

BIODIVERSITY: LAW AND INSTITUTIONS

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WARNING!

WE ARE TIRED OF AFRICAN CRYING BABIES

- open your brains
- use resources available to you to explore your world so rich is microbials
plants, animals, both marine and terrestrial
- and as you pursue knowledge in many forms, don't forget the profound
knowledge your great grandparents acquired overtime on the superfluity
and uses of many life forms as they communed with nature
engage modern science in harnessing that knowledge
engage with the rest of the world
- play your part in building knowledge as supported by nature abundance
- go beyond knowledge to development of useful products
- solve your peoples problems
- solve human problems
- restore the world!

CONSTITUTION:

**Especially provisions for sustainable
Use of resources-**

- **Sustainable development and environmental sanctity are major constitutional principles in Kenya**
- **Then academic freedom**
- **Right to intellectual property**

•LEGISLATIONS:

- **EMCA**
- **Industrial property Act**
- **Sectoral laws such as**
- **Agriculture Act, Wildlife Conservation & Management Act, Forestry Act, Plant and Seed Varieties Act....**

DOMESTIC LAW & POLICY

- **Vision 2030**
- **Wildlife Policy**
- **Forest Policy**
- **Bioprospecting Strategy**
- **Research strategies & Policy of each Public institution...Usually similar**

• CONTRACTS

- **Material Transfers Agreements**
- **License Agreements**
- **Confidentiality Agreements**

• OTHER LAWS

- **Common law, especially nuisance, riparian rights, etc**
- **Equity**

INTERNATIONAL LAW & POLICIES GOVERNING

BIODIVERSITY & BIOPROSPECTING ACTIVITIES

- United Nations Convention on the Law of the Sea (UNCLOS)
- The Convention on Biological Diversity (CBD)
- World Intellectual Property Organization (WIPO)
- International Treaty on Plant Genetic Resources for Food and Agriculture
- The World Summit on Sustainable Development
- TRIPS
- Ramsar Convention
- CITES
- UN Declaration on Indigenous Rights
- International Convention for the Protection of
- New Varieties of Plants (UPOV)
- Nagoya protocol
- Cartagena Protocol
- Bonn Guidelines

- **Courts & Tribunals**
 - Supreme Court
 - Court of Appeal
 - High Court
 - Subordinate Courts
 - National Environmental Tribunal.....
- **Parliament**
 - Senate/National Assembly/ CAs
 - Committee on land & Environment

INSTITUTIONS

(SECTORAL & INTEGRATED MANAGEMENT APPROACH)

- **OTHER ADMINISTRATIVE AGENCIES:**
 - Ministries such as Environment & Mining, Forestry & wildlife, Fisheries, Livestock, Agriculture, Local Authority, Lands, Regional Development
 - Regulators such as NEMA, KWS, KFS
 - Research Institutions such as KARI, KEMRI, NMK, KEFRI, Universities
 - KIPI/KEPHIS/AG (COPYRIGHTS BOARD)
- **Role of public participation in governance**

Pacificationist law still find room in biodiversity laws

Conflicts of IP laws between various jurisdictions (US as an example)

ROLE OF BIODIVERSITY IS NARROWED TO:

- **Role in support of the Ecosystem**
- **Extraction of physical resources there from: Biomass**
 - **Food, Seeds, Biomass, Herbs for medicine, Timber for furniture...**
- **Aesthetics and Recreation**

WHAT ARE THE PROBLEMS?

- **The link between Indigenous Communities & Role of Biodiversity in knowledge industry, and economy in its entirety is not well spelt out**
- **There is a disconnect between the local needs and the law which often captures the international regimes without question**
- **The law on Access-Benefit Sharing emphasizes foreign “Access and sharing benefits with locals (government & may be communities)”**
- **Bioprospecting and biopiracy**
- **Ownership arguments**
 - **Ownership rights of national governments**
 - **Ownership rights of local communities**
 - **All humankind as the owner of biodiversity, man**

See Sabrina Safrins Discourse on Hyperownership:
<http://links.istor.org/sici?tsici=0002-9300%28200410%2998%3A4%3C641%3AHIATOR%3F2.0.CO%3B2-S>

- **Consequentialist arguments**
- **Virtue-based arguments**

Problems Cont....

