Outcomes of Patent and Market Studies

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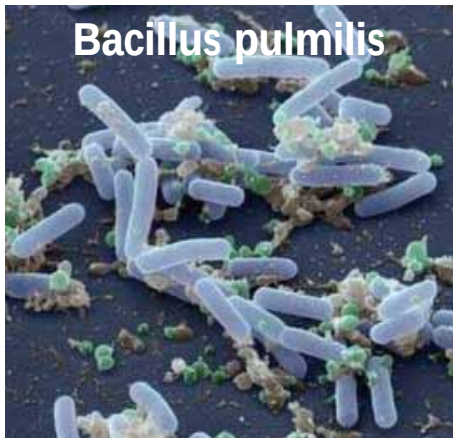
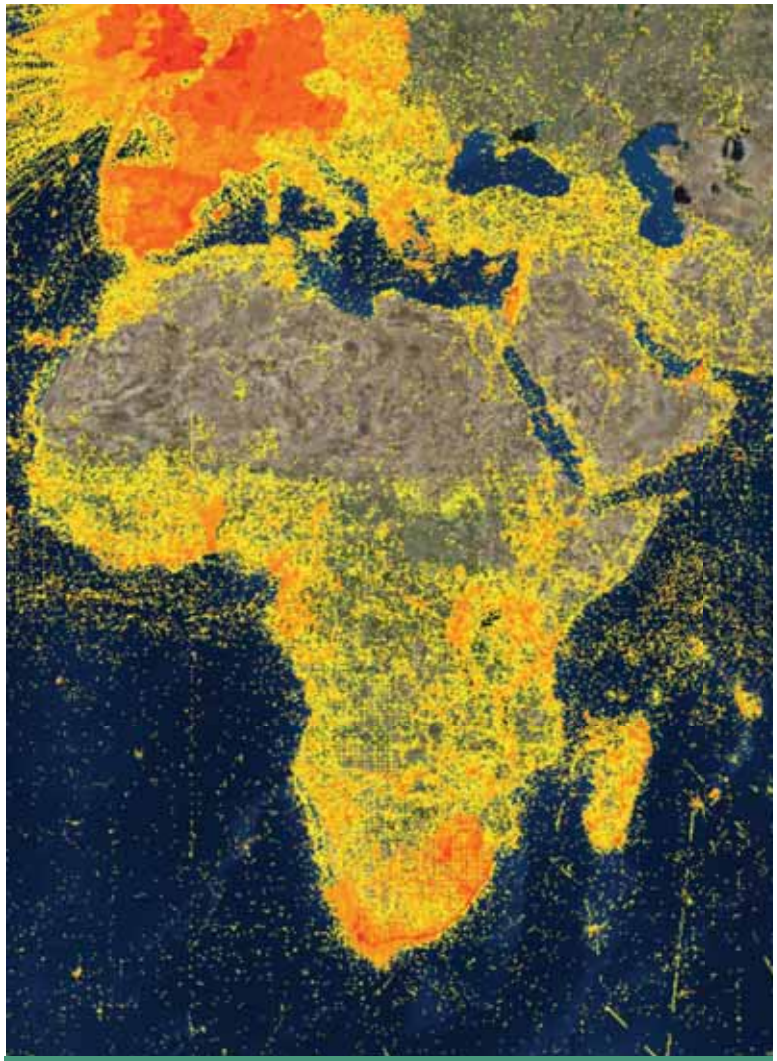
One World Analytics &
UNU-IAS



Objectives

Conceived as a pilot project:

- Review of patent data for species from each country
- Developing methods and standard country report formats;
- Linking patent data with value chains and markets;
- Identifying national and other actors & sector reports;
- Enabling Environment;
- Synthesis Report.



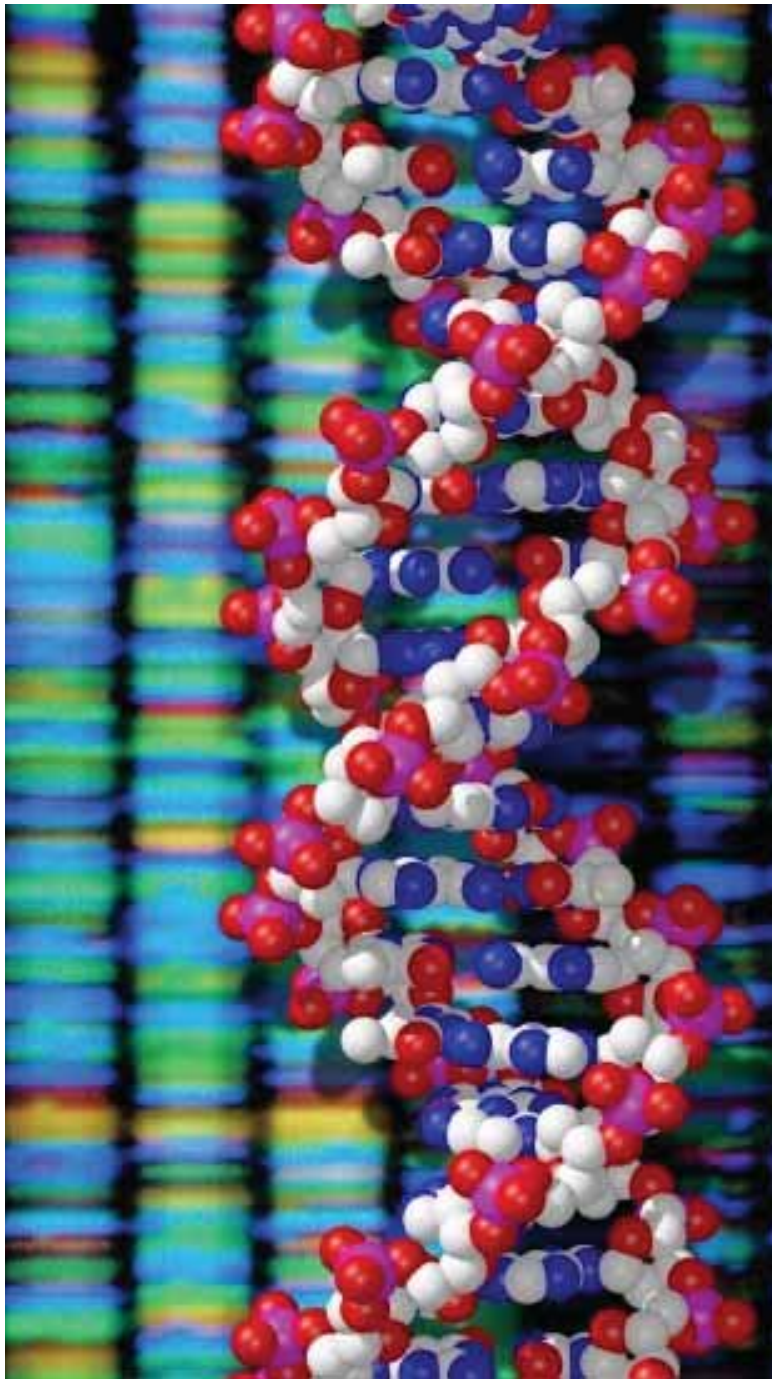
GBIF Occurrence Records for Species in Africa

Patent Studies

Six countries:

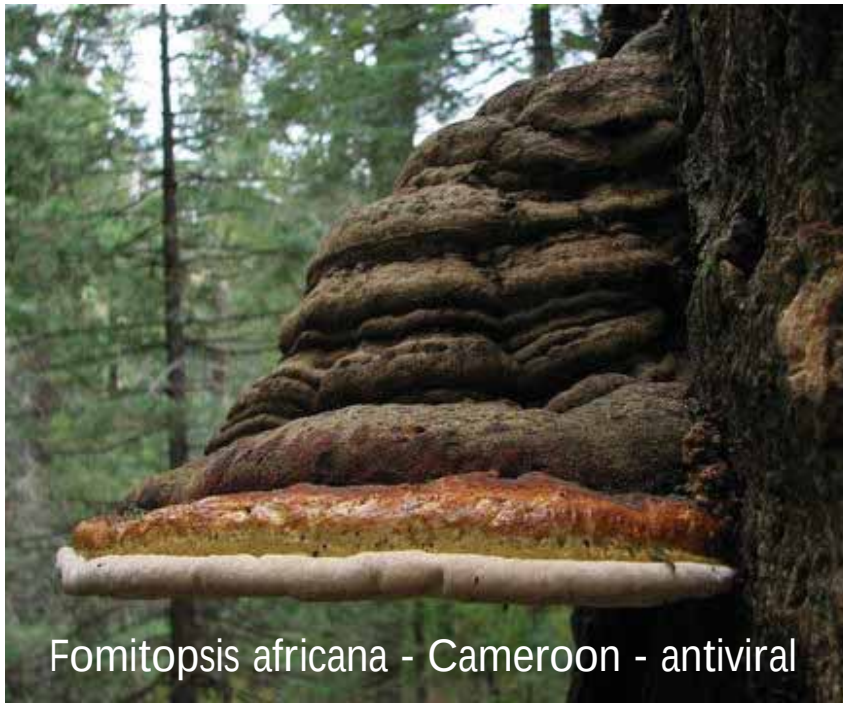
- Cameroon
- Kenya
- Madagascar
- Mozambique
- Senegal
- South Africa

- Additional reports on Namibia and COMIFAC countries (9 countries). More recent work on Morocco.



Rethinking Biopiracy

- Biopiracy is commonly seen as misappropriation or theft.
- Can we turn biopiracy on its head to promote economic development and conservation?
- Patent data can provide valuable clues on the uses of species and traditional knowledge.



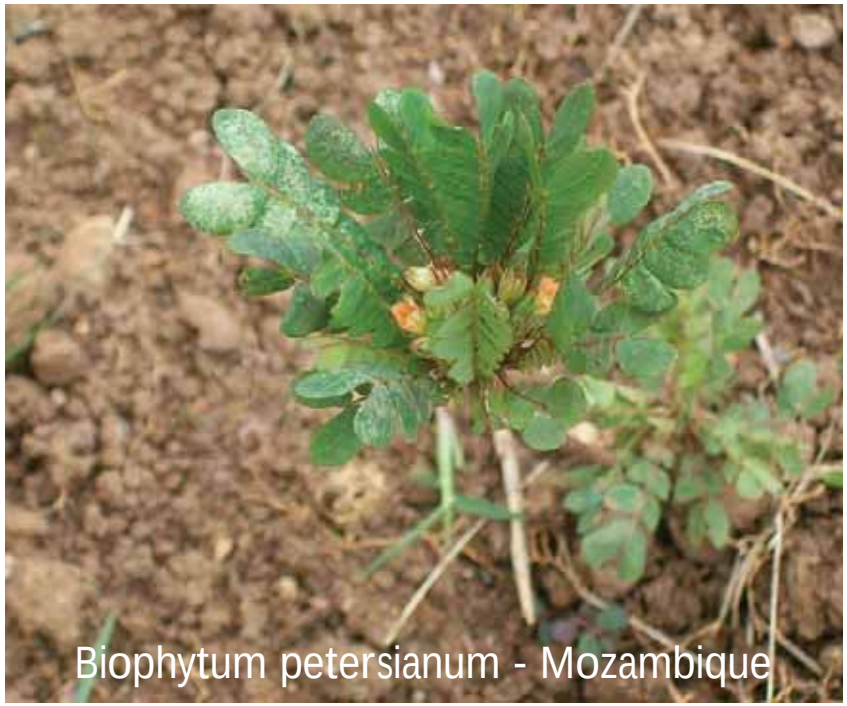
Fomitopsis africana - Cameroon - antiviral

Calophyllum inophyllum - Cameroon - Biofuel

The Problem

- No effective methodology for identifying species & traditional knowledge from a country in patent data.
- No methodology for linking patent information with value chains and markets for commercial products.

