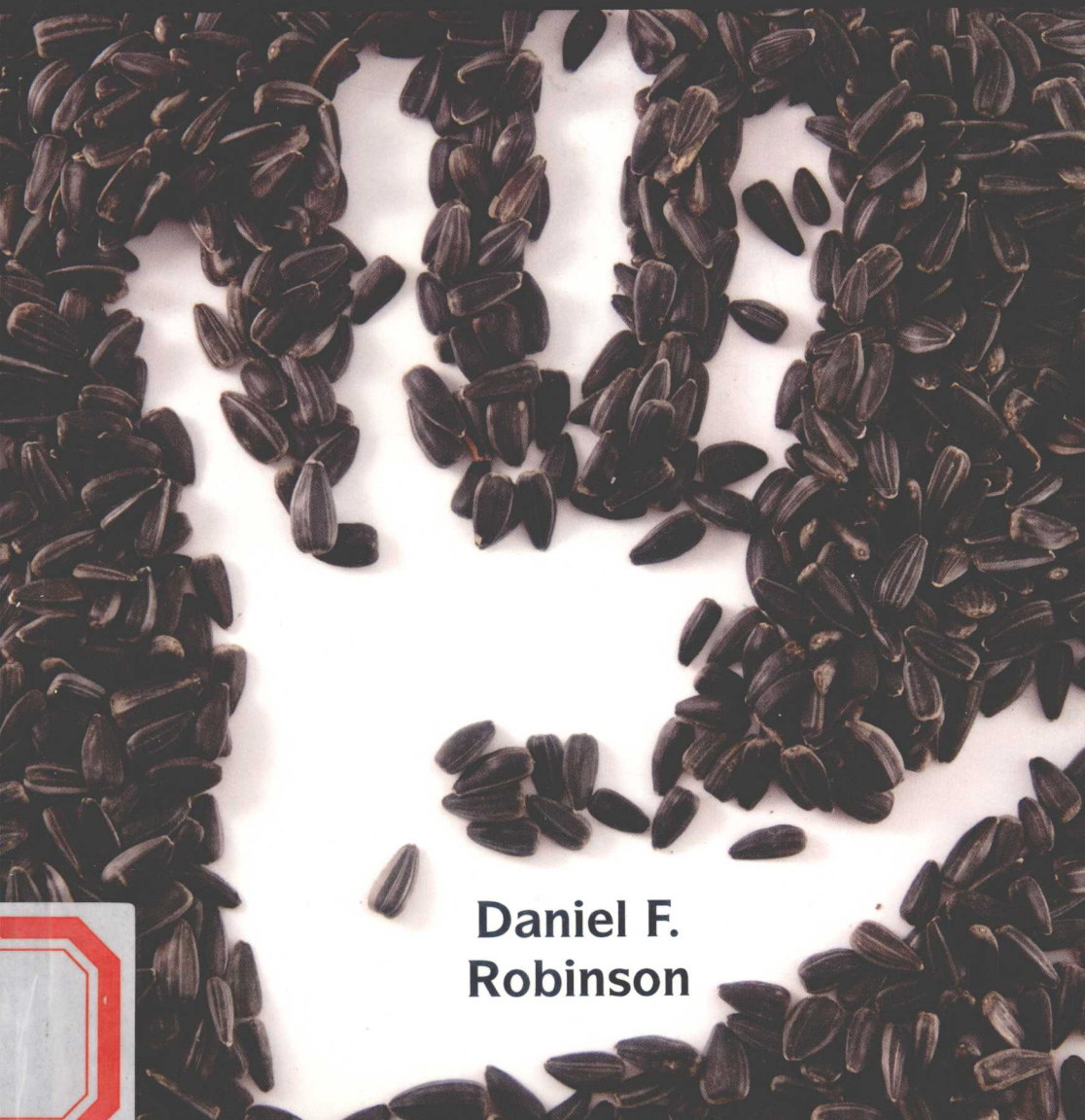


Confronting Biopiracy

Challenges, Cases and International Debates



**Daniel F.
Robinson**



30807770

Confronting Biopiracy

Challenges, Cases and International Debates

Daniel F. Robinson



earthscan

publishing for a sustainable future

London • New York

First published 2010 by Earthscan

First published in paperback 2012

by Earthscan

2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

Simultaneously published in the USA and Canada

by Earthscan

711 Third Avenue, New York, NY 10017

Earthscan is an imprint of the Taylor & Francis Group, an informa business

© 2010, 2012 Dr Daniel F. Robinson

The right of Dr Daniel F. Robinson to be identified as the author of this work has been asserted by him in accordance with sections 77 and 78 of the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Robinson, Daniel F.

Confronting biopiracy : challenges, cases and international debates / Daniel F. Robinson.

p. cm.

Includes bibliographical references and index.

1. Biopiracy. 2. Biotechnology—Patents. 3. Traditional ecological knowledge—Law and legislation. I. Title.

K1519.B54R63 2010

346.04'86—dc22

2009032844

ISBN: 978-1-844-07722-9 (hbk)

ISBN: 978-1-849-71432-7 (pbk)

ISBN: 978-1-849-77471-0 (ebk)

Typeset in Sabon Roman

by JS Typsetting Ltd, Porthcawl, Mid Glamorgan



Printed and bound in Great Britain by
CPI Antony Rowe, Chippenham, Wiltshire

Acknowledgements

I would like to thank Prof. Philip Hirsch for helping me get this book off the ground, as well as Dr Jakkrit Kuanpoth, Prof. Graham Dutfield and an anonymous reviewer for their comments on draft chapters and their invaluable advice. Thank you to Prof. Saneh Chamarik, Buntoon Srethasirote, Pii Sa and M from the National Human Rights Commission of Thailand for all their assistance with my research. I thank Ae (Aphatsorn Somboonwattanakun) for making much of my fieldwork possible. I owe both Kylie Bailin and Melissa Sinclair from the University of New South Wales (UNSW) many thanks for their research assistance. Thanks to Chris Patterson from the Traditional Knowledge Revival Project for an inspiring trip to Cape York. I