

Putting Herbal Medicines into Practice

Royal Botanic Gardens, Kew



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Medicinal plant research at Kew



A big thanks to- the Sustainable Uses of Plants Group, taxonomists, horticultural staff plus lawyers

Plus all our collaborators and funders

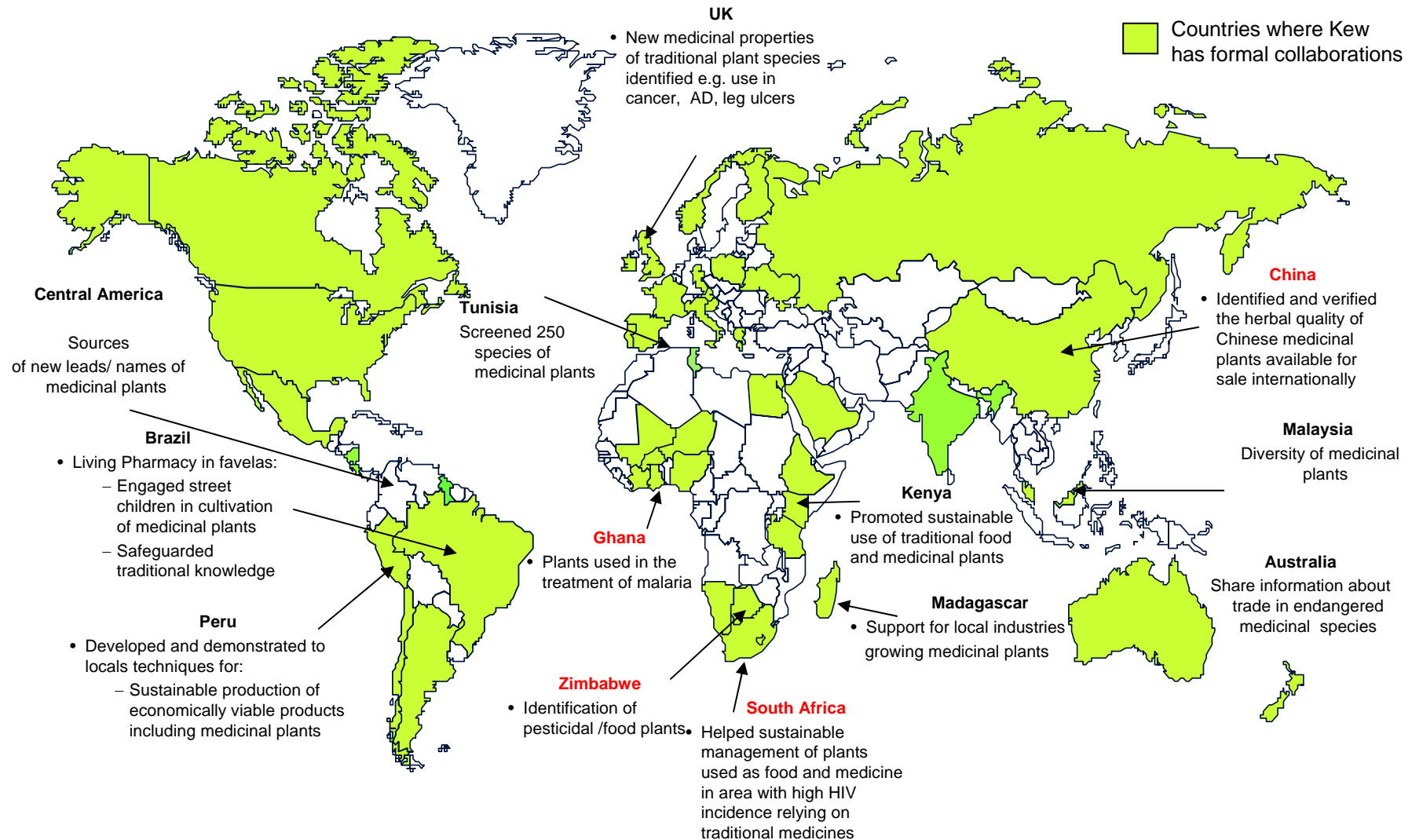


Medicinal plant research

- Traditional knowledge *
- Evaluation of activity *
- Active compounds
- Drug discovery (often based on ecology of plants)
- Authentication of plants used as medicines
- Sustainable supply of medicinal plants*
- Conservation of medicinal plants*
- Names of medicinal plants*