Merluccius cadenati - Senegal



Biophytum petersianum - Mozambique

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

Biological Diversity in the Patent System

Paul Oldham, Stephen Hall, Oscar Forero

Published: November 12, 2013 • DOI: 10.1371/journal.pone.0078737 • Featured in PLOS Collections

Abstract

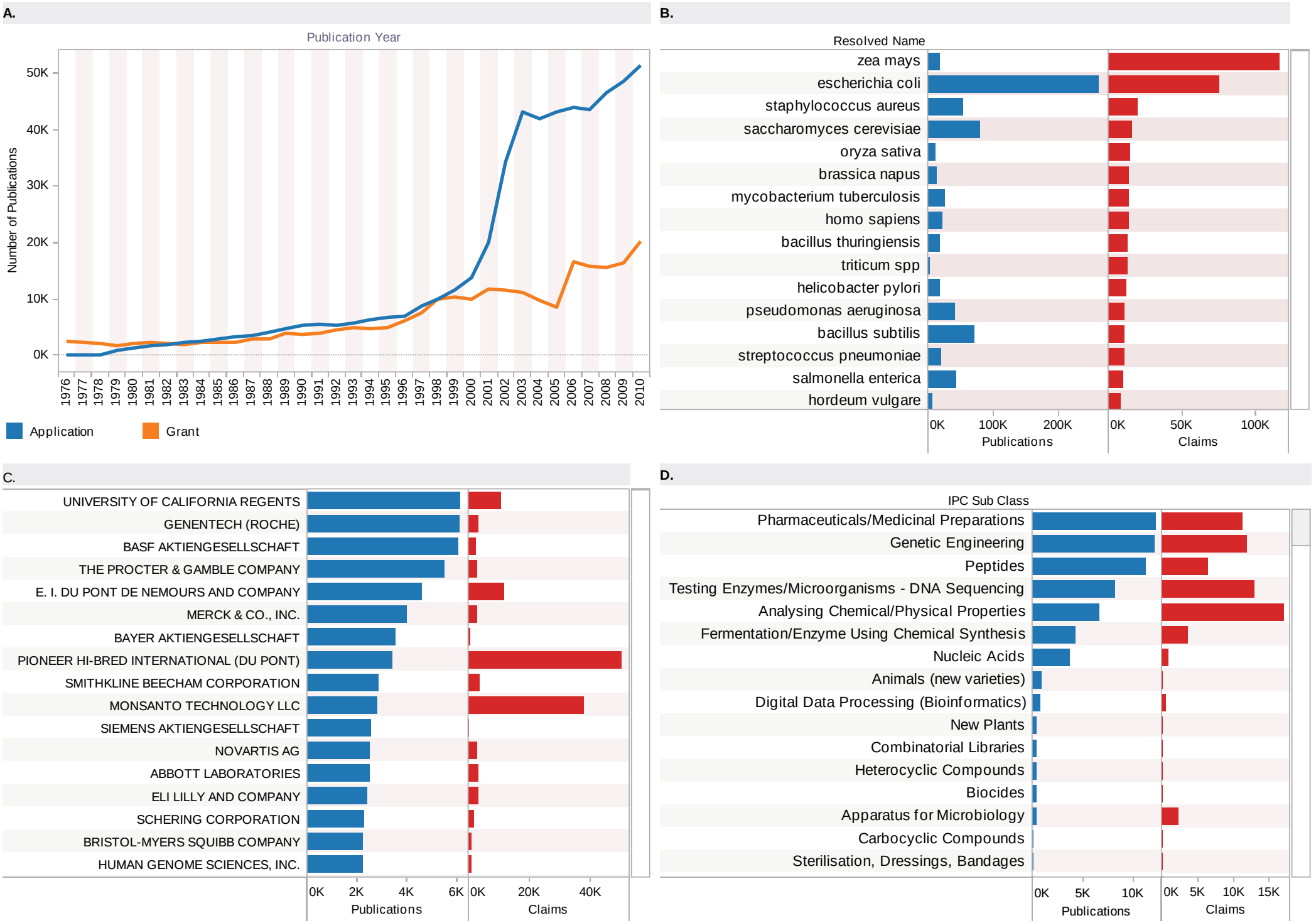
Biological diversity in the patent system is an enduring focus of controversy but empirical analysis of the presence of biodiversity in the patent system has been limited. To address this problem we text mined 11 million patent documents for 6 million Latin species names from the *Global Names Index* (GNI) established by the Global Biodiversity Information Facility (GBIF) and Encyclopedia of Life (EOL). We identified 76,274 full Latin species names from 23,882 genera in 767,955 patent documents. 25,595 species appeared in the claims section of 136,880 patent documents. This reveals that human innovative activity involving biodiversity in the patent system focuses on approximately 4% of taxonomically described species and between 0.8–1% of predicted global species. In this article we identify the major features of the patent landscape for biological diversity by focusing on key areas including pharmaceuticals, neglected diseases, traditional medicines, genetic engineering, foods, biocides, marine genetic resources and Antarctica. We conclude that the narrow focus of human innovative activity and ownership of genetic resources is unlikely to be in the long term interest of humanity. We argue that a broader spectrum of biodiversity needs to be opened up to research and development based on the principles of equitable benefit-sharing, respect for the objectives of the Convention on Biological Diversity, human rights and ethics. Finally, we argue that alternative models of innovation, such as open source and commons models, are required to open up biodiversity for research that addresses actual and neglected areas of human need. The

Included in the Following Collection

Text Mining

Subject Areas

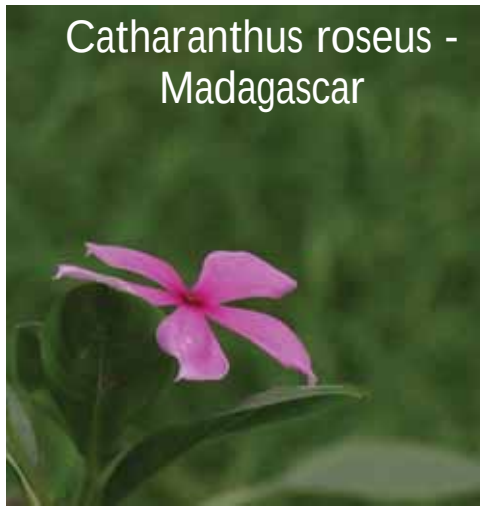
Biodiversity
Conservation science
Genetic engineering
Health services rese...
Human genetics
Intellectual property

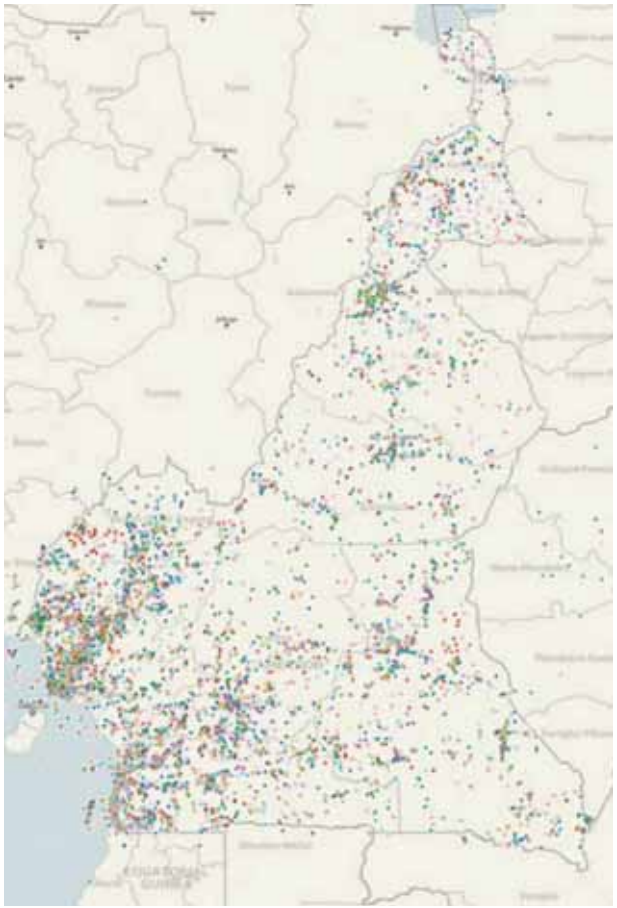


Oldham, Hall & Forero (2013) 'Biological Diversity in the Patent System'. PLOS One.

Species Careers & Crowdsourcing

- A key finding of our research is that patent applicants move in herds.
- As uses are found for a particular species it tends to proliferate in the patent system as components of a species are tested and used across a range of different technology areas.
- We can map these careers inside patent data and in geographical space to identify development opportunities.