also thank David Vivas-Eugui from the International Centre for Trade and Sustainable Development for helping me contact lots of useful people. A number of individuals have provided useful information towards the case studies for which I am very grateful, including: Begoña Venero (World Intellectual Property Organization), Andres Valladolid (El Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual), Noel Oettle (Environmental Monitoring Group), Tim Roberts, and Tony Taubman (World Trade Organization, formerly World Intellectual Property Organization). Thanks also to the staff and students at the Institute of Environmental Studies, UNSW, for their encouraging comments on a presentation made while finalizing this book. Lastly, I want to thank my beautiful wife Rachel for her love and patience.

Abbreviations and Acronyms

ABS	access and benefit-sharing
ARIPO	African Regional Intellectual Property Organization
ASEAN	Association of South-East Asian Nations
BIT	bilateral investment treaty
BMC	Biodiversity Management Committee, India
Bonn Guidelines	Bonn Guidelines on Access to Genetic Resources and Fair and Equitable Sharing of the Benefits Arising out of their Utilization
CBD	United Nations Convention on Biological Diversity
CIAT	International Center for Tropical Agriculture
CGIAR	Consultative Group on International Agricultural Research
CIEL	Centre for International Environmental Law
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COICA	Coordinating Body of Indigenous Organizations of the Amazon Basin
CONAP	Confederación de Nacionalidades Amazónicas del Perú
CSIRO	Australian Commonwealth Scientific and Research Organization
DIP	Department of Intellectual Property, Thailand
disclosure requirement	A proposed patent requirement that applicants disclose the source and/or country/place of origin or legal provenance of genetic resources used in an invention
DUS	distinctness, uniformity and stability (of plant varieties)
EC/EU	European Communities/European Union
EMG	Environmental Monitoring Group, Southern Africa
EPA	economic partnership agreement
EPO	European Patent Office
ETC Group	Action Group on Erosion, Technology and Concentration