- According to Sabrina SAfrin, (Author of an influential paper- Hyperownership in a Time of Biotechnological Promise: The International Conflict to Control the Building Blocks of Life) a legal enclosure of genetic material has two components.
 - First, developed countries, most extensively and consequentially the United States, have pressed the reaches of the patent system.
 - They are extending patent protection to a wide and increasing array of genetic material.'
 - By mid-2000, the U.S. Patent and Trademark Office (PTO) had issued over six thousand patents on full-length genes isolated from living organisms and were considering over twenty thousand gene-related patent applications.
- second, in response to the privatization of genes through the patent system, developing countries-which house most of the world's wild or raw genetic material-are pushing the boundaries of sovereignty.
 - They are asserting sovereign ownership or extensive national government control over a wide and increasing range of raw genetic material in their countries.
 - Since 1993, over sixty nations have passed laws that greatly restrict access to raw genetic material within their borders.

BIOPROSPECTING

- An all encompassing term describing the discovery of new and useful biological materials and mechanisms
- Indigenous knowledge, exemplified by traditional communities' knowledge of the uses of the biodiversities have lived with overtime today has become one of the primary issues in bioprospecting.
- A lot of bioprospecting occurs in the less-developed countries where communities have lived side by side with nature, harvesting biodiversity at the same time transcendentally preserving the same for future use.
- Bioprospecting also includes the search for previously unknown compounds in organisms that have never been used in traditional medicine.

BIOPIRACY

- **Word coined form biology and piracy in reference the act of exploiting** indigenous knowledge of nature, originating with indigenous people, commercial gain without permission from and with no compensation to the indigenous people themselves.
- Those opposed to such acts without the consent of the indigenous communities assert that these practices contribute to inequality between developing countries rich in biodiversity, and developed countries hosting companies which engage in 'biopiracy'.

WHAT THE LAW NEED TO DO

- Advance hyperaccess for Research
- Advance Multidisciplinary training that integrates natural sciences, Social sciences, humanities on the one hand and livelihoods, rights and business on the other.
- Advance Collaborations with international partners-
- Leveraging of research credentials and capacities to international standards
- Advance local research outputs, product development & ownership of ip, and production processes
- “Life & Death” government funding and other support, for:
 - Research
 - Innovation
 - Intellectual Asset protection,
 - product development
 - Acquisition of technology
 - Economic incentives, like tax rebates on marketing of innovative products

BIODIVERSITY CENTER

**“An International Multidisciplinary Membership Institution:
Headquartered at the Chepkoilel University College.”**

- Use existing law to advance the holistic management, conservation and wise use of Biodiversity as an integral part of the human development

- Lobby and support the creation of better strategies, laws and policies on biodiversity.

COMPONENTS: Management, Microbial Research, Plant Research, Animal Research, Deep Sea Research, Legal, Technology Transfer, & Dispute Resolution Office, Marketing & Public liaison Office

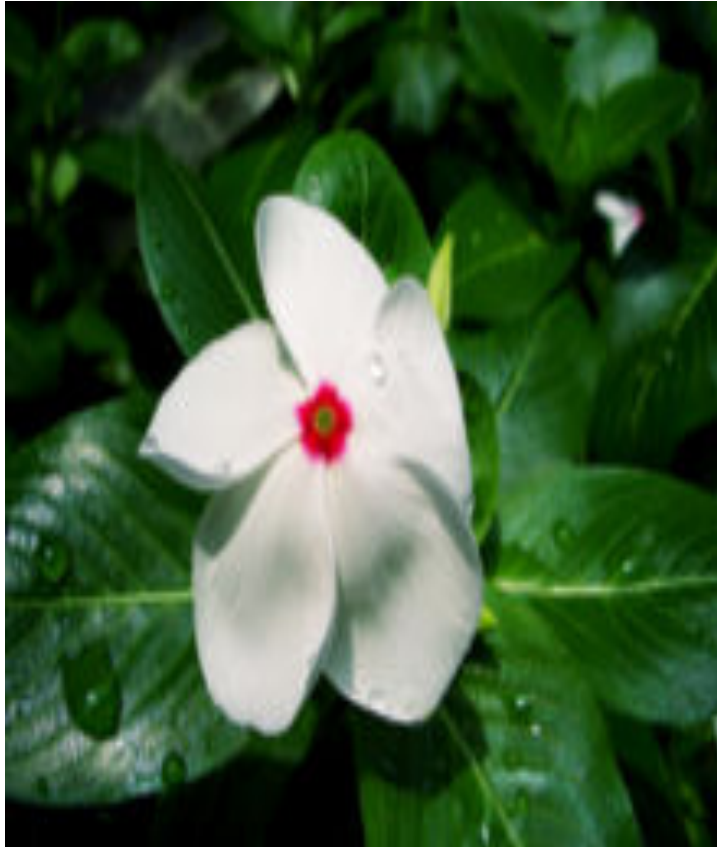
- **Founded on the Need for Public Private Partnership**
- **Membership drawn from**
 - other research institutions,
 - Organizations such as the KWS, KFS,
 - NGOs & CBOs
 - Private Business and Industry, especially related to Bioenergy, Food production, Pharmaceuticals,
 - ...
- **Founded on the need for International Cooperation in harnessing of the global biodiversity-**
- **Founded on the Consequentialist Philosophy**