Medicinal Research Projects across the globe

Kew has collaborations in >100 countries and works with >800 organisations



Africulture Centre

Grahamstown, South Africa

- 80% of local communities rely on plants as main source of medicines

Aim: promote sustainable management of botanical resources for food and medicine to support the well being of local communities

- Umthathi: local NGO
- Garden Africa: UK NGO







U M T H A T H I

a f r i c u l t u r e

Tel 046 622 4450 info@umthathi.co.za

Umthathi Africulture Centre



Department of Agriculture, Forestry and Fisheries
SOUTH AFRICA

Kew

Garden @frica



DARWIN
INITIATIVE









Kew and research into anti-malarial plants

1985 onwards

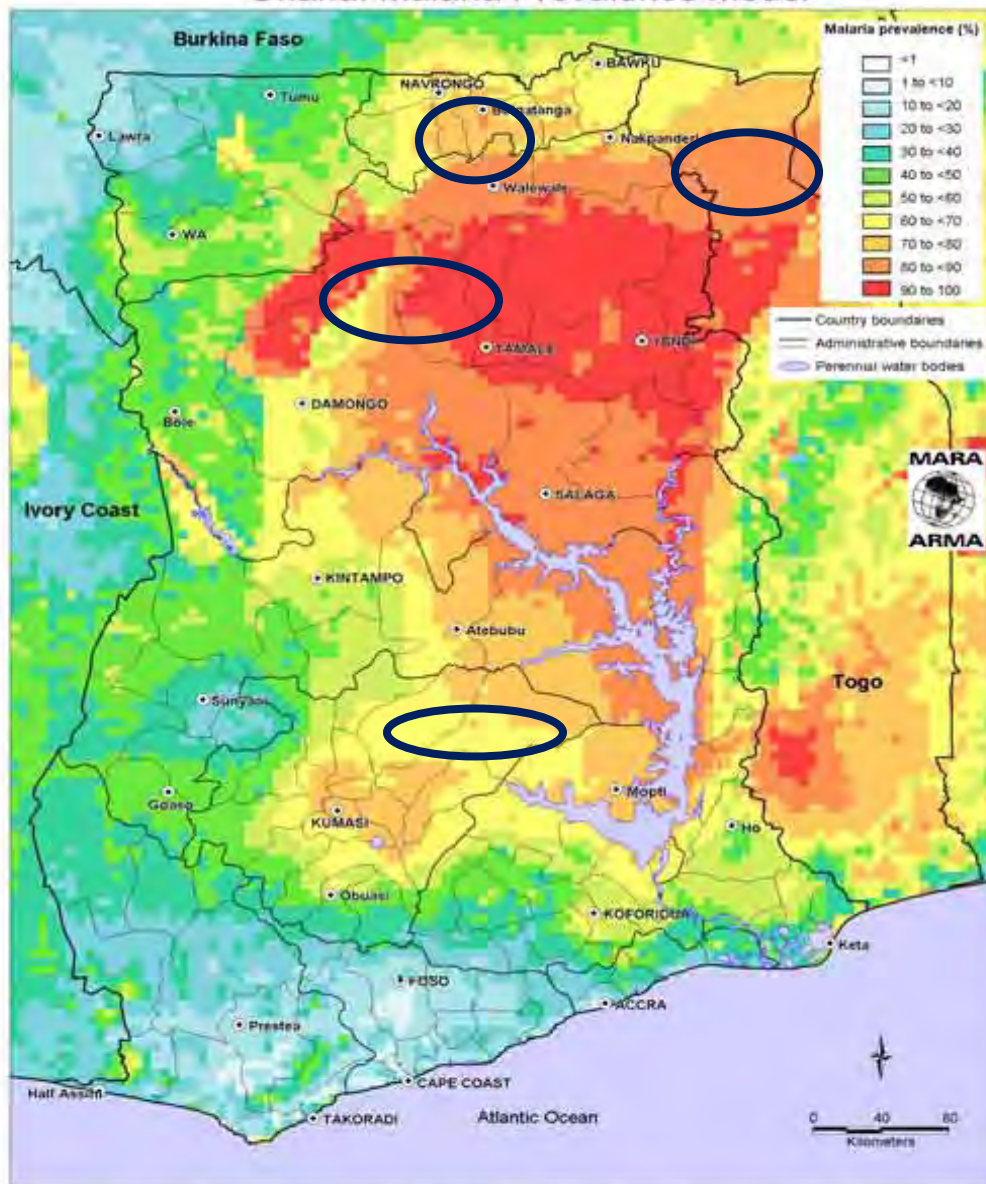
Over 3,000 species of plants evaluated as having
anti-fever (use for the treatment of malaria)