FAO	Food and Agriculture Organization
FDA	US Food and Drug Administration
FTA	free trade agreement
GATT	General Agreements on Tariffs and Trade
GI	geographical indication
GM	genetically modified
GRAIN	Genetic Resources Action International
GRIN	Genetic Resources Information Network, US Department of Agriculture
GRRF	Genetic Resources Recognition Fund
GURT _s	genetic-use restriction technologies
HSCA	Heritage Seed Curators Australia
IARC	International Agricultural Research Centre
IBIS	Indian Biodiversity Information System
ICARDA	International Centre for Agricultural Research in the Dry Areas
ICBG	International Cooperative Biodiversity Groups Programs
ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
ICSIR	Indian Council for Scientific and Industrial Research
ICTSD	International Centre for Trade and Sustainable Development, Geneva
IGC	World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore
ILO	International Labour Office
IP	intellectual property
IPC	International Patent Classification
IPR	intellectual property right
IRRI	International Rice Research Institute
ITPGRFA	International Treaty on Plant Genetic Resources for Food and Agriculture
IUCN	International Union for the Conservation of Nature
IUPGR	International Undertaking on Plant Genetic Resources
JPO	Japanese Patent Office
MTA	material transfer agreement
NGO	non-governmental organization
OAU	Organization for African Unity (now African Union)
OCCAAM	Organización Central de Comunidades Aguarunas del Alto Marañón
PBR	plant-breeder rights
PCT	Patent Cooperation Treaty of the World Intellectual Property Organization
PeBR	People's Biodiversity Registers
PIC	prior informed consent
PVP	plant-variety protection
PVPFR	Plant-Variety Protection and Farmers' Rights Act, India
RAFI	Rural Advancement Foundation International

R&D	research and development
SACSIR	South African Council for Scientific and Industrial Research
TK	traditional knowledge
TKDL	Traditional Knowledge Digital Library
TRIPS	World Trade Organization Agreement on Trade-Related Aspects of Intellectual Property Rights
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UPOV	International Union for the Protection of New Varieties of Plants
USDA	US Department of Agriculture
USPTO	US Patent and Trademark Office
WG-ABS	Ad Hoc Open-Ended Working Group on Access and Benefit-sharing, United Nations Convention on Biological Diversity
WHO	World Health Organization
WIMSA	Working Group on Indigenous Minorities in Southern Africa
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

Introduction

This book has been written to address a lack of direct engagement with the issue of biopiracy by researchers, academics and policy-makers. Biopiracy has largely been a term utilized by activists and some specific non-governmental organizations (NGOs) until recently. While a considerable amount of literature has emerged dealing with the protection of indigenous or traditional knowledge, the success or failure of bioprospecting ventures and related areas, there has been a tendency to side-step the issue of biopiracy or to avoid using the term. Despite the frequent international negotiations on issues relating to intellectual property, biological resources, traditional knowledge and folklore, there has been hesitancy among these international negotiators regarding the overt use of biopiracy to describe specific cases of unfair or spurious intellectual property claims over biological resources and traditional knowledge.

This is a result of the lack of an appropriate definition of biopiracy, concerning which international organizations like the Secretariat of the United Nations Convention on Biological Diversity (CBD), the World Intellectual Property Organization (WIPO) and the World Trade Organization (WTO) have not been forthcoming. This is probably a deliberate avoidance of the direct recognition of the polemical and often emotionally charged nature of incidents claimed as biopiracy. These organizations have instead tended to deal with the issues indirectly, thereby avoiding possible conflicts between their mandates – particularly between the international laws administered by the CBD Secretariat and the WTO.