SOME CASES

ACARBOSE

- Diabetes Drug produced by a microbe from Kenya:
- Acarbose is a drug taken by Type II diabetics.
- The German company Bayer filed a patent on a new way to manufacture the product.
- According to the 1995 application, a actinoplanes sp. Bacteria strain called SE50 has unique genes enabling the biosynthesis of acarbose in fermentors and the strain comes from Kenyas Lake Ruiru.
- The author found no evidence of benefit sharing of this valuable microbe.

ROSY PERIWINKLE



- The case dates from the 1950s.
- Native to Madagascar, had been widely introduced into other tropical countries around the world well before the discovery of vincristine.
- This meant that researchers could obtain local knowledge from one country and plant samples from another.
- The use of the plant as a cure for diabetes was the original stimulus for research, but cures for cancer were the most important results. The Hodgkin's Lymphoma chemotherapeutic drug vinblastine is also derivable from the rosy periwinkle.

NEEM TREE



- In 1995 the U.S. Department of Agriculture and a pharmaceutical research firm received a patent on a technique to extract an anti-fungal agent from the Neem tree (*Azadirachta indica*), which grows throughout India and Nepal
- Indian villagers have long understood the tree's medicinal value.
- Legal action by the Indian government followed, with the patent eventually being overturned in 2005.

THE ENOLA BEAN

- The Enola bean is a variety of Mexican yellow bean, so called after the wife of the man who patented it in 1999.
- The allegedly distinguishing feature of the variety is seeds of a specific shade of yellow.
- The patent-holder subsequently sued a large number of importers of Mexican yellow beans with the following result: "...export sales immediately dropped over 90% among importers that had been selling these beans for years, causing economic damage to more than 22,000 farmers in northern Mexico who depended on sales of this bean."
- A lawsuit was filed on behalf of the farmers, and on April 14, 2005 the USPTO ruled in favor of the farmers.
- An appeal was heard on 16 January 2008, and the patent was revoked in May 2008.
- An appeal to the court against the revocation was unsuccessful (Decided October 2009).

BASMATI RICE

- **in 2000, the us corporation Ricetec (a subsidiary of Ricetec AG of Liechtenstein) attempted to patent certain hybrids of basmati rice and semi-dwarf long-grain rice (see U.S. patent no. 5,663,484).**
- **the Indian government intervened and several claims of the patent were invalidated.**
- **meanwhile, the European commission has agreed to protect basmati rice under its regulations pertaining to geographical indications.**

