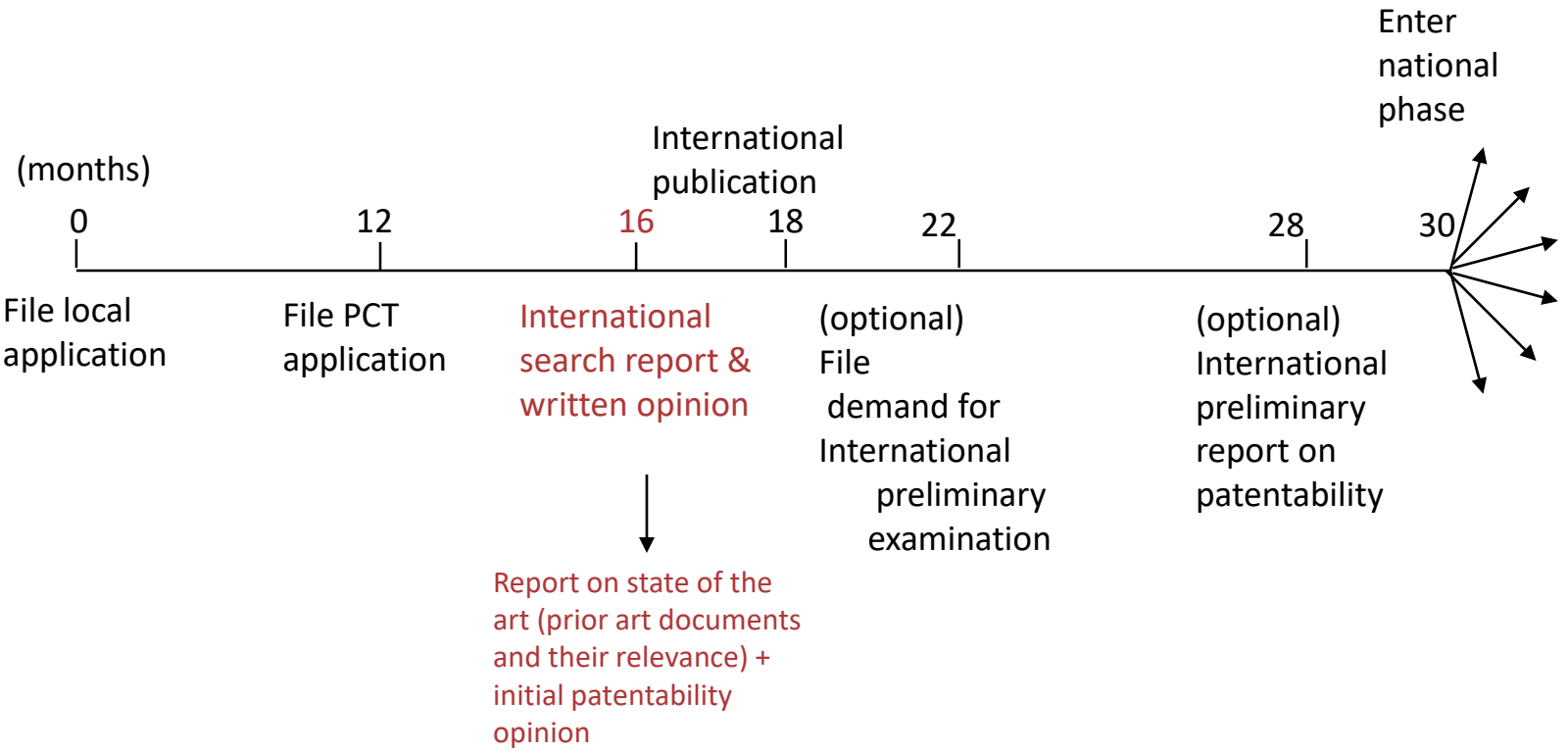
Argan seed extract – A botanical extract derived from the argan tree, which grows only in Africa. Groves of argan trees