The title of this book is *Confronting Biopiracy* precisely because it directly acknowledges and addresses the main issues and implications of biopiracy. This text gives a detailed historical context, the background to the use of the term 'biopiracy', and a description of the international legal framework, followed by a case-study based approach. A typology or definition of biopiracy is provided that draws upon some previous descriptions of biopiracy, the biopiracy cases discussed and the international debates surrounding the issue. Several cases of biopiracy are analysed and critiqued including both patent-based and non-patent biopiracy incidents. The implications and impacts of these cases are then described before making suggestions for ways of resolving these problems at different scales and in different contexts. As a result, it is hoped that this will encourage a more direct acknowledgement and engagement with the issue.

Research Insights

Key research insights for this book were drawn from the author's PhD and postdoctoral research; working as a reporter on WTO trade negotiations in a Geneva-based organization (the International Centre for Trade and Sustainable Development – ICTSD); acting as a consultant to international organizations; fieldwork in Asia (particularly in Thailand); and working as a policy advisor to national governments and regional organizations between 2004 and 2009.

Much of the research involved the use of qualitative methods including interviewing and the direct observation of stakeholders. Twelve officials and country delegates to the WTO, WIPO and other UN organizations were interviewed in 2005 and 2006 in Geneva, Switzerland. Following this, a steady stream of interviews and discussions with these and other delegates and officials have informed the research. In Geneva the author helped coordinate high-level meetings for ICTSD, bringing together WTO and UN delegates, and NGO stakeholders on a number of intellectual property (IP) issues including copyright and education, biodiversity and traditional knowledge, and access to medicines. Further insights were drawn from ongoing WTO reporting, research and consulting for ICTSD in conjunction with the United Nations Conference on Trade and Development (UNCTAD) between 2005 and 2007, and as a consultant advisor on intellectual property, biodiversity and traditional knowledge to the United Nations Development Programme (UNDP) in 2008 and the Pacific Islands Forum Secretariat in 2007.

From 2005 to 2007 more than 60 interviews were conducted with relevant government officials, academics, industry representatives, farmers, indigenous communities and NGOs in Asia (particularly Thailand and India), as well as subsequent interviews and discussions with government officials and NGOs from Africa, the Pacific and South America. Additionally, a number of local community case studies in Thailand have been influential for understanding some of the complex and spiritually informed customary norms and rules associated with the use of plants and other biological resources.

It is important to note that some of the interviewees can only be cited anonymously here and at many of the 'roundtable' meetings attended comments from various officials had to remain confidential. Instead, where relevant, observations of the conduct of meetings are made in such a way as to protect the anonymity of participants – unfortunately without direct quotation. Indeed, this highlights a key issue: the negotiation politics of 'trade-related' intellectual property are often deliberately designed to lack transparency and to be publicly inaccessible, despite the significant social, economic and environmental impacts they may have, either directly or indirectly.

Structure of the Book

This book should be accessible to most people who are interested in the issues as it attempts to avoid an overuse of jargon, which can inhibit clear understandings of what is at stake. In this respect it is hoped that it will be of

benefit to a range of stakeholders and interested parties including university students, indigenous and local communities, NGOs, researchers, academics, industry, plant breeders and agriculturalists, as well as decision-makers at various levels of government.

Chapter 1 provides some historical discussion of the collection of plants, biological resources and the use of the associated traditional knowledge of indigenous or local communities. This chapter contextualizes modern bioprospecting as having emerged amid new technological, economic and legal frameworks from an era of colonial collections and abuses. While some observers have implied that bioprospecting can provide a 'win-win' situation for scientific research and development, conservation and for indigenous or local communities, others have been far more sceptical. Consequently, the term 'biopiracy' was developed in dissatisfaction with the current frameworks surrounding biodiversity and particularly relating to the expansion of exclusive individual rights under intellectual property agreements.

Chapter 2 then provides an overview of the international legal framework that has been established in the past few decades. This framework has internationalized the system of intellectual property rights. Many would argue that this has contributed to biopiracy, but there are a number of international agreements and forums that have provided some opportunities to acknowledge issues surrounding the exploitation of biological resources and traditional knowledge, and hopefully to resolve them. This discussion is furthered in Chapter 6.