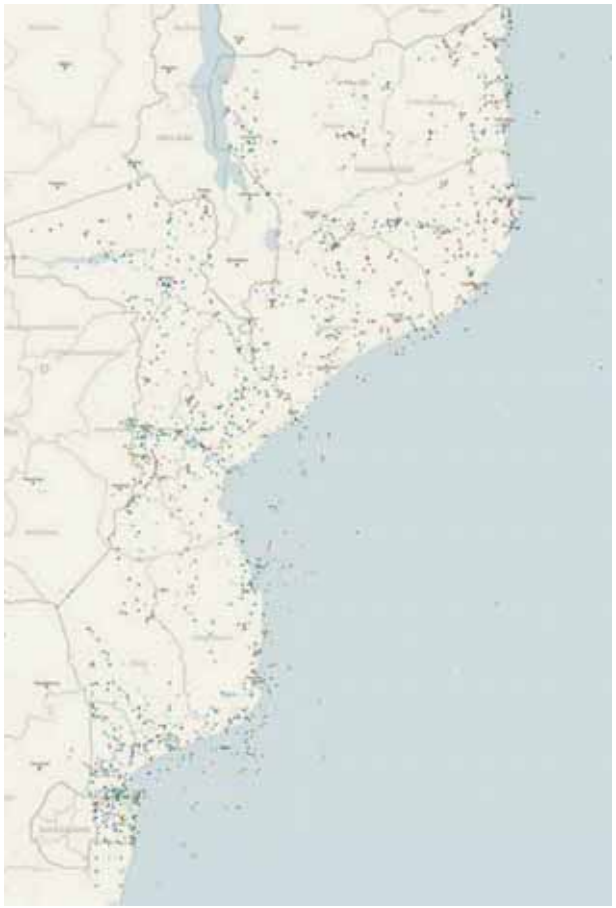
Cameroon

15,988 species

206,385 coordinates

135,776 documents

184 country references



Mozambique

10,963 species

98,868 coordinates

120,994 documents

121 country references

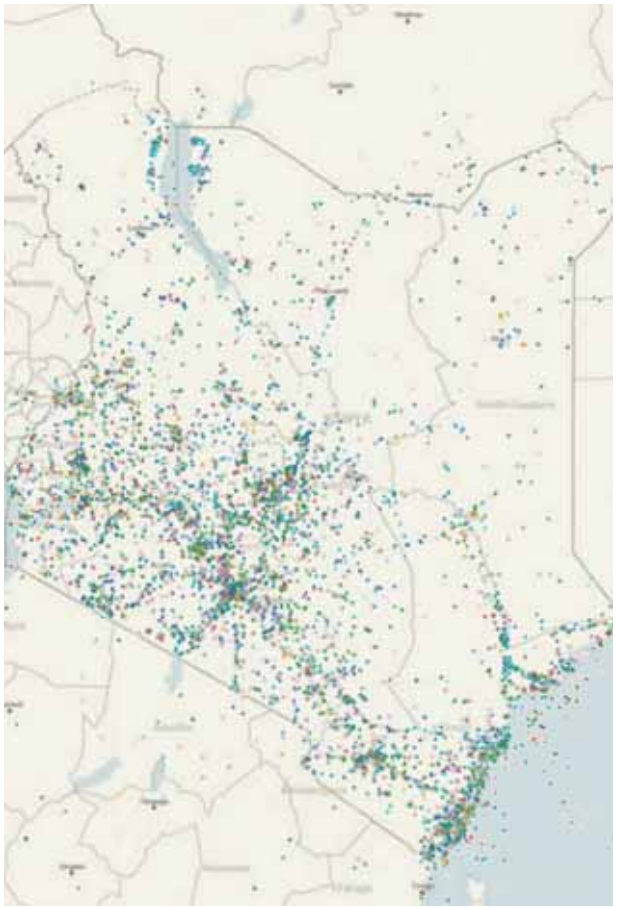
Senegal

5,988 species

12,729 coordinates

127,971 documents

532 country references



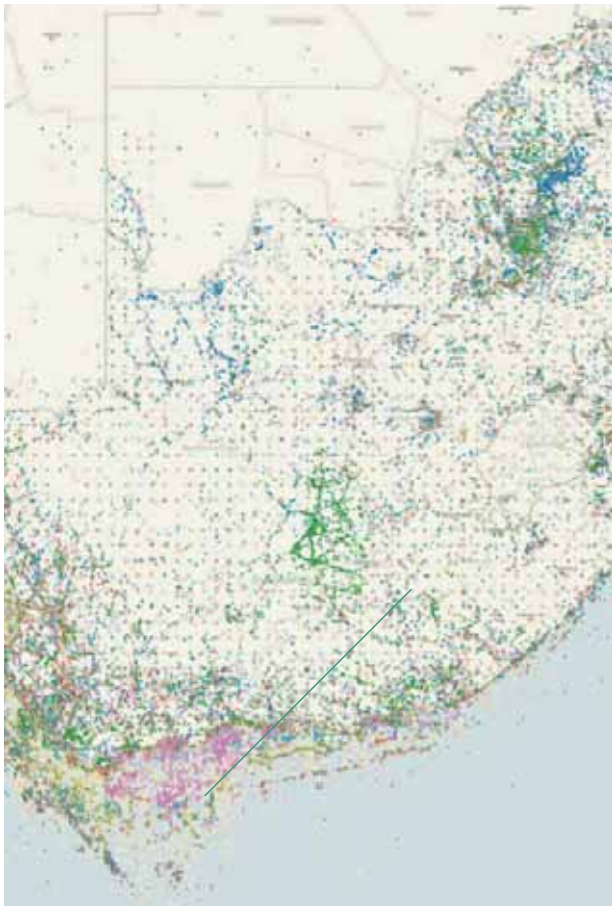
Kenya

16,594 species

149,990 coordinates

180,931 documents

927 country references



South Africa

59,092 species

10,306,146 coordinates

275,517 documents

1,322 country references

Madagascar

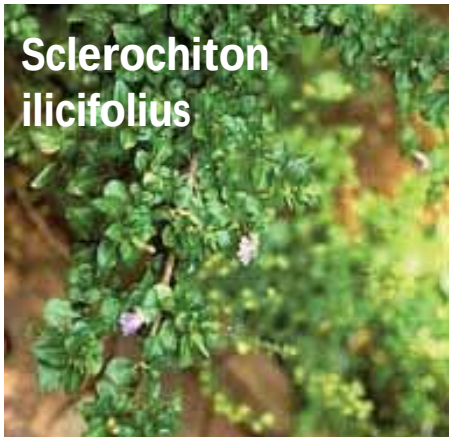
23,220 species

591,887 coordinates

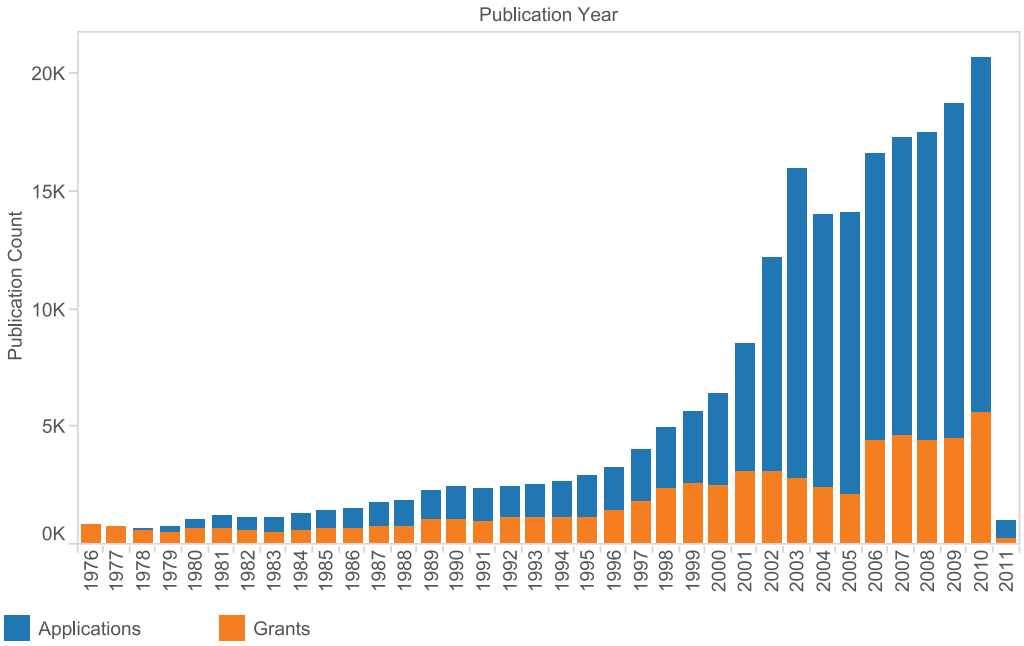
134,230 documents

512 country references

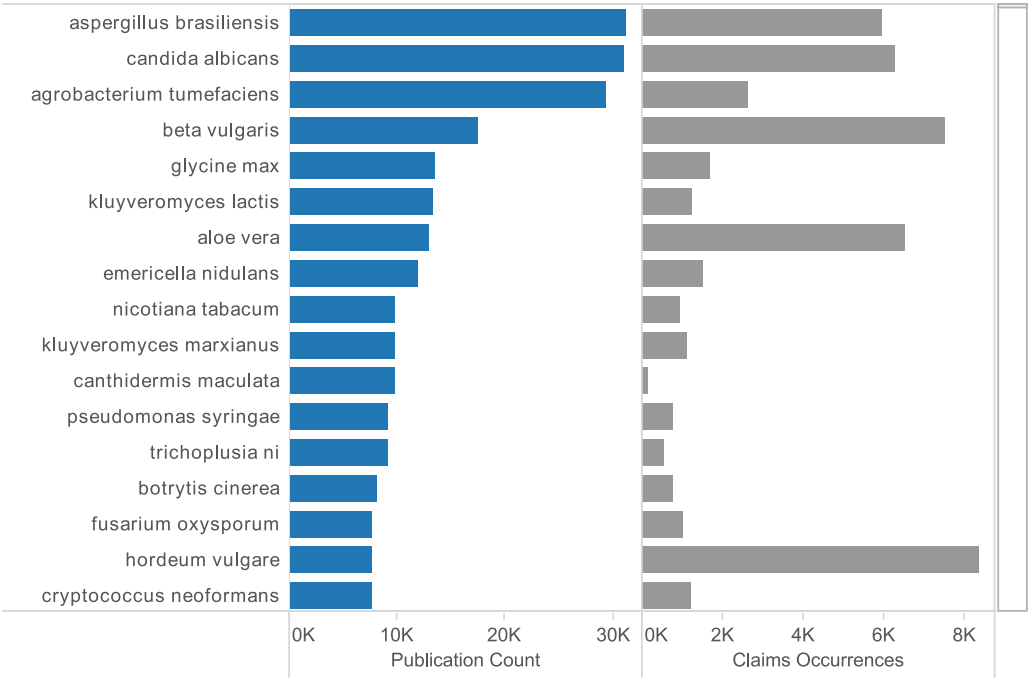
South Africa



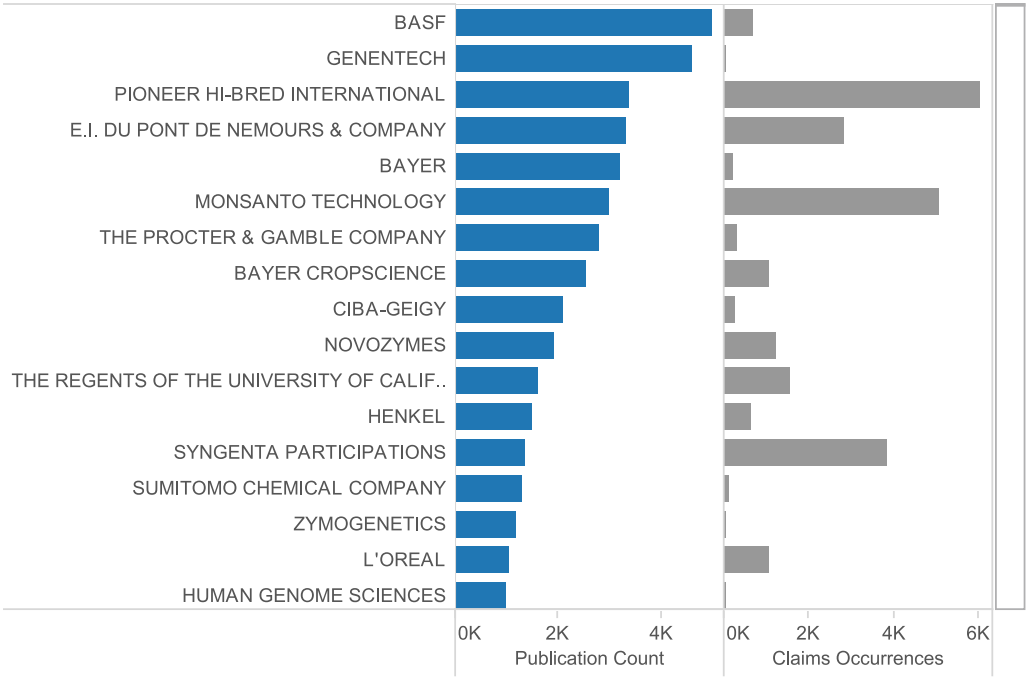
Trends



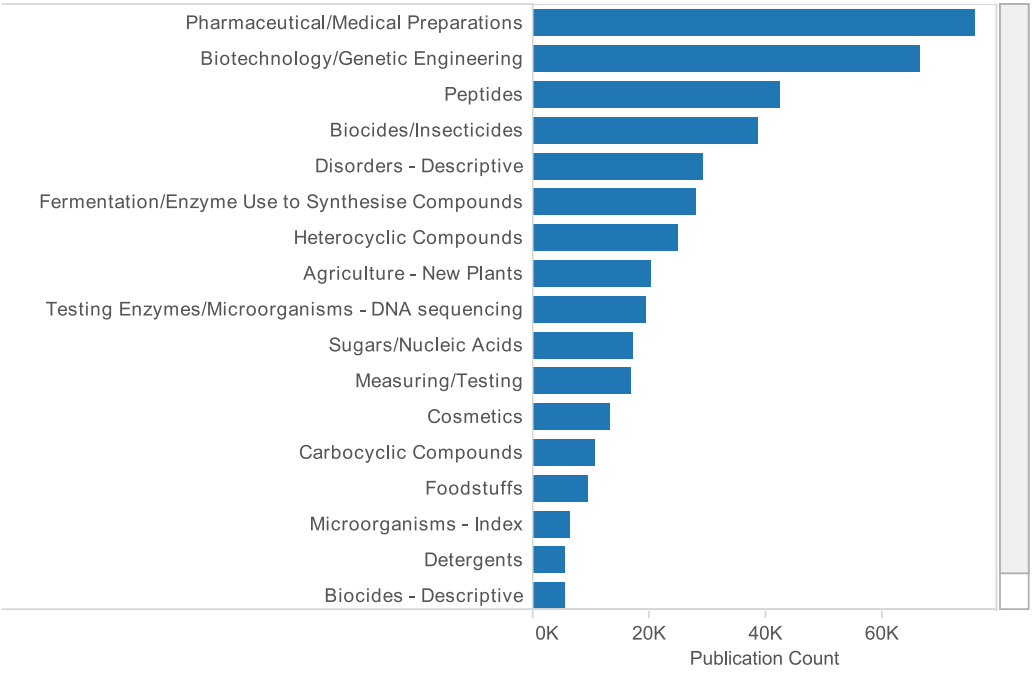
Species



Assignees



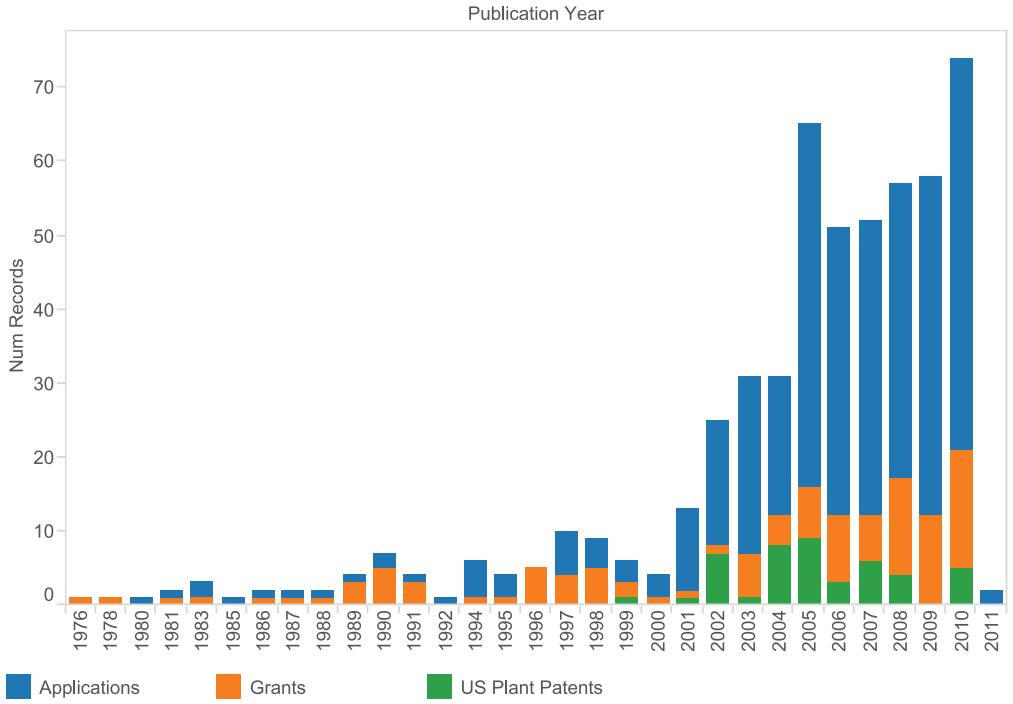
Technology Area



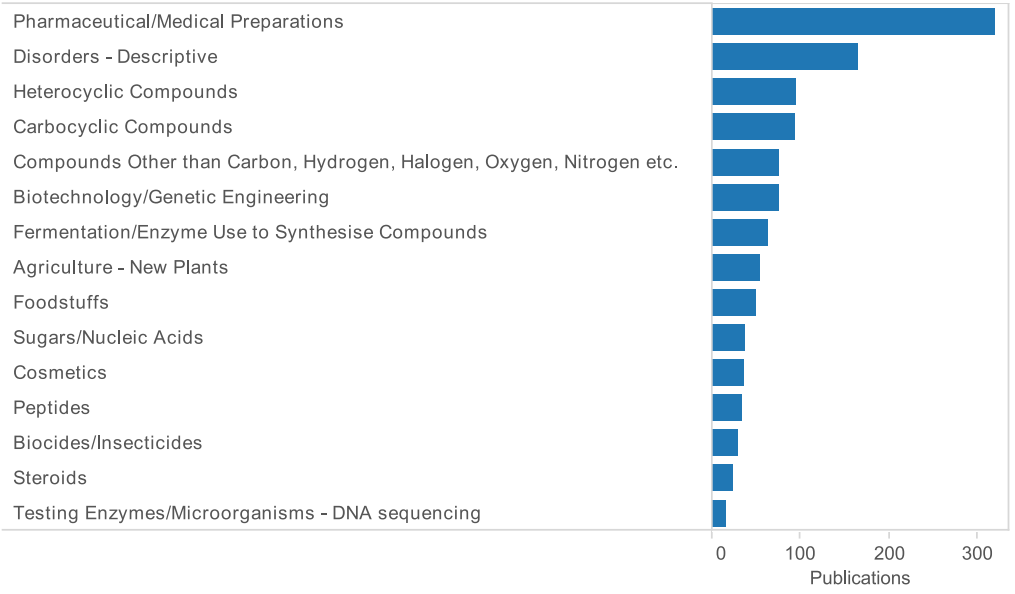
Species

Species	Kingdom	Distribution	Data Type
Combretum caffrum	plantae	Endemic	Distribution
Aloe africana	plantae	Endemic	Origin
Cyclopia species	plantae	Endemic	Distribution
Sclerochiton ilicifolius	plantae	Endemic	Origin
Zantedeschia sprengeri	plantae	Cosmopolitan	Distribution
Sceletium tortuosum	plantae	Uncertain	Distribution
Hoodia species	plantae	Endemic	Distribution
Cryptococcus amylolentus	fungi	Uncertain	Distribution