The PCT System



The PCT System
--typical use, in more detail

The PCT System
--typical use, in more detail



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/60792

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8): A61K 31/74 (2007.01)
USPC: 424/78.03, 514/887
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

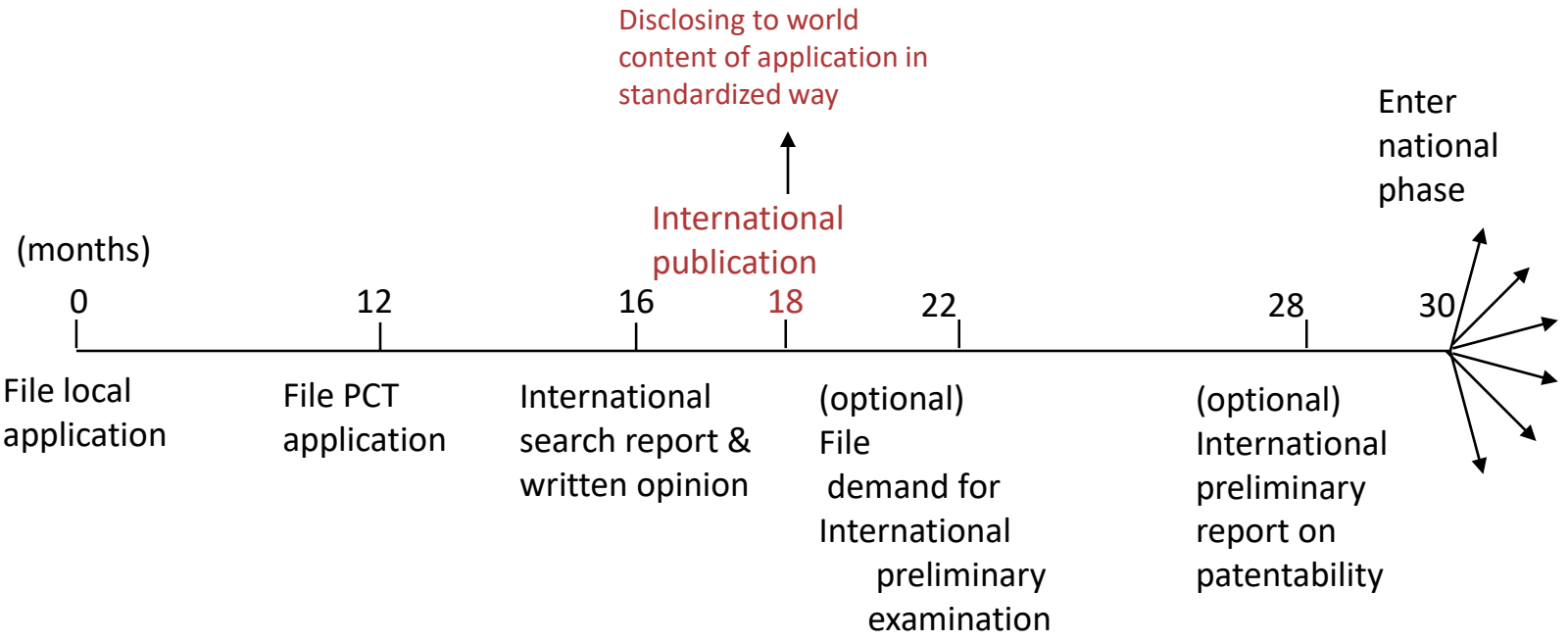
Minimum documentation searched (classification system followed by classification symbols)
USPC: 424/78.03, 514/887

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 424/78.02, 78.03, 514/886, 887; search terms below