Chapter 3 analyses a number of specific cases of patent-related biopiracy that have proved highly controversial and have received considerable attention from NGOs and the media. In addition, some lesser known and more recent cases are examined to identify why each specific case came about, the stakeholders involved and the legal and territorial issues they raised, in order to then explore how the resolution of biopiracy cases might be found. Common themes are identified among the cases and the key issues are highlighted with regards to the patent system.

Chapter 4 continues to explore biopiracy cases, but focuses on 'non-patent biopiracy'. Cases are discussed which involve spurious claims of plant-variety protection where there is little evidence of breeding or where the specific characteristics and traits of a plant variety have likely been developed beforehand by farmers and breeders in developing countries. Next, the chapter looks at trademarks that have been sought and obtained for generic plant names which may be deceptive to consumers about the origins and qualities of the plant-related product. Finally, the chapter discusses a number of misappropriation cases, whereby researchers have obtained biological resources without appropriate prior informed consent and/or without providing benefits back to the original provider countries or local communities.

Chapter 5 draws out the main implications of both patent-based and non-patent biopiracy, with reference to the case studies. The chapter highlights: the possibilities of producers being excluded from the further sale or export of specific products; inequities whereby local communities, researchers, companies

or government bodies are left out of the commercial development process of products; where biopiracy causes cultural affront; overexploitation of a biological resource; and the breakdown of research relationships and trust.

Chapter 6 returns to the international legal framework described in Chapter 2, discussing the main international and regional debates and initiatives that may be able to address biopiracy. Because biopiracy concerns are generally raised as a result of international transfers of biological resources and the use of associated traditional knowledge, it is important to deal with it at this scale. The discussion analyses the potential of various agreements, model laws and negotiations as well as their limitations.

Finally, Chapter 7 provides an analysis of some national and local laws and initiatives that attempt to mitigate the effects of biopiracy or that may impact upon the protection of biological resources and traditional knowledge. This includes discussion of specific laws on biodiversity, *sui generis* (i.e. unique) plant-variety protection laws, community rights laws, databases and registers, local initiatives to document and recognize customary laws relating to traditional knowledge and the role of non-government stakeholders.

Contents

<i>List of Boxes and Figures</i>	<i>viii</i>
<i>Acknowledgements</i>	<i>ix</i>
<i>Abbreviations and Acronyms</i>	<i>x</i>
<i>Introduction</i>	<i>xiii</i>
<i>Research Insights</i>	<i>xiv</i>
<i>Structure of the Book</i>	<i>xiv</i>
1 Collecting – Prospecting – Piracy	1
Plant Hunting, Collecting and Trade	3
Ethnobotany	6
Intended or Unintended Impact?	7
Bioprospecting	11
Biopiracy	14
Definitions and Ambiguity	17
2 International Legal Backdrop	23
The Convention on Biological Diversity	26
The WTO Agreement on Trade-Related Aspects of Intellectual Property Rights	28
Patents, Plant-Variety Protection or <i>Sui Generis</i> Systems	29
The Expanded Review of Article 27.3(b)	30
The World Intellectual Property Organization	31
The Intergovernmental Committee on Intellectual Property and Genetic Resources, Traditional Knowledge and Folklore	33
The International Convention for the Protection of New Varieties of Plants	34
The International Treaty on Plant Genetic Resources for Food and Agriculture	35
Human Rights and Traditional Knowledge	39
Bilateral and Regional Trends	40
Following Current Developments – Research Sources	42
3 Patent-Related Biopiracy Cases	45
Basmati Rice	47
Hawai’ian Taro	49