Ghana

- Population 24 million
- 100% in risk areas
- 3.1-3.5million cases/year
- 1:13 children under 5 die (2008)

Ghana: Malaria Prevalence Model



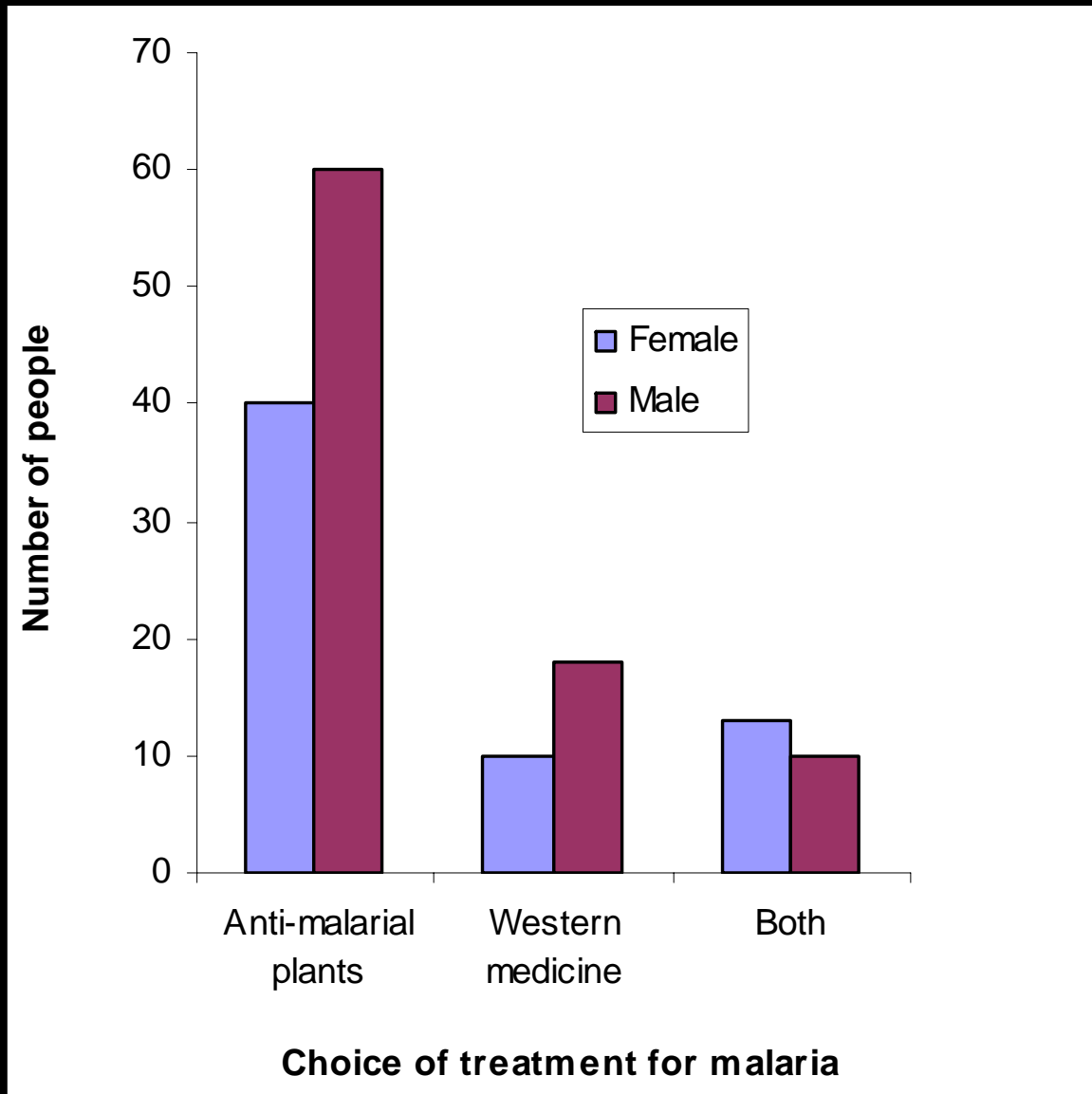
This map is a product of the MARA/ARMA collaboration (<http://www.mara.org.za>). March 2002, Medical Research Council, PO Box 17120, Congella, 4015, Durban, South Africa
 CORE FUNDERS of MARA/ARMA: International Development Research Centre, Canada (IDRC); The Wellcome Trust UK; South African Medical Research Council (MRC); Swiss Tropical Institute, Multilateral Initiative on Malaria (MIU) / Special Programme for Research & Training in Tropical Diseases (TDR); Roll Back Malaria (RBM); Malaria Prevalence Model - Kleinschmidt et al. 2001. An empirical malaria distribution map for West Africa. Tropical Medicine and International Health 6: 774-786.
 Topographical data: African Data Sampler, WRI, http://www.igc.org/inf/inf/maps/afri/afri_01