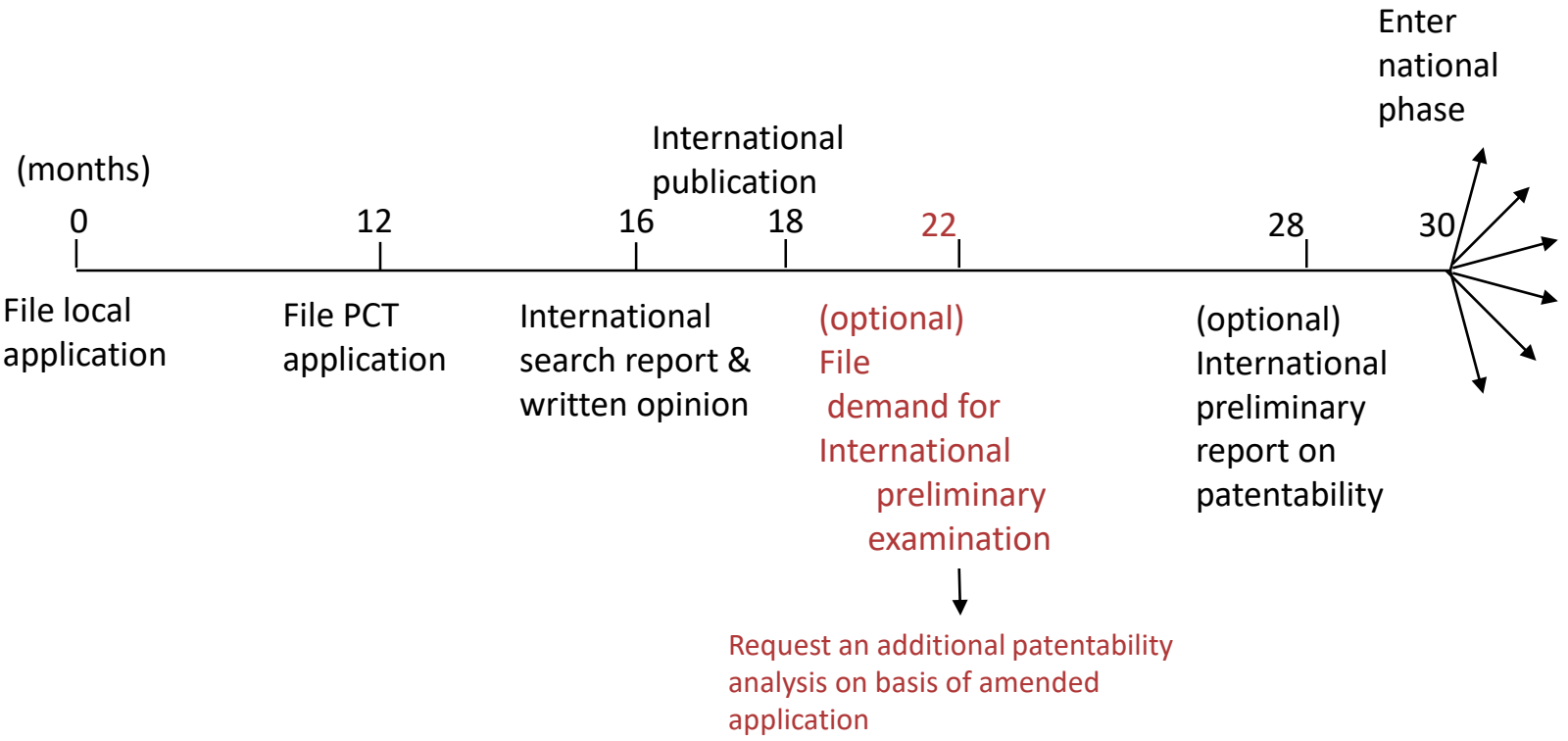
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST and Google Scholar
cosmetic, kakadu plum, acai berry, emulsion, ORAC, vitamin, spray, topical, terminalia ferdinandiana, euterpe oleracea