Yellow Enola Beans	51
Camu Camu Patents	53
Kwao Krua	55
Local Patents on Kwao Krua	55
Foreign Patents on Kwao Krua	57
<i>Artemisia judaica</i>	59
Hoodia	61
Japanese Patents on Plao Noi	63
Blight-Resistant Rice	66
Peruvian Maca	67
Ayahuasca	68
Other Reported Biopiracy Cases and Controversies	70
Are More Cases Likely?	73
4 Non-Patent Biopiracy Cases	77
Plant-Variety Protection as Biopiracy	78
‘Plant-Breeders’ Wrongs’ in Australia	79
Peanuts from Malawi	81
Habanero Pepper	82
Other Cases of Dubious Plant-Breeder Rights	84
Trademarks as Biopiracy?	85
The ‘Jasmati’ Trademark	87
Rooibos Tea	89
Açaí and Other Brazilian Cases	91
Misappropriations of Biological Resources and Traditional Knowledge	92
The Biotec/University of Portsmouth Marine Fungi Case	93
Stepwise Program for the Improvement of Jasmine Rice for the US	95
The Blurry Line between Bioprospecting and Misappropriation – An Example from Chiang Mai	97
5 Implications and Ethical Dilemmas – What have the Cases Shown?	101
Exclusion from Further Sale or Export	102
Inequities	105
Cultural Affront	108
Overexploitation of a Biological Resource	112
Breakdown of Research Relationships and Trust	114
6 Current Debates and Ways Forward: Internationally and Regionally	117
‘No Life Patents!’	118
Amendments to the Patent System	119
Controlling Access and Transfer of Biological Resources and/or Traditional Knowledge	124
Other Intellectual Property Opportunities	127
Indigenous Rights and Traditional Knowledge	129
Traditional Knowledge, Customary Protocols and Laws	130

Summary – International Governance	133
Regional Initiatives on Biological Resources and Traditional Knowledge	134
ASEAN Framework Agreement on Access and Benefit-sharing	134
African Model Law	135
Regional Biodiversity Strategy for the Tropical Andean Countries	138
Pacific Model Laws	139
7 Current Debates and Ways Forward: National and Local Approaches	141
Peru's National Anti-Biopiracy Commission	142
Biodiversity Laws and Regulations	143
Non-UPOV <i>Sui Generis</i> Plant-Variety Protection Laws	144
<i>Sui Generis</i> Traditional Knowledge and Community Rights Laws	149
Databases and Registers	151
Traditional Knowledge and Customary Laws: Local Contexts	153
The Role of Non-Government Interest Groups and Stakeholders	154
Conclusions	157
Bibliography and Sources	161
<i>Index</i>	179

List of Boxes and Figures

Boxes

1.1	Selected Bioprospecting Cases	13
1.2	Typologies and Categories of Biopiracy	21
2.1	Review of the Potential Impacts of the ITPGRFA for Thailand	38
2.2	Official and Government Information Sources	43
2.3	Non-Government News Sources and Analysis	43
3.1	Other Reported Biopiracy Cases	71
4.1	Australian 'Plant-Breeders' Wrongs'	80
4.2	Article 15.1 of the TRIPS Agreement – Protectable Subject Matter of Trademarks	85
7.1	National Systems for Regulation of Biological Resources and Associated Traditional Knowledge	145
7.2	Key Customary Law Principles from the La Papa Park in the Cuzco Region, Peru	154

Figures

1.1	A collection of more than 65 seeds and herbs on display to demonstrate the breadth of Khon Pga k'nyau (Karen) local knowledge of plant-based medicines and foods	8
3.1	The white kwao krua (<i>Pueraria mirifica</i>) vine. This is a slow-growing plant found mostly in forest areas in the north and northeast regions of Thailand	56
4.1	Plant breeder Daycha Siripat demonstrates the selection of seeds for replanting in the following season resulting in genetic improvements. The rice grain – Suphan Buri 60 – shares a similar history of breeding and development to khao hom mali (jasmine rice) and is now considered a 'modern' variety	96
5.1	Knowledge domains and knowledge flows under informal and formal regulatory regimes	110
5.2	Four different customary practices of the Khon Pga k'nyau (Karen) including customs relating to plants	111

1

Collecting – Prospecting – Piracy

Concerns about the collection or prospecting of plants and biological materials have recently received unprecedented international attention. This has largely centred on the concentration of intellectual property control over biological resources in the hands of large biotechnological and pharmaceutical corporations. New international agreements establishing legal and institutional arrangements for the intellectual property protection of these resources are increasingly leading to their privatization. Furthermore, biotechnological advances have meant that biological resources can now be manipulated through recombinant DNA technology, or genetic engineering, creating a new and often controversial realm of bio-innovations. These changes have led to a variety of concerns about the appropriation of biological resources and associated knowledge, particularly from the most biodiverse developing countries and from farmers, indigenous peoples and local communities. In turn, these trends raise considerable ethical, economic, cultural and political questions about the ownership and stewardship of biological resources and also about the increasing commoditization of knowledge as ‘innovations’ from the ‘public domain’ or from local customary domains.

These questions are explored in detail in the following chapters. Here it is noted that these recent changes should be seen as a dramatic heightening of past appropriations and colonializations that were often controversial and political for various – but often related – reasons, which come back to core questions about the ownership of nature and knowledge.

The hunting and collecting of plants, seeds and natural curiosities from many of the world’s regions and populations have been enduring activities. These collections have been made for direct use as food or medicine, but also for economic and scientific gains. Throughout recent centuries, there are many recorded activities and explorations of foreign objects from nature, particularly by the major colonial powers, but interest in collecting plants may even go back far further. As Fowler (2002) notes, Queen Hatshepsut, one of the first female pharaohs of Ancient Egypt, sent her army on a plant-collecting expedition to East Africa around 1482 BC. The queen sought out frankincense from the gum of a tree now known as *Boswellia*. Thirty-one of the trees were successfully

collected, transported and established in her temple gardens at Karnak where an official record was carved on the walls to mark the success of the expedition (Tyler-Whittle, 1970, p16; Juma, 1989, p38).

Others became famous for studying the local knowledge of plants. Dioscorides, a Greek surgeon who explored the botany of the Mediterranean at the behest of the Roman Emperor Nero, may have been the first 'ethnobotanist'. He wrote the *De Materia Medica* in AD 77 with detailed descriptions of the botany and medicinal uses of some 600 plants and spices, noting their therapeutic benefits, recipes and formulae. This work was so influential that it was studied by botanists for another thousand years (Davis, 1995, p41).

New sources of food were also sought out by explorers, traders and agriculturalists. Since the domestication of agriculture some 10,000 years ago, crops have been developed, traded and adapted locally, regionally and internationally, such that their specific geographic origins are often difficult to determine. The countries of the world today thus have a historically interdependent reliance on agricultural crops (Murphy, 2007, pp9–10; Kloppenberg, 1988). For example, common or bread wheat (*Triticum aestivum*) was domesticated from wild einkorn (*T. boeoticum*) in southeastern Turkey or the southwestern Caucasus and spread to Egypt, India, China and Europe (Aitken, 2006, p8). Beyond crop staples were vegetables, fruits, nuts, spices, herbs, plant-based beverages, plant-based medicines, stimulants and narcotics, and also fibres such as cotton, which became increasingly widely used and traded as processing techniques were developed.

Ancient overland spice routes and coastal transport were increasingly supplemented by the colonial period's expansion of shipping with the improvement of ocean-going sailing vessels. As an early example, the Venetian merchant-explorer Marco Polo provides some interesting and detailed descriptions (and also some obvious fictions) of his travels throughout Asia in the 1300s. Within his descriptions of *The Customs of the Kingdoms of India* he regularly describes the trade in plant and animal-based goods and curiosities:

We shall tell you next of the great kingdom of Malabar [south-western India] ... there is a great abundance of pepper and also of ginger, besides cinnamon in plenty and other spices, turbit and coconuts. (Latham, 2007, pp55–6)

He not only describes the trade in plants, but also various local customs and practices for the use of plants:

There is also plenty of good indigo, which is produced from a herb: they take this herb without the roots and put it in a big tub and add water and leave it till the herb is all rotted. Then they leave it in the sun, which is very hot and makes it evaporate and coagulate into a paste. Then it is chopped up into small pieces, as you have seen it. (Latham, 2007, p52)