

Impact of the Convention on  
Biological Diversity: The  
Lessons of Twenty Years of  
Natural Products Research

James S. Miller

Missouri Botanical Garden

# The William L. Brown Center for Plant Genetic Resources

Dedicated to the study of useful plants,  
understanding the relationships between  
humans, plants, and their environment, and the  
conservation of plant species and preservation  
of traditional knowledge for the benefit of  
future generations

# Discovery Programs at the Missouri Botanical Garden

- Programs with Government, Corporate, and Academic Partners
- More than 50,000 samples collected since 1986



# Missouri Botanical Garden Medicinal Plant Projects Include:

- Natural Products Discovery
- Taxonomy of Medicinal Plants
- Useful Plant Database
- Conservation of Useful Plants

# Discovery Programs Include:

- Developmental Therapeutics, National Cancer Institute
- International Cooperative Biodiversity Groups
- Sequoia Sciences
- National Center for Natural Products Research



# Legal and Ethical Framework for Bioprospecting

- Compliance with Convention on Biological Diversity
- Prior Informed Consent from Source Countries
- Appropriate means to share benefits derived from access to genetic resources



# Objectives of the Convention on Biological Diversity

- Conservation of Biological Diversity
- Sustainable Use of its Components
- Fair and Equitable Sharing of Benefits

- Has the CBD helped achieve more equitable distribution of benefits?
- What has been the impact of the CBD on international botanical research?

- Has the CBD helped achieve more equitable distribution of benefits?

# Benefits from Bioprospecting Programs

- Public Benefits
- Short-term Benefits
- Long-term Benefits

# Public Benefits from Bioprospecting

- Positive Impact on Human Health
- Contributes to Biological Research Efforts
- Promotes Conservation
- Raises Awareness of Economic Value of Biodiversity

# Long-term Benefits from Bioprospecting

- Royalties
- Milestone Payments
- Cultivation and Supply of Plant Material
- Access to Developed Technology

# Short-term Benefits from Bioprospecting

- Shared Research Opportunities
- Exchange and Repatriation of Biological Data
- Training
- Institutional Capacity Improvement
- Technology Transfer

# The NCI Developmental Therapeutics Program

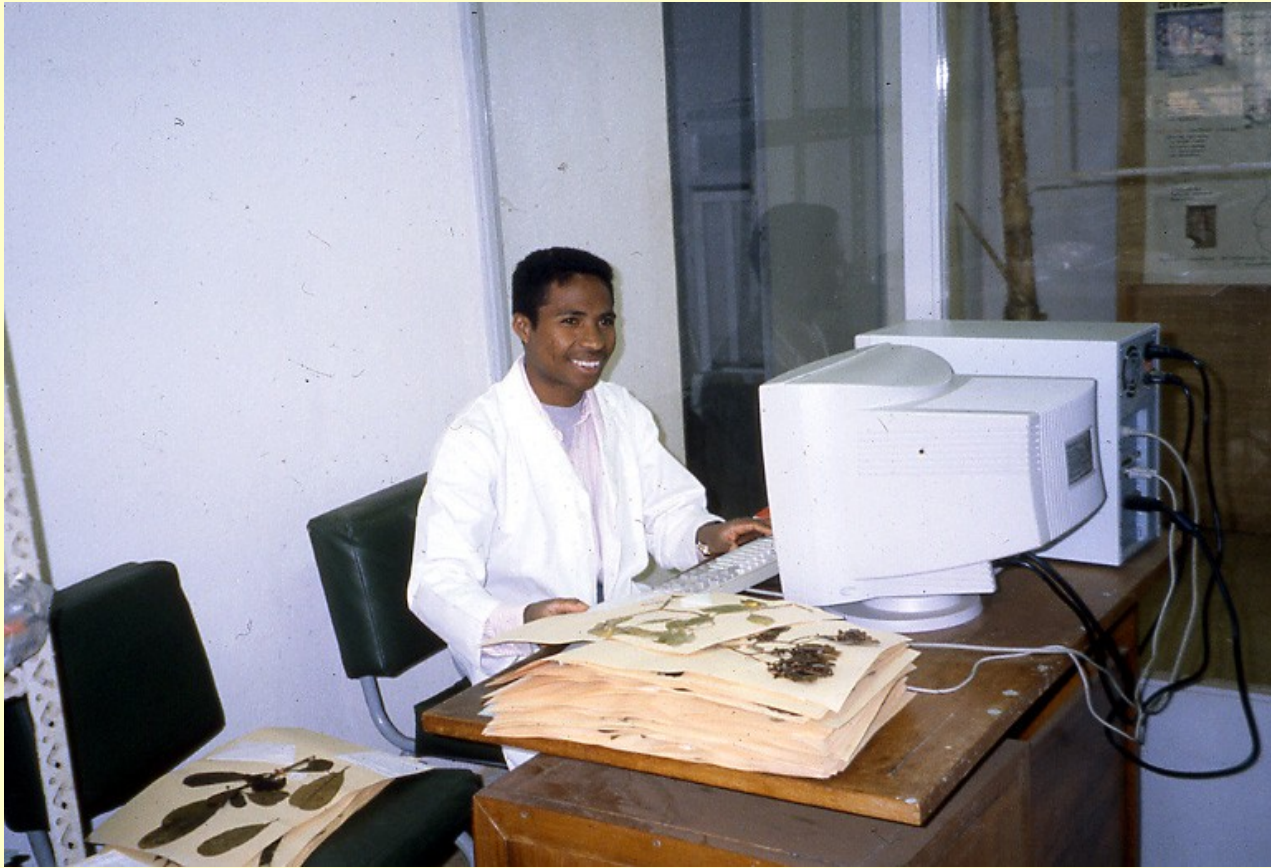
- Collections from contracts
- Extensive screening of plants from around the world
- Benefit sharing defined by Letter of Collection



# Shared Research Opportunities



# Exchange of Biological Data



# Training in Research Methods



# Institutional Capacity Improvement



# What has been the impact of the CBD on international botanical research?



# CBD influence has lead to:

- More significant roles for source country researchers
  - Greater contributions to source country institutions
  - Improved repatriation of data
- = More equitable and more positive collaborative relationships

# Obtaining Prior Informed Consent for Research is Now More Complicated



# Prior Informed Consent: Madagascar ICBG

## Government Approval:

- Ministry of Foreign Affairs – Accord de Siege
- CORE – Project Approval

## Permission to Collect:

- Protect Areas – ANGAP
- Non- Protected Government Lands- DEF
- Private Lands – Land Holders
- Traditional Knowledge – Indigenous Groups

# Conclusions

- Bioprospecting has been more successful at delivering short-term benefits – they deserve more focus in discussions and negotiations
- The CBD has been very successful at promoting elements of equitable collaboration
- Source countries need to work to define more transparent consent procedures

# Opportunities For New Natural Products

- Discovery of New Pharmaceuticals
- Validation of Traditional Medicinal Plants
- Changes in the Distinction between Nutrition and Medicine
- Optimization of the Characteristics of Traditional Food Plants