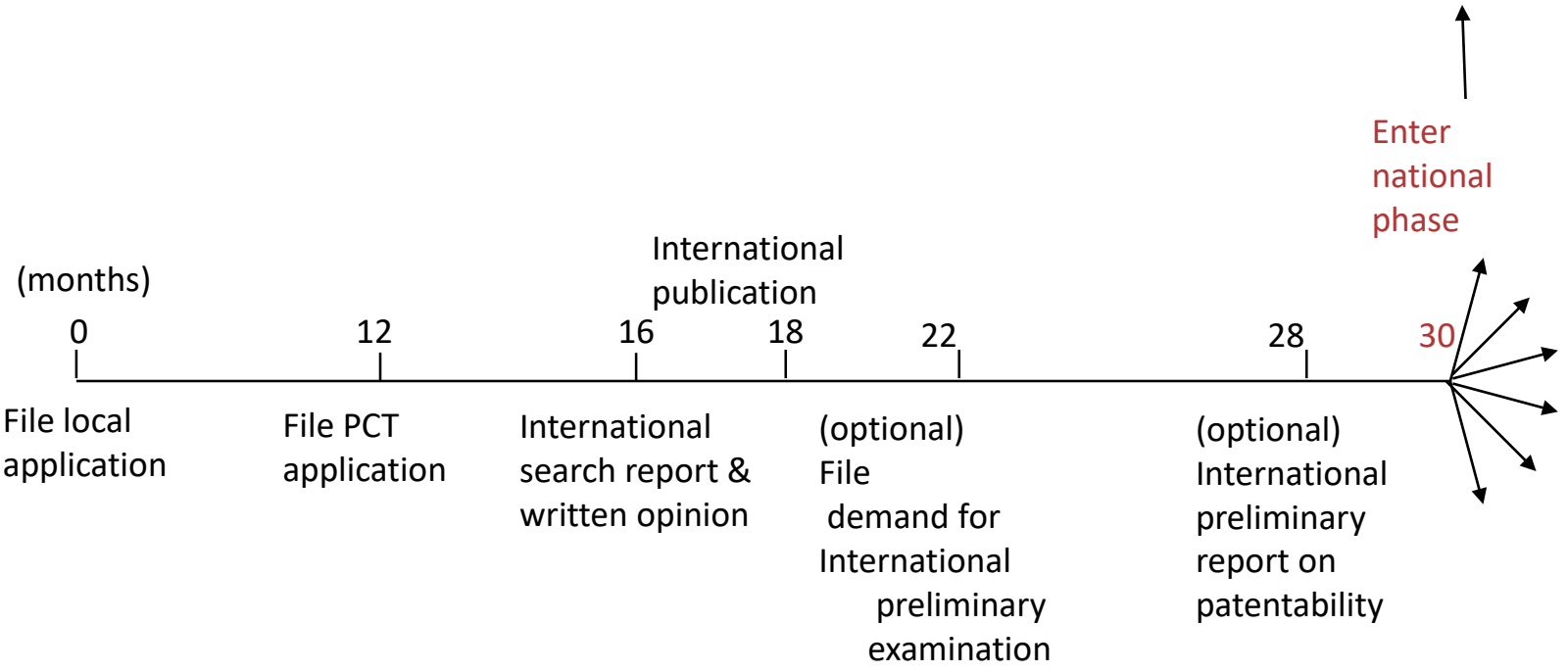
The PCT System
--typical use, in more detail



The PCT System
--typical use, in more detail



The PCT System
--typical use, in more detail



The Sydney Morning Herald
National

Patent fight erupts over Kakadu plum

December 4, 2010

The Gundjeihmi Aboriginal Corporation, which represents the Mirarr, said people in the area had used the plum longer than anyone could remember.

"The Kakadu plum has been an important source of food and medicine for the Mirarr," it said.

"It also features in oral histories and 'dreaming' stories."