HOODIA

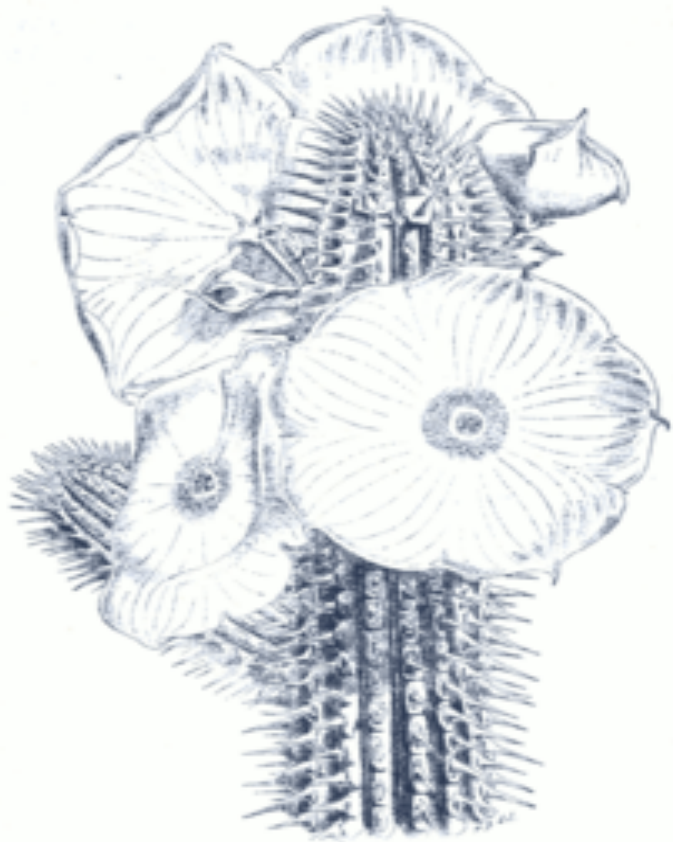


Fig. 431.
Gordon's Hoodia (*Hoodia Gordonii*). Glühende Pflanze.

- Hoodia, a succulent plant, originates from the Kalahari Desert of South Africa.
- For generations it has been known to the traditionally-living San people as an appetite suppressant.
- When a US patent was registered on the same point, the SAN people raised, eventually it was settled out of court.

ARTEMISTA JUDAICA

- Extracts from a medicinal plant *Artemista judaica* from Libya, Egypt and other North African countries for the treatment of diabetes was patented by a UK company, Phytopharm Plc.
- It admits that the plant has been used in Libyan traditional medicine for the treatment of diabetes.
- However, despite the explicit declaration of a lack of novelty, the US Patent Office has granted the patent.
- The author said he could not find a company intellectual property policy on the traditional knowledge it patents nor any evidence of a benefit sharing agreement related to this patent.

RAPAMYCIN

- Antibiotics from a termite hill found in Gambia: In the 1970s, rapamycin, an immunosuppressive drug that is used in medicine (for example, to prevent rejection of organ transplant) was discovered from a *Streptomyces* sample collected in the Easter Island.
- The discovery of rapamycin sparked a search for other *Streptomyces* that produce similar compounds.
- SmithKline Beecham (now Glaxo SmithKline) has claimed a compound from a *Streptomyces* strain that it says was isolated from a termite hill at Abuke, Gambia.
- The strain produces a rapamycin-related compound called 29-desmethyrapamycin and, according to the patent, it is useful both as an anti-fungal and as an immunosuppressant.
- However, no information was found about any benefit sharing arrangements between the company and Gambia.

MILLETTIA FERRUGINEA, GLINUS LOTOIDES, RUTA CHALEPENSIS AND HAGENIA ABYSSINICA.

- Four multipurpose medicinal plants that were obtained from Ehtiopia and neighbouring countries:
- A researcher in Tennessee has obtained a US patent on four African medicinal plants.
- The patent makes sweeping claims for preparations of the plant extracts and against breast cancer, leukemia, melanoma and myeloma and viral infection, diabetes, Parkinsons disease, tuberculosis, or fungal infections.
- The patent covers use of Millettia ferruginea alone or with one or more of the three other medicinal plants that are claimed Glinus lotoides, Ruta chalepensis and Hagenia abyssinica.
- All of the plants grow in Ethiopia and have medicinal uses there as well as in some other countries.
- Despite the patent, little appears new about the medicinal uses claimed for these plants. The author could not find any benefit-sharing agreement.

IBOGA PLANT

- Drug addiction treatment from Iboga plant that has long been used in Central and West Africa.
- In low doses, it serves as a stimulant to maintain alertness, for example, while hunting.
- In larger doses, it is a hallucinogen, traditionally used for religious purposes.
- But in recent years, it has drawn the interest of drug addiction researchers as Iboga reportedly has the effect of ending cravings for addictive substances, such as heroin and nicotine.
- There is thus great interest in Iboga to cure some drug addictions.
- Numerous patents have been taken out on Iboga, but the author could not find any evidence of benefit sharing related to Iboga.

THANKS