Ghana four sites 2001-2010

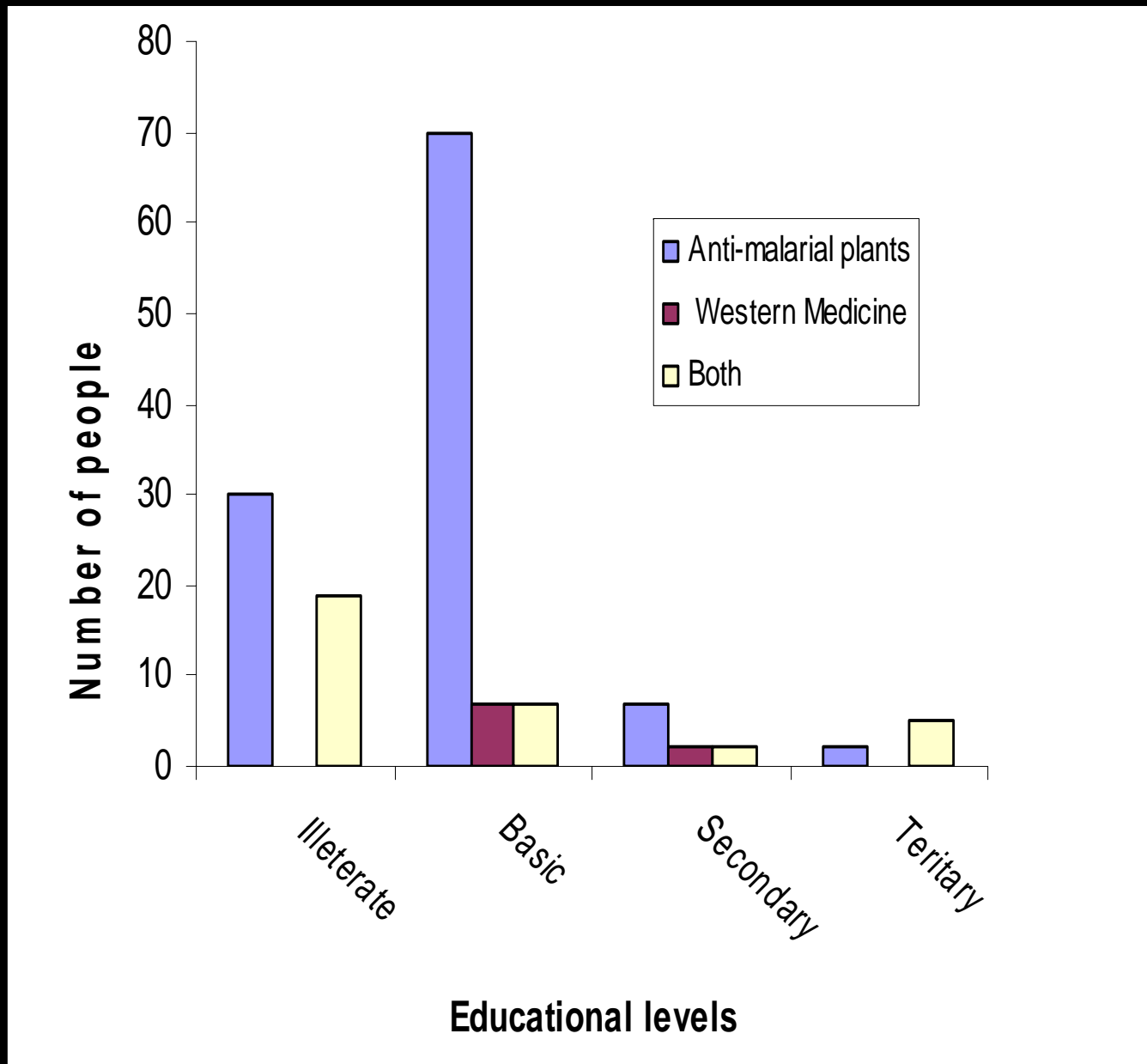
- Interviewed over 550 people
- Group – single interviews
- With /without plants
- Male- male / male- female /female- female



Local architecture of the Brifo people living in the Wechiau Community
Hippopotamus Sanctuary in northern Ghana



Choice of treatment



educational levels and choice of treatment

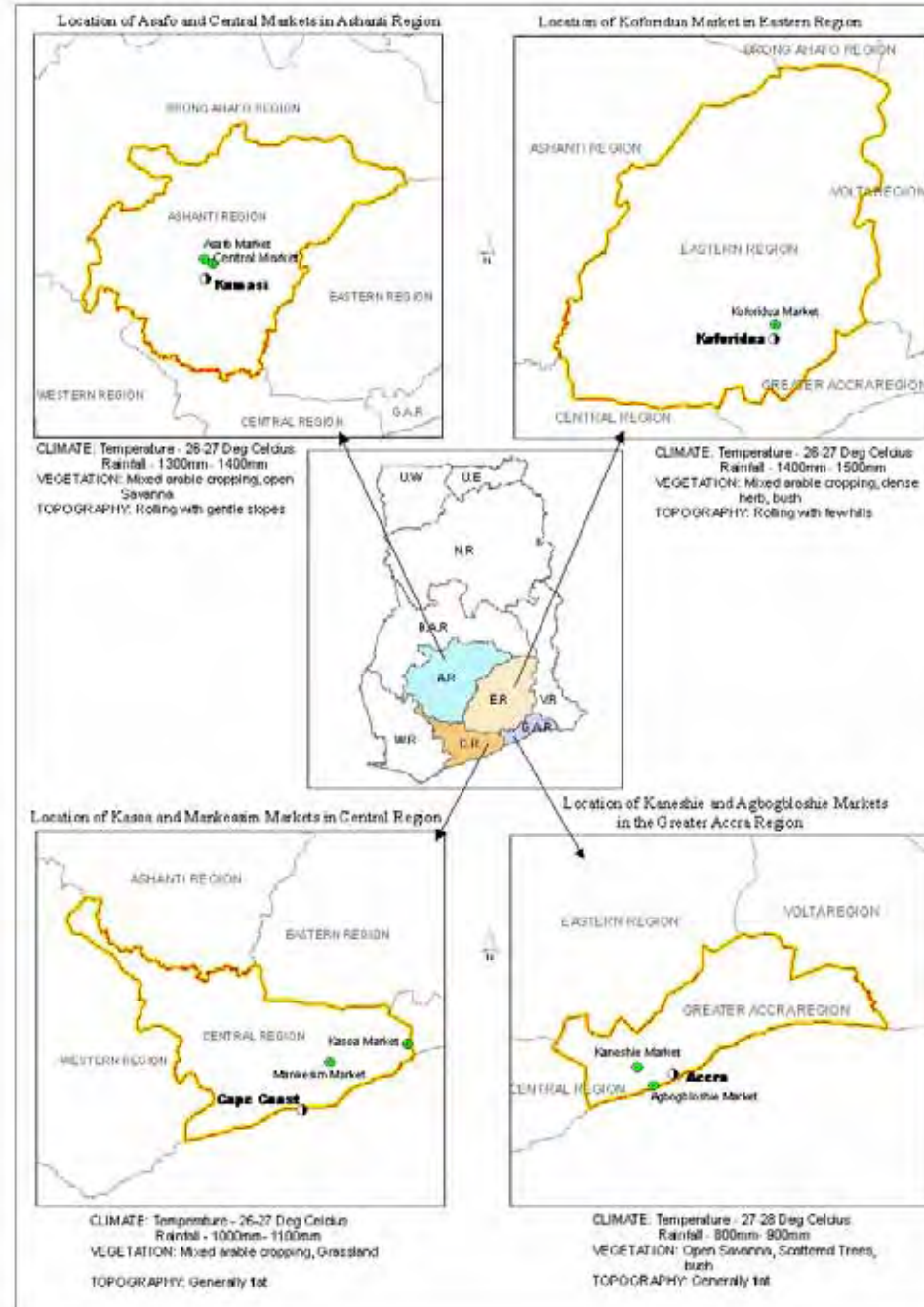


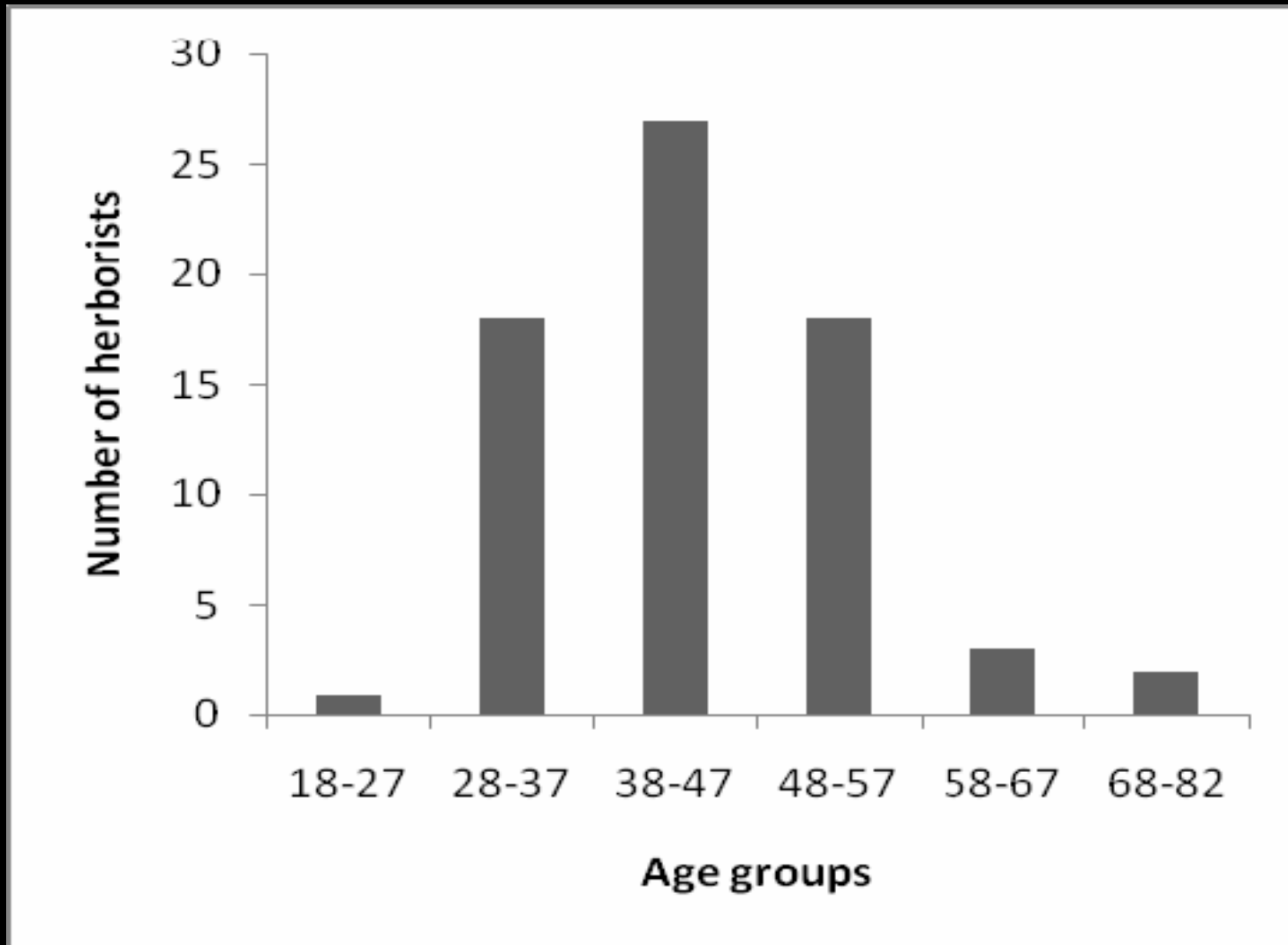
Alstonia boonei

Apocynaceae

“boil the dried
leaves and drink a
cup of decoction
three times a day”

Location of herbal markets surveyed in southern Ghana.





Age-group distribution of the herborists interviewed



Azadirachta indica

Neem tree

Meliaceae



Plectranthus Sp