22 July 2008

Commissioner

New Australian National Phase
of International Patent Application No PCT/US2007/060792
in the name of Mary Kay, Inc.
for COMPOSTIONS COMPRISING KAKADU PLUM EXTRACT OR ACAI BERRY EXTRACT
Our Ref: 26023MAR/VPB:tap

In respect of the above referenced application, we **enclose** the following:

1. Statement of intention to proceed with national phase;

2. Notice of entitlement; and

3. The prescribed filing fee of A$320.00.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 07/60792

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8): A61K 31/74 (2007.01)
USPC: 424/78.03, 514/887
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WEST and Google Scholar
cosmetic, kakadu plum, acai berry, emulsion, ORAC, vitamin, spray, topical, terminalia ferdinandiana, euterpe oleracea

THE UNIVERSITY OF NEW SOUTH WALES

INSTITUTE OF ENVIRONMENTAL STUDIES

14 October 2009

Dear IP Australia Staff,

I am writing regarding patent application number 2007205838 for a composition containing Kakadu Plum or Acai extract. Particularly, I am a researcher who is concerned that the patent is obvious and therefore should not be approved by IP Australia. Therefore I request that you consider this letter to be a S27 submission.

RE: Application number **2007205838**
in the name(s) of **Mary Kay, Inc.**

Your Ref: **260023MAR/VPB:tap**

Dear Sir/Madam

Material has been filed under the provisions of Section 27(1) of the Patents Act 1990, in relation to the above patent application. This material was received on 19 October 2009

In accordance with Section 27(2) of the Patents Act 1990, a copy of the material has been enclosed for your information. This material will be considered by the examiner within the prescribed period stated under Regulation 2.5 of the Patents Regulations 1991.

Examiner's first report on patent application no. 2007205838
by Mary Kay, Inc.

Last proposed amendment no. 3

Dear Madam/Sir,

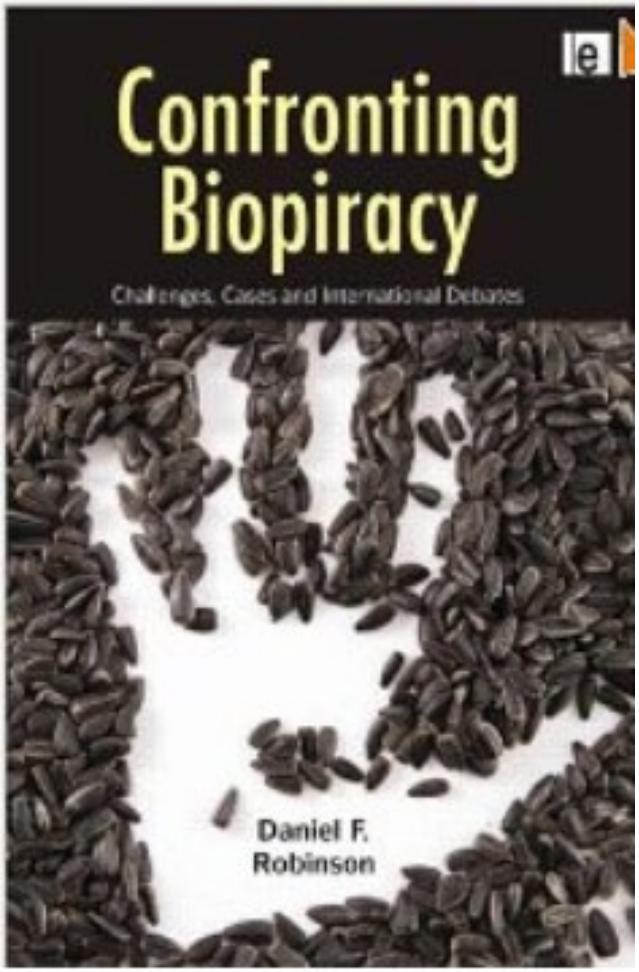
I am replying to the request for examination. I have based this report on the pamphlet and the statements of proposed amendments under S104 of 29 September 2008, 17 June 2009 and 25 October 2010. I have examined the application and I believe that there are lawful grounds of objection to the application. These grounds of objection are:

1. Under Subsection 50(1), the Commissioner may refuse acceptance of this application because the invention as defined in claims 1-13 is capable of being used as a food or medicine and is merely a mixture of known ingredients. Kakadu plum extract is known (see for example D6, D7, D9, D10 and D12-D16 cited below in objections 3 and 4). Acai berry extract is known (see for example D5, D8 and D17, cited below in objections 3 and 4).