Aspalathus linearis	plantae	Cosmopolitan	Origin
Cryptocarya Latifolia	plantae	Endemic	Distribution
Aloe petricola (Aloe vera)	plantae	Endemic	Origin
Sorangium cellulosum	bacteria	Cosmopolitan	Origin
Sceletium expansum	plantae	Endemic	Distribution
Plectranthus hilliardiae	plantae	Cosmopolitan	Distribution
Zygozyma oligophaga	fungi	Uncertain	Distribution
Ornithogalum multifolium	plantae	Endemic	Distribution
Nudaurelia omega virus	virales	Cosmopolitan	Origin
Hoodia gordonii	plantae	Cosmopolitan	Origin
Harpagophytum procumbens	plantae	Cosmopolitan	Origin
Hansenula philodendra	fungi	Uncertain	Distribution
Callitris arborea	plantae	Uncertain	Distribution
Bacterium xylinum	bacteria	Cosmopolitan	Distribution
Umtiza listerania	plantae	Endemic	Distribution
Spiloxene schlechteri	plantae	Endemic	Distribution
Protea pulchra	plantae	Endemic	Distribution
Hypoxis latifolia	plantae	Uncertain	Distribution
Crocosmia masonorum	plantae	Cosmopolitan	Distribution
Cephalodiscus gilchristi	animalia	Uncertain	Distribution
Siphonochilus natalensis	plantae	Endemic	Distribution
Scabiosa anthemifolia	plantae	Cosmopolitan	Distribution
Priestleya tomentosa	plantae	Endemic	Distribution
Ogataea kodamae	fungi	Uncertain	Distribution
Myxozyma vanderwaltii	fungi	Uncertain	Distribution
Lobostemon trigonus	plantae	Endemic	Distribution
Kluyveromyces delphensis	fungi	Cosmopolitan	Distribution
HIV Subtype C South African..	virales	Cosmopolitan	Origin
Eupenicillium glutaceum	fungi	Uncertain	Distribution