IP Australia Examination Report, Dec 2010

Claims D12 and D13 disclose kakadu plum used in a Red Earth skin cleanser, moisturiser, toner and mask, which includes vitamin C, known to be required for processes including creation and maintenance of skin and muscle, healing of wounds and as an antioxidant. D12 discloses that Aborigines have been using the Kakadu plum extract for around 40,000 years as a food source and a healing agent.

Daniel Robinson, *Confronting Biopiracy: Challenges, Cases and International Debates,* Earthscan, London, 2010.



Results of Search in US Patent Collection db for:
"kakadu plum": 12 patents.
*Hits **1** through **12** out of **12***

Jump To

Refine Search "kakadu plum"

	PAT. NO.		Title
1	8,691,300	T	Skin care formulations
2	8,586,730	T	Chirally correct retinal cyclodextrin hemiacetals for clarifying skin complexion
3	8,569,269	T	Chirally correct retinal cyclodextrin hemiacetals for treating skin disorder
4	8,518,426	T	Topical skin care formulations
5	8,460,652	T	Topical skin care formulations
6	8,410,079	T	Chirally correct retinal cyclodextrin hemiacetals for clarifying skin complexion
7	8,314,154	T	Topical skin care formulations
8	8,211,873	T	Antiaging chirally-correct mitoprotectant amino acid and peptide complexes
9	8,178,106	T	Topical skin care formulations
10	8,048,456	T	Skin care formulations
11	7,678,393	T	Mixture composition and method useful for topical and internal application
12	7,175,862	T	Method of preparing kakadu plum powder

12. (EP1981513) COMPOSITIONS COMPRISING KAKADU PLUM EXTRACT OR ACAI BERRY EXTRACT

National Biblio. Data | Drawings | Documents

Permanent Link/ Bookmark:

Application Number: 07710236 **Application Date:** 19.01.2007

Publication Number: 1981513 **Publication Date:** 22.10.2008

Publication Kind : A4

Designated States: AT,BE,BG,CH,CY,CZ,DE,DK,EE,ES,FI,FR,GB,GR,HU,IE,IS,IT,LI,LT,LU,LV,MC,NL,PL,PT,RO,SE,SI,SK,TR.

PCT Reference: Application Number:US2007060792 ; Publication Number: Click to see the data

IPC: A61P 17/00
A61K 31/74

Applicants: MARY KAY INC

Inventors: GAN DAVID
HINES MICHELLE
ARAVENA JAVIER
JONES BRIAN

Priority Data: 2007060792 19.01.2007 US
76010306 19.01.2006 US
76097706 20.01.2006 US
76097906 20.01.2006 US

Title: **(FR)** COMPOSITIONS COMPRENANT UN EXTRAIT DE PRUNE KAKADU OU UN EXTRAIT DE BAIE ACAI
(EN) COMPOSITIONS COMPRISING KAKADU PLUM EXTRACT OR ACAI BERRY EXTRACT
(DE) ZUSAMMENSETZUNGEN MIT KAKADUPFLAUMENEXTRAKT ODER ASSAIBEERENEXTRAKT

Out of Africa: Mysteries of Access and Benefit Sharing

a report
by
Jay McGown

edited and introduced by
Beth Burrows

Edmonds Institute
in cooperation with
African Centre for Biosafety

2006

MEDICINE FROM BIODIVERSITY

	OUT OF
Diabetes Drug Produced by a Microbe	*Kenya*
A Treatment for Diabetes	*Libya, Egypt*
Antibiotics from a Termite Hill	*Gambia*
An Antifungal from a Giraffe	*Namibia*
Infection-fighting Amoeba	*Mauritius*
A Treatment for Impotence	*Congo (Brazzaville)*
Vaccines from Microbes	*Egypt*
Four Multipurpose Medicinal Plants	*Ethiopia and neighboring countries*
Hoodia, the Appetite Suppressant	*Namibia, South Africa, Angola, Botswana*
Antibiotics from Giant Land Snails	*West Africa, from Sierra Leone to Nigeria*
Drug Addiction Treatment from Iboga	*Central and West Africa*
Multipurpose Kombo Butter	*Central and West Africa*

AGRICULTURAL AND HORTICULTURAL PRODUCTS FROM BIODIVERSITY

	OUT OF
Endophytes and Improved Fescues	*Algeria and Morocco*
More Endophytes for Improving Fescues	*Morocco and Tunisia*
Nematocidal Fungi	*Burkina Faso*

Groundnuts	*Malawi*
More Groundnuts	*Senegal, Mozambique, Sudan, Nigeria*
Impatiens with a Trailing Growth Habit	*Tanzania*
Molluscicides	*Somalia, Ethiopia, Egypt, and elsewhere*

Endophytes and Improved Fescues -- *Out of Algeria and Morocco*

Three North African microbes that improve insect resistance and feed quality of tall fescue grass have been patented by AgResearch New Zealand, a state-owned business.

AgResearch's patent covers the endophytes themselves, as well as their introduction into commercial fescue cultivars sold in New Zealand (e.g., Grasslands Advance), the United States (e.g., Kentucky 31 and Georgia 5), and elsewhere. AgResearch additionally claims seed harvested from fescue plants inoculated with any combination of the endophytes.

The patent explains that the organisms are from Morocco and Algeria, and that they were deposited in a culture collection in 1998, but it does not state when the collections were made, who made them, and how they arrived at AgResearch.

United States Patent 6,111,170 Latch , et al. August 29, 2000

Abstract Selected endophytes of the genus Neotyphodium (formerly Acremonium) form stable synthetic combinations with tall fescue hosts (Festuca arundinacea). The combinations have improved resistance to invertebrate pests as compared to tall fescue cultivars not containing such endophytes. The particular combinations of the invention have reduced toxicity to livestock as compared to naturally occurring endophyte/tall fescue combinations. The seven preferred endophytes are AR501, AR502, AR510, AR542, AR572, AR577 and AR584.

- Inventors: **Latch; Garrick Cecil Morland** (Palmerston North, **NZ**), **Christensen; Michael John** (Ashurst, **NZ**), **Tapper; Brian Anthony** (Palmerston North, **NZ**), **Easton; Herrick Sydney** (Palmerston North, **NZ**), **Hume; David Edward** (Palmerston North, **NZ**), **Fletcher; Lester Ronald** (Christchurch, **NZ**)
- Assignee: **New Zealand Pastoral Agriculture Research Institute Limited** (Hamilton, **NZ**)

Hagahai Patent US **5,397,696**

- Papua New Guinea human T-lymphotropic virus

- The present invention relates to a human T-cell line (PNG-1) persistently infected with a Papua New Guinea (PNG) HTLV-I variant and to the infecting virus (PNG-1 variant). Cells of the present invention express viral antigens, type C particles and have a low level of reverse transcriptase activity.

Patenting and agriculture

- there are almost 1000 patents issued for genetically modified versions of the main staple crops: rice, wheat, maize, soybeans and sorghum.
- 70% of these patents belong to only six companies: Sanofi, Dow, DuPont, Mitsui, Monsanto and Syngenta.
- All these companies are based in the EU, the US or Japan and together they control 30% of the global seed market

http://www.fao.org/docrep/meeting/022/mb684e.pdf

BACKGROUND STUDY PAPER NO. 58

July 2011

E

COMMISSION ON GENETIC RESOURCES FOR FOOD AND AGRICULTURE

TRENDS IN INTELLECTUAL PROPERTY RIGHTS RELATING TO GENETIC RESOURCES FOR FOOD AND AGRICULTURE

by

Michael Blakeney[1]

This document has been prepared at the request of the Secretariat of the FAO Commission on Genetic Resources for Food and Agriculture, to provide an overview of recent developments in intellectual property rights relating to genetic resources for food and agriculture.