Trends



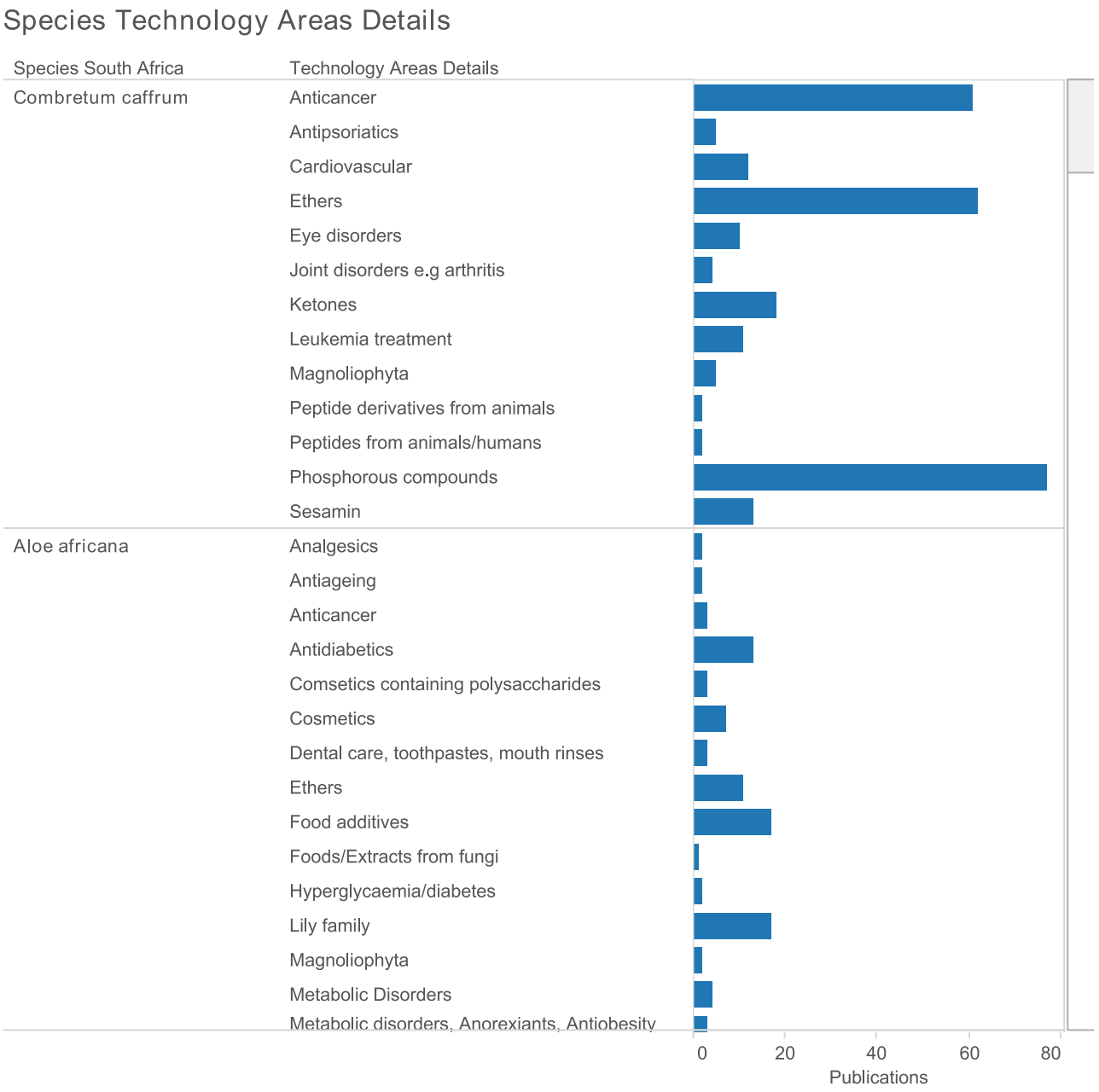
Technology Areas



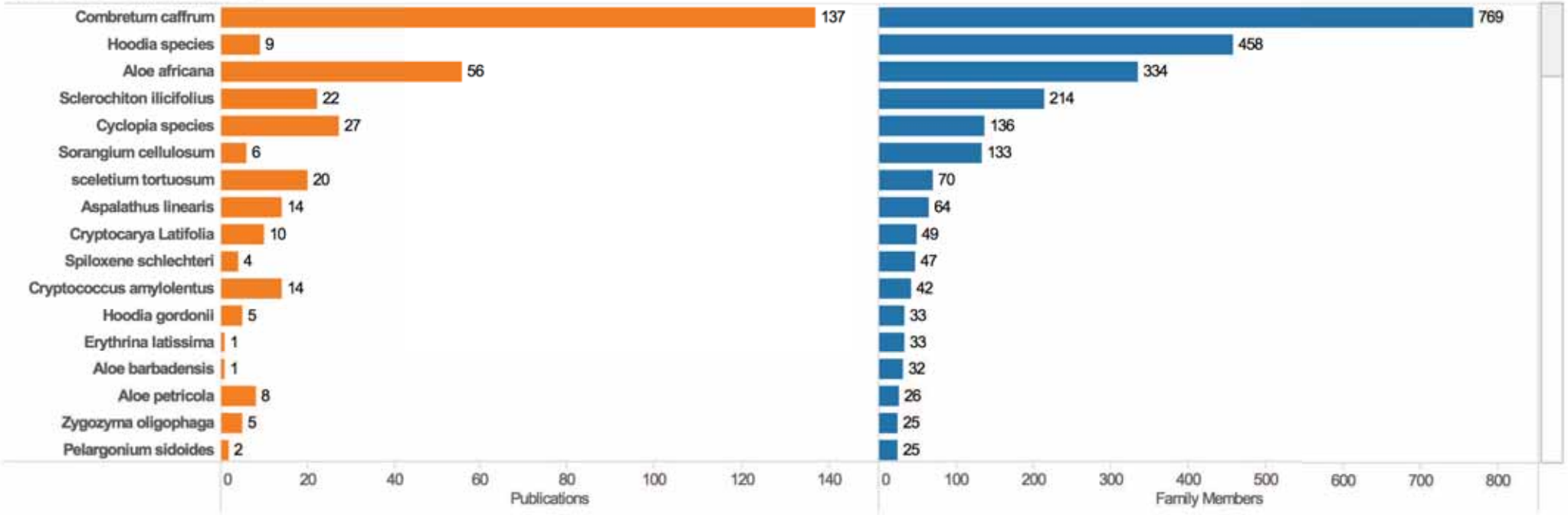
Technology Areas by Species

One important insight from the research was that species, or components of species, can be used in a wide variety of applications and technology areas.

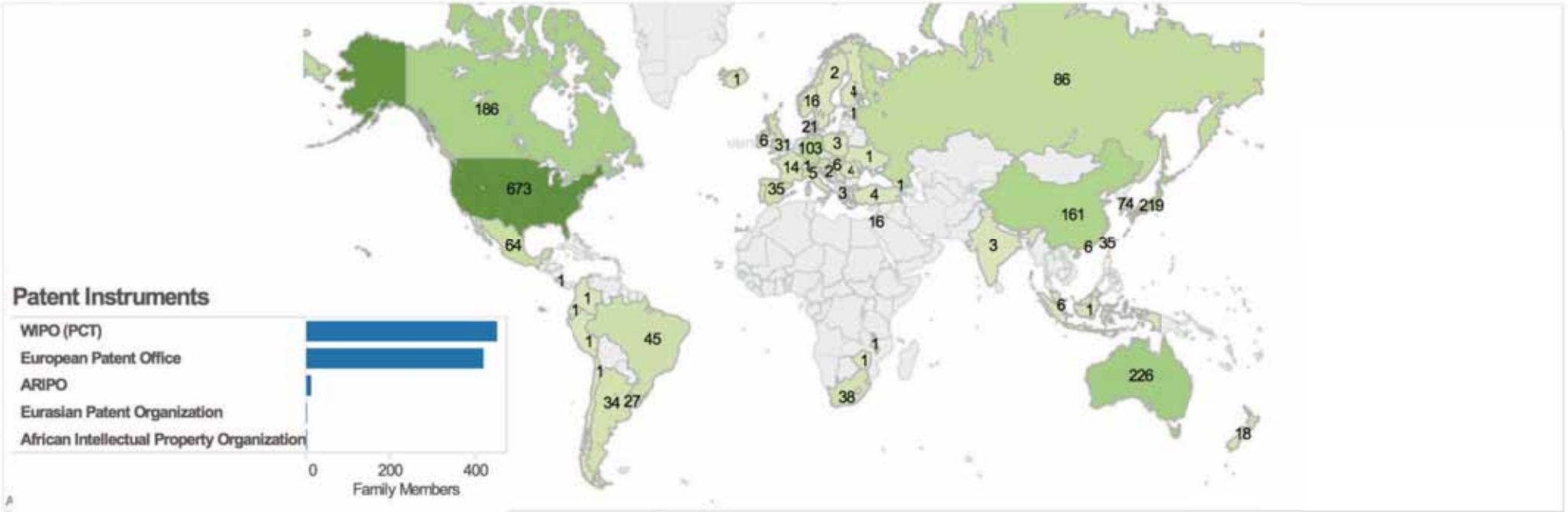
In addition, as in the case of synthetic biology, we should be aware that new scientific fields may produce new approaches to existing uses and create new uses.



Species Family Members



Family Countries



Of South African origin

Species name: *Sclerochiton ilicifolius*	Kingdom: Plantae	
Brief description of species: Plant growing in the Transvaal region of South Africa.		
Distribution: Endemic	No of documents: 22	
WO2010105014A; WO2008085575A; WO2007140195A; WO2007133184A WO2007133183A; WO2007103989A; WO2006113897A; WO2005020721A; WO2005016022A; WO2005014839A; WO2010323411A1; US2010261234A1; US2010095390A1; US2009130285A1; US2005170041A1; US2005112260A1; EP2090173A1; EP1653810B1; US2008020434A1; US2008015361A1; EP2194042A2; WO2007103389A2		
Detail: The plant is the source of monatin, a 'super-sweetener'.		

Species Summary Cards

Summary cards briefly describe the species, details of distribution, example documents, and details of uses disclosed in patent data.

Bibliographic data: US2005282260 (A1) — 2005-12-22

Polypeptides and biosynthetic pathways for the production of monatin and its precursors

Page bookmark US2005282260 (A1) - Polypeptides and biosynthetic pathways for the production of monatin and its precursors

Inventor(s): HICKS PAULA M [US]; MCFARLAN SARA C [US] +

Applicant(s): CARGILL INC +

Classification: **- international:** ***C12P17/10;*** (IPC1-7): C12N1/18; C12P13/22

- cooperative: **C12N15/52; C12P17/10**

Application number: US20050114922 20050426

Priority number(s): US20050114922 20050426 ; US20030422366 20030423 ; US20020374831P 20020423

Also published as: US7572607 (B2) US7572607 (X6) US7572607 (X6) US2013273616 (A1) WO2006116487 (A2) → more

Abstract of US2005282260 (A1)

Methods and compositions that can be used to make monatin from glucose, tryptophan, indole-3-lactic acid, indole-3-pyruvate, and 2-hydr 2-(indol-3-ylmethyl)-4-keto glutaric acid, are provided. Methods are also disclosed for producing the indole-3-pyruvate and 2-hydroxy 2-(ind ylmethyl)-4-keto glutaric acid intermediates. Compositions provided include nucleic acid molecules, polypeptides, chemical structures, and cells. Methods include in vitro and in vivo processes, and the in vitro methods include chemical reactions.

Indole-3-carbinol is produced from indole-3-acetic acid by peroxidase-catalyzed oxidation, and can easily be converted into diindolylmethane. Both compounds are reported to eliminate toxins and promote the production of hormones beneficial to women's health. Tryptophan Derivatives

Chlorinated D-tryptophan has been identified as a nonnutritive sweetener, and there is increasing interest in pursuing other derivatives as well. Monatin is a natural sweetener that is similar in composition to the amino acid tryptophan. It can be extracted from the bark of the roots of the South African shrub, Sclerochiton ilicifolius, and has promise in the food and beverage industry as a high-intensity sweetener. Some examples of patents on monatin include: U.S. Pat. No. 5,994,559 Synthesis of monatin-A high intensity natural sweetener, U.S. Pat. No. 4,975,298 3-(1-amino-1,3-dicarboxy-3-hydroxy-but-4-yl)-indole compounds, U.S. Pat. No. 5,128,164 Composition for human consumption containing 3-(1-amino-1,3-dicarboxy-3-hydroxy-but-4-yl)-indole compounds; and U.S. Pat. No. 5,128,482 Process for the production of 3-1(1-amino-1,3-dicarboxy-3-hydroxy-but-4-yl)indole.

Some of the precursors of monatin described here can also be useful as synthetic sweeteners or as intermediates in the synthesis of monatin derivatives.

SUMMARY

The disclosure provides several biosynthetic routes for making monatin from glucose, tryptophan, indole-3-lactic acid, and/or through monatin precursors such as indole-3-pyruvate and 2-hydroxy 2-(indole-3-ylmethyl)-4-keto glutaric acid. Polypeptides and nucleic acid sequences that can be used to make monatin, indole-3-pyruvate, and 2-hydroxy 2-(indole-3-ylmethyl)-4-keto glutaric acid are disclosed. In an effort to be concise, where ever intermediates/products are identified in the specification and claims (e.g. monatin or monatin precursor) as being formed, the term "and/or salts thereof" should be understood to be included where applicable. In other words, for example, the phrase "indole-3-pyruvate is converted to monatin precursor" should be understood to read "indole-3-pyruvic acid is converted to monatin precursor and and/or salts thereof." A person of ordinary skill, in fact, would appreciate that under reaction conditions shown the salts of the intermediates/products are in fact present or also present.

Monatin can be produced by reacting a reaction mixture that includes one or more suitable substrates and one or more selected polypeptides. Suitable substrates may include, but are not limited to, glucose, tryptophan, indole-3-lactic acid, monatin precursors (such as indole-3-pyruvate and 2-hydroxy 2-(indole-3-ylmethyl)-4-keto glutaric acid), and mixtures thereof. Suitable substrates that are present in the reaction mixture for producing monatin, may be added to the reaction mixture and/or may be produced in situ in the reaction mixture. The selected polypeptides may be added to the reaction mixture and/or may be produced by microorganisms present in the reaction mixture (e.g., by fermenting the reaction mixture with a microorganism that expresses the selected polypeptide).

Monatin can be produced through indole-3-pyruvate, 2-hydroxy 2-(indole-3-ylmethyl)-4-keto glutaric acid (monatin precursor, MP, the alpha-keto form of monatin), indole-3-lactic acid, tryptophan, and/or glucose (FIG. 1). Methods of producing or making monatin or its intermediates shown in FIGS. 1-3 and 11-13 that involve converting a substrate to a first product, and then converting the first product to a second product, and so on, until the desired end product is created, are disclosed.

SYNTHETIC GENOMES

Bibliographic data | **Description** | Claims | Mosaics | Original document

The EPO does not accept any responsibility for the accuracy of data and in other authorities than the EPO; in particular, the EPO does not guarantee th to-date or fit for specific purposes.

Description of **WO 2008024129 (A2)**

SYNTHETIC GENOMES

By J. Craig Venter, Hamilton O. Smith and Clyde A. Hutchison III

CROSS-REFERENCE TO RELATED APPLICATIONS

[001] The present application claims benefit and priority from U.S. Provisional Patent Application Serial No. 60/742,542 filed on Dec. 6, 2005, entitled, "Synthetic Genomes;" the present application is related to U.S. Provisional Patent Application Serial No. 60/752,965 filed on Dec. 23, 2005, entitled, "Introduction of Genomes into Microorganisms;" U.S. Provisional Patent Application Serial No. 60/741,469 filed on Dec. 2, 2005, entitled, "Error Correction Method;" and U.S. Non-Provisional Patent Application Serial No. 11/502,746 filled on Aug. 11, 2006, entitled "In Vitro Recombination Method," all of which are incorporated herein by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[002] This invention was made with U.S. government support (DOE grant number DE-FG02-02ER63453). The government has certain rights in the invention.

BACKGROUND OF THE INVENTION Field of the Invention

[003] The present invention relates generally to molecular biology, and more particularly to synthetic genomes.

US Disclosure Requirement for Federally Funded Research

INSECTICIDAL ACTIVITY OF A CYCLIC PEPTIDE

[0001] The U.S. Government has a paid-up license in this invention and the right in limited circumstances to require the patent owner to license others on reasonable terms as provided for by the terms of Grant No. 2U01 TW00313-11 awarded by the National Institutes of Health (NIH). This application claims the benefit of U.S. Provisional Application No. 60/572,730, filed on May 20, 2004.

US Licence, grant information

BACKGROUND OF THE INVENTION

[0002] The present invention concerns the insecticidal activity of a cyclic peptide isolated from an extract of the bark of a Madagascan plant. This invention also includes pesticide compositions containing the cyclic peptide and methods of controlling insects using the cyclic peptide.

[0003] There is an acute need for new insecticides. Insects are developing resistance to the insecticides in current use. At least 400 species of arthropods are resistant to one or more insecticides. The development of resistance to some of the older insecticides, such as DDT, the carbamates, and the ce has even insecticides. particularly for compounds that have new or atypical modes of action.

ABS Agreement

SUMMARY OF THE INVENTION

[0004] This invention concerns a natural compound useful for the control of insects. More specifically, the invention concerns the insecticidal activity of the compound of formula (I)

the crude extract. Profile shown is 210 nm UV absorbance resulting from injection of ⅕ (8 mg) of sample. To complete the separation of the whole sample, this process was repeated five times, pooling 16-17 minute region to obtain purified metabolite.

[0008] **FIG. 3** is the electrospray mass spectra of the active metabolite

[0009] A: mentation

[0010] B: mentation)

[0011] C: Negative ion, low cone voltage (low fragmentation)

[0012] D: Negative ion, high cone voltage (high fragmentation)

[0013] **FIG. 4** is the 600.13 MHz ^{1}H NMR spectrum of purified metabolite in MeOH-d_4.

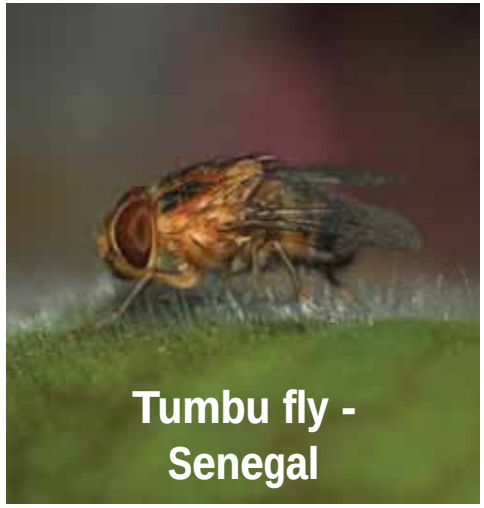
DETAILED DESCRIPTION OF THE INVENTION

[0014] The compound of formula (I) was isolated from an extract of the bark of a Madagascan plant coded MG899 provided under a Madagascar International Cooperative Biodiversity Group Cooperative Research Agreement funded by NIH and administered by Virginia Polytechnic Institute and State University.

[0015] Bioassay-guided fractionation led to the isolation of a cyclic peptide of formula (I). The titer of this compound in the bark was estimated to be approximately 13 ppm

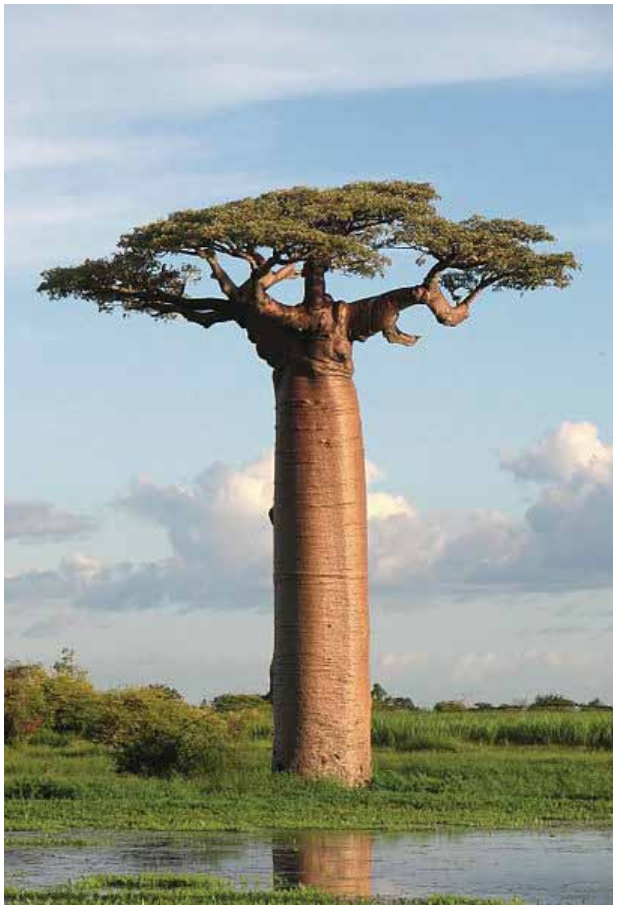
Lessons Learned

- More than one species normally appears in a patent document;
- It can be difficult to determine whether a species is mentioned because it is the source of an invention or the target of an invention;
- Patent applicants commonly construct patent claims on the genus or family level in a practice we call essential incorporation. The objective is to include other relevant species to avoid 'inventing around' using other species (links to the doctrine of equivalents).



Known Distribution of Species from Kenya

Species recorded in a particular country are also often found in other countries within the region or beyond. This raises challenges but also regional opportunities.



Madagascar

Adansonia grandidieri

Vitamin C rich seeds, cooking oils. IUCN Red List Endangered.

Senegal

Balanites aegyptiaca

Common across sub-saharan Africa. Used for treating bilharzia.

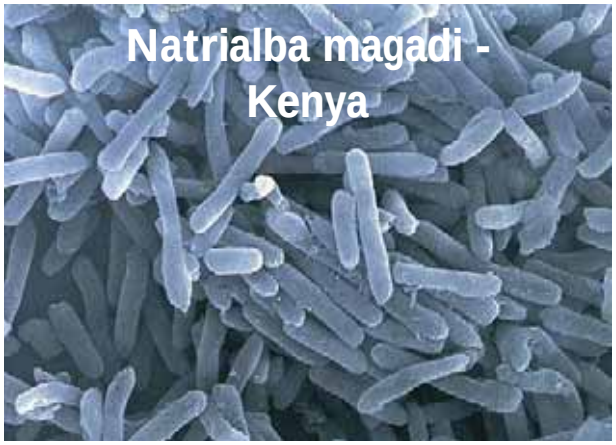
Kenya

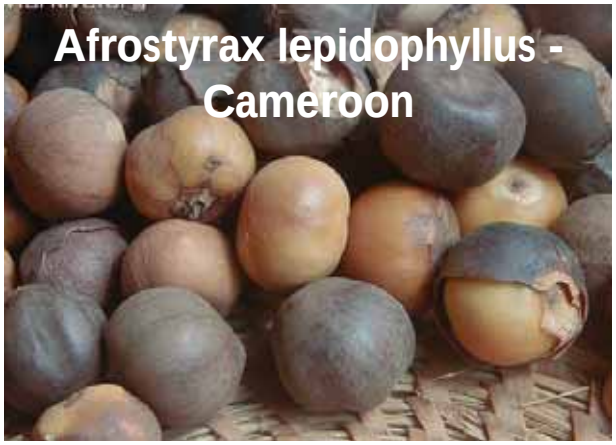
Euprosthenopsis species

Spider silk polypeptides. Wider distribution in Southern Africa.

Species	Origin	Patent to Product	Sector	Traditional Knowledge
Pausinystalia yohimbe	Not specified	Yes	Pharmaceutical	Yes
Nocardia transvalensis	Distribution	No	Pharmaceutical	No information
Cissus quadrangularis	Cameroon	Yes	Nutraceutical	No Information
Ancistrocladus korupensis	Cameroon	Yes	Pharmaceutical	Yes

Cameroon - Exploring Value Chains presents multiple challenges in linking from patent data to compound, extracts and trademark names and 'messy' methods involving scientific literature and internet research.





Taxonomic Data

Countries cannot hope to monitor activity and engage in ABS if they do not know what they have got. GBIF provides basic non-sensitive data and is a key tool for monitoring and also, potentially, for community engagement. Next governing board meeting is in Madagascar & EU project for Africa.

Capacity Building

Key Area 3 of NP CB Plan includes enhancing transparency on utilisation of GR and TK (Art 17) as proposed by Africa. How to disseminate capacity in terms of tools & training? ABS Initiative, WIPO, UNU & Others?

Data & Methods

Data & Methods are a key issues. Presents challenges in terms of access to data & tools. Break down challenges to address (e.g. business to consumer, online, business to business.) New issues such as Marine GR or synthetic biology.

Improving Understanding & Emerging Issues

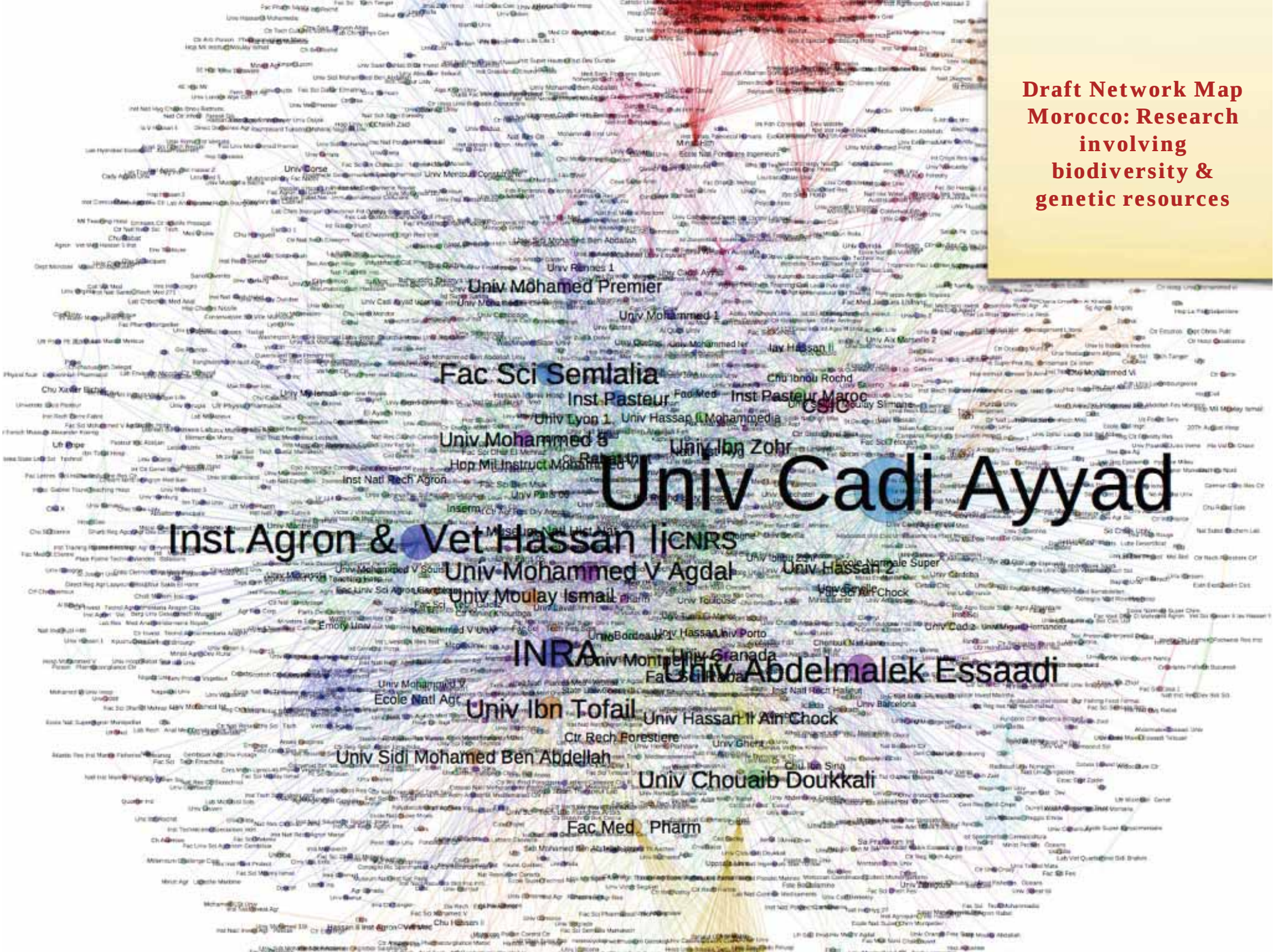
1. How do we identify national level actors and research activity? This emerged as an important issue in the value chain studies.

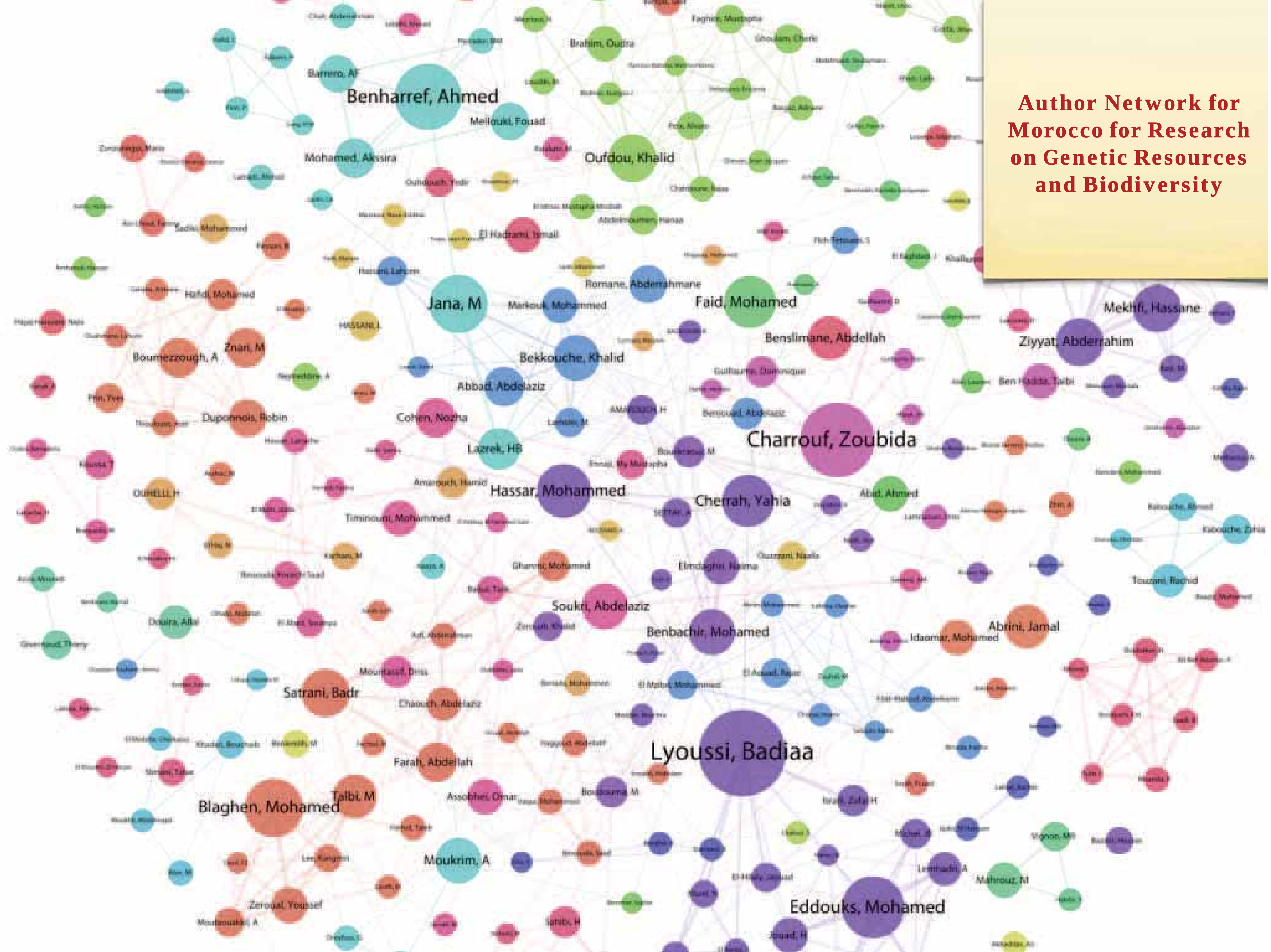
II. How do we address emerging issues such as marine genetic resources (or synthetic biology)

Authors (1st)	Year	Author Affiliations..	Title	Combined Keywords + Phr
Aabd, N A	2012	Univ Ibn Zohr	Univariate and Multivariate Analysis of Agronomical Tra..	Argania spinosa
Aazza, S	2014	Inst Grasa Csic; Uni..	Anti-oxidant, Anti-inflammatory and Anti-proliferative Ac..	Cupressus sempervirens; Fc
Abbad, A	2004	Univ Cadi Ayyad	Phenotypic and genetic variability of three natural popul..	Atriplex halimus
	2011	Univ Cadi Ayyad	Influence of temperature and water potential on laborat..	Thymus broussonetii; Thymu
	2013	Univ Cadi Ayyad; Di..	Intraspecific chemical variability of essential oil from lea..	Cupressus atlantica
Abdeljebbar, L	2007	Fac Sci Semlalia; U..	Withanolides from Withania adpressa	Withania adpressa
H	2009	Fac Sci Semlalia; U..	Antiproliferative Effects of Withanolides from Withania ..	Withania adpressa
Abdelmoumen	1999	Orstom; Univ Moha..	Effect of high salts concentrations on the growth of rhiz..	Adenocarpus Decorticans
, H	2008	Univ Mohamed Pre..	DIVERSITY OF RHIZOBIA THAT NODULATE TWO M..	Adenocarpus Decorticans
Abderahman..	2011	Univ Med I	Synthesis and Characterization of the New Cellulose D..	Stipa tenacissima
Aberchane, M	2004	Ctr Rech Forestiere..	Analysis of Moroccan Atlas cedarwood oil (Cedrus-atla..	Cedrus atlantica
Abissy, M	1999	Univ Cadi Ayyad	Comparative study of wastewater purification efficienci..	Juncus subulatus; Typha lati
Abouabdella..	2008	Univ Ibnou Zohr; In..	Paralytic shellfish poisoning toxin profile of mussels Per..	Perna perna
Aboulaich, N	2008	Univ Abdelmalek Es..	Male phenology and pollen production of Cupressus se..	Cupressus sempervirens
	2009	Univ Abdelmalek Es..	Pollen production in anemophilous species of the Poac..	Gaudinia fragilis; Hordeum m
Aboumaad, B	2014	Natl Inst Publ Hlth; ..	Cardiac involvement and its complications about three ..	Androctonus mauritanicus
Abourriche, A	1999	Cnr; Ctr Phytopharm	Investigation of bioactivity of extracts from Moroccan so..	Botrytis cinerea; Fusarium ox
	2000	Ctr Phytopharm; Fa..	Isolation and bioactivities of epidioxysterol from the tuni..	Botrytis cinerea; Fusarium ox
Achak, N	2008	Baylor Univ; Univ C..	Effect of the leaf drying and geographic sources on the ..	Juniperus thurifera
		Univ Cadi Ayyad; E..	Essential oil composition of Juniperus phoenicea from ..	Juniperus phoenicea
	2009	Baylor Univ; Univ C..	Chemical Studies of Leaf Essential Oils of Three Speci..	Juniperus oxycedrus; Junipe
		Univ Cadi Ayyad	Chemical Composition, Organic and Mineral Contents ..	Tetraclinis articulata
Afkir, S	2008	Lab Anal Med Zohei..	Arbutus unedo prevents cardiovascular and morphologi..	Arbutus unedo
Aghzar	2013	Univ Abdelmalek Es..	A COST-BENEFIT ASSESSMENT OF TWO MULTI-S..	Mytilus galloprovincialis
Aghzar, A	2012	Univ Abdelmalek Es..	Small-fast growers of Mytilus galloprovincialis do not ca..	Mytilus galloprovincialis

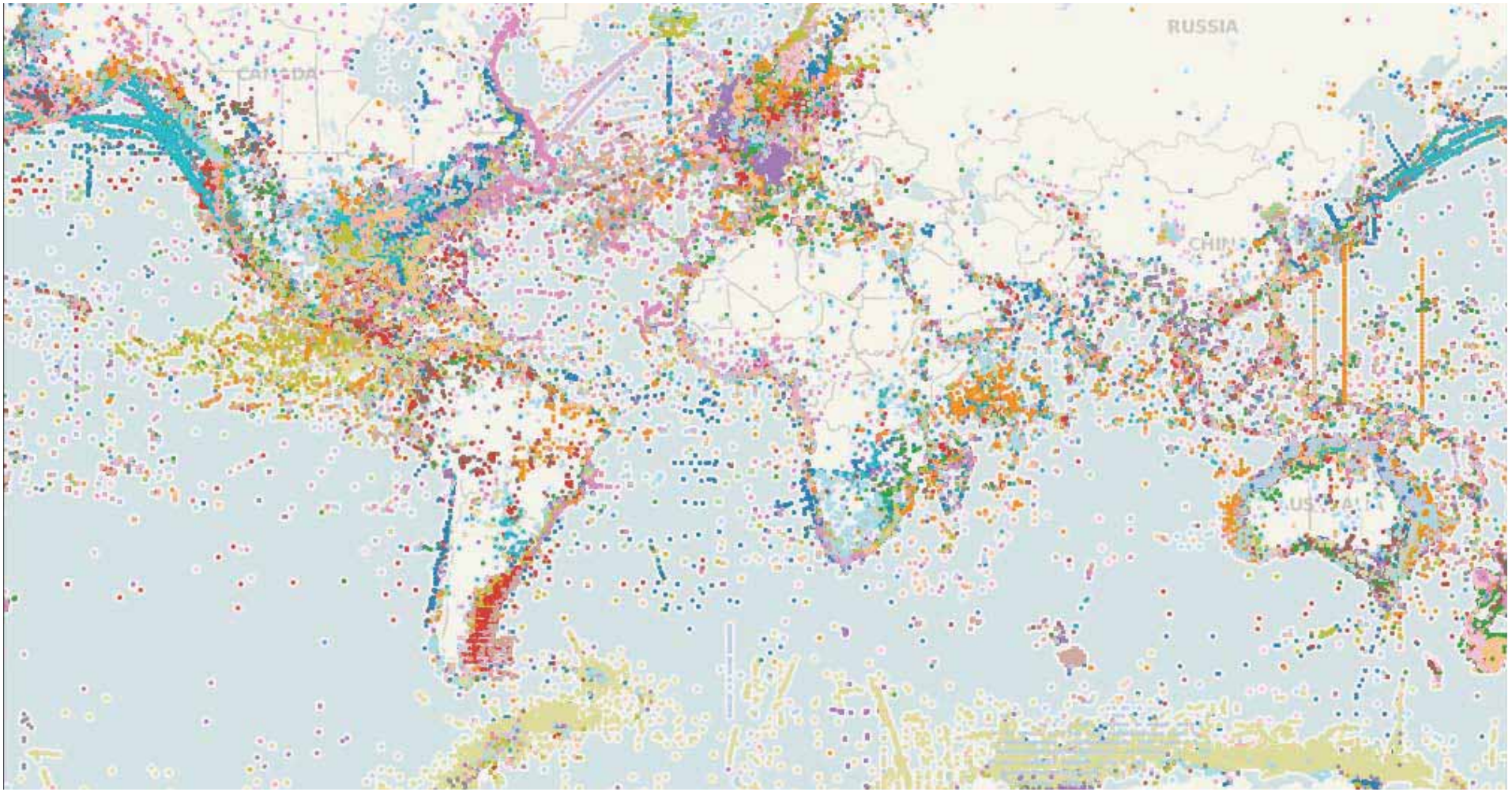
Mapping Research Capacity using Scientific Databases

One problem is identifying the “who” on the national level.This slide shows 2000 articles on biodiversity in Morocco, the researchers, organisations and the species they work on.


Draft Network Map
Morocco: Research
involving
biodiversity &
genetic resources
Univ Cadi Ayyad
Inst Agron & Vet Hassan Ii
Univ Abdelmalek Essaadi
Univ Mohammed V Agdal
Univ Moulay Ismail
Univ Ibn Tofail
Univ Chouaib Doukkali
Univ Sidi Mohamed Ben Abdellah
Fac Sci Semlalia
Univ Mohamed Premier
Univ Mohammed 5
Univ Ibn Zohr
Univ Hassan 2
Univ Hassan II Ain Chock
Univ Granada
Univ Barcelona
Univ Porto
Univ Montpellier
Univ Bordeaux 1
Univ Lyon 1
Univ Hassan II Mohammedia
Inst Pasteur
Inst Pasteur Maroc
Inst Natl Rech Agron
Hop Mil Instruct Mohamed V
Ecole Natl Agr
Ctr Rech Forestiere
Fac Med Pharm
Univ Rennes 1
Univ Mohammed 1
Univ Aix Marseille 2
Univ Paris 06
Univ Toulouse
Univ Ghent
Univ Cadiz
Univ Seville
Univ Cordoba
Univ Laval
Univ Mohammed Vi
Ecole Normale Super
Chu Ibnou Rochd
Chu Ibn Sina
Chu Hassan Ii
Univ Corse
Univ Montpellier 2
Univ Cad 2
Inserm
CNRS
INRA
CSIC



Author Network for Morocco for Research on Genetic Resources and Biodiversity



Emerging Issues: Marine Genetic Resources

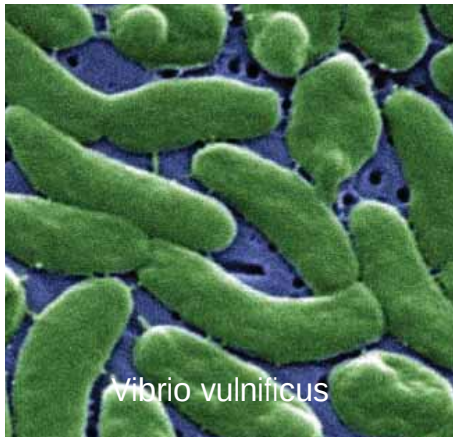
Africa's genetic resources are not limited to terrestrial environments. This map shows the first draft map of the occurrence of marine species in patent data.

Marine Genetic Resources

- Africa does not end at the coast, but extends into Exclusive Economic Zones (EEZs). In some cases such as Seychelles or Mauritius these areas dwarf the surface land mass;
- There is growing interest in marine genetic resources, in particular in bacteria living in association with sponges, corals etc;
- Countries are increasingly thinking about the ‘Blue economy’;
- Emerging issues of the relationship between the Nagoya Protocol and UNCLOS for ABNJ.


Bruguiera gymnorrhiza


Torpedo marmorata


Vibrio vulnificus


Thunnus albacares


Heteractis crispa


Avicennia marina

Species appearing in patents recorded in the Seychelles

Lessons Learned & Ways Forward

We gained:

- A much better understanding of African Biodiversity and TK in patent data;
- A standard method for generating country reports;
- A set of practical recommendations.

We learned:

- Other approaches needed for national actor mapping;
- Innovative work needed to bridge the divide between patents, products and markets.

Ways Forward

- Taxonomic data is vital for the capacity to know. How to mobilise and use this data?(GBIF)
- Digital data & digital methods opens many doors for monitoring. How to mobilise and orient capacity building - a manual? online courses? regional? national? other? Ideas needed.
- What partnerships are needed for monitoring? (ABS Initiative, UNU, WIPO, UNDP/UNEP?)
- Recognising that disclosure requirements help solve certainty & monitoring problems.
- Becoming aware of emerging issues. How to stay on top of this? (marine, synthetic biology etc.)

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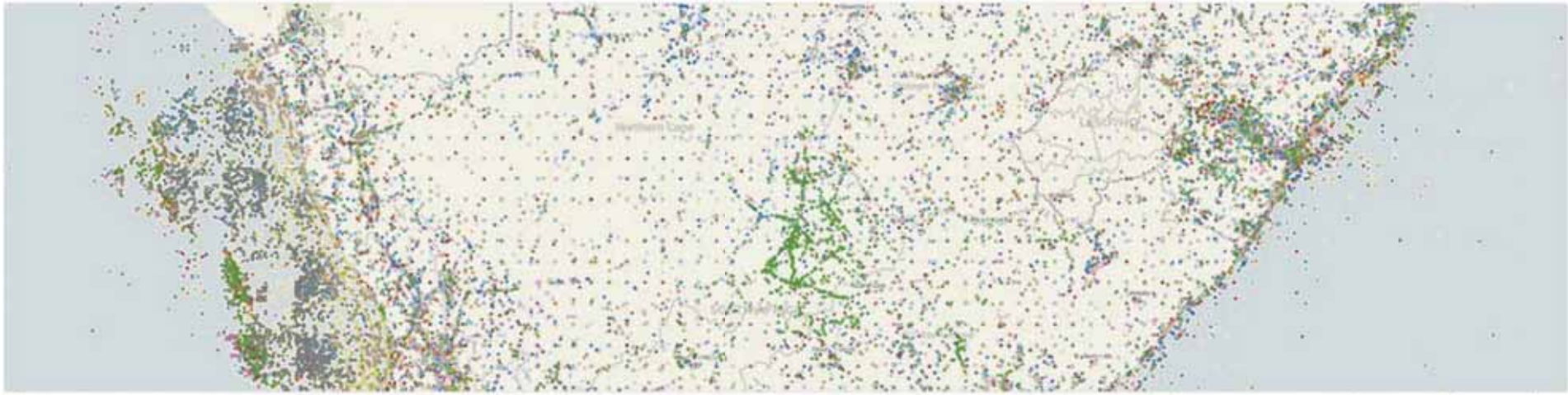

This page presents a series of country studies on biodiversity and traditional knowledge in the patent system for six African countries. The aim of the studies was to provide empirical information on the presence of African biodiversity and traditional knowledge in the patent system to inform implementation of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization. The patent studies form part of a wider pilot project on the economic valuation of genetic resources and value chain analysis for the six African countries. The wider value chain studies will be made available in due course.

oneworldanalytics.com/africa & Pen Drives

Patent studies are available via One World Analytics website until they are posted on the Initiative website.They are also on the pen drives that you will receive.

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

Synthetic Biology: Mapping the Scientific Landscape

Paul Oldham, Stephen Hall, Geoff Burton

Published: April 23, 2012 • DOI: 10.1371/journal.pone.0034368 • Featured in PLOS Collections

Abstract

This article uses data from Thomson Reuters *Web of Science* to map and analyse the scientific landscape for synthetic biology. The article draws on recent advances in data visualisation and analytics with the aim of informing upcoming international policy debates on the governance of synthetic biology by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) of the United Nations Convention on Biological Diversity. We use mapping techniques to identify how synthetic biology can best be understood and the range of institutions, researchers and funding agencies involved. Debates under the Convention are likely to focus on a possible moratorium on the field release of synthetic organisms, cells or genomes. Based on the empirical evidence we propose that guidance could be provided to funding agencies to respect the letter and spirit of the Convention on Biological Diversity in making research investments. Building on the recommendations of the United States Presidential Commission for the Study of Bioethical Issues we demonstrate that it is possible to promote independent and transparent monitoring of developments in synthetic biology using modern information tools. In particular, public and policy understanding and

Patent Landscape Reports

Patent landscape reports provide a snap-shot of the patent situation of a specific technology, either within a given country or region, or globally.

They start with a state-of-the-art search for the relevant technology in selected patent databases. The results are then analyzed to answer specific questions about, for example, patterns of patenting activity (- who's doing what? what is filed where?) or patterns of innovation (innovation trends, diverse solutions for a technical problem, collaborations). The results are presented visually to assist understanding, as well as conclusions or recommendations based on the empirical evidence provided.

FEATURED PUBLICATION

Animal Genetic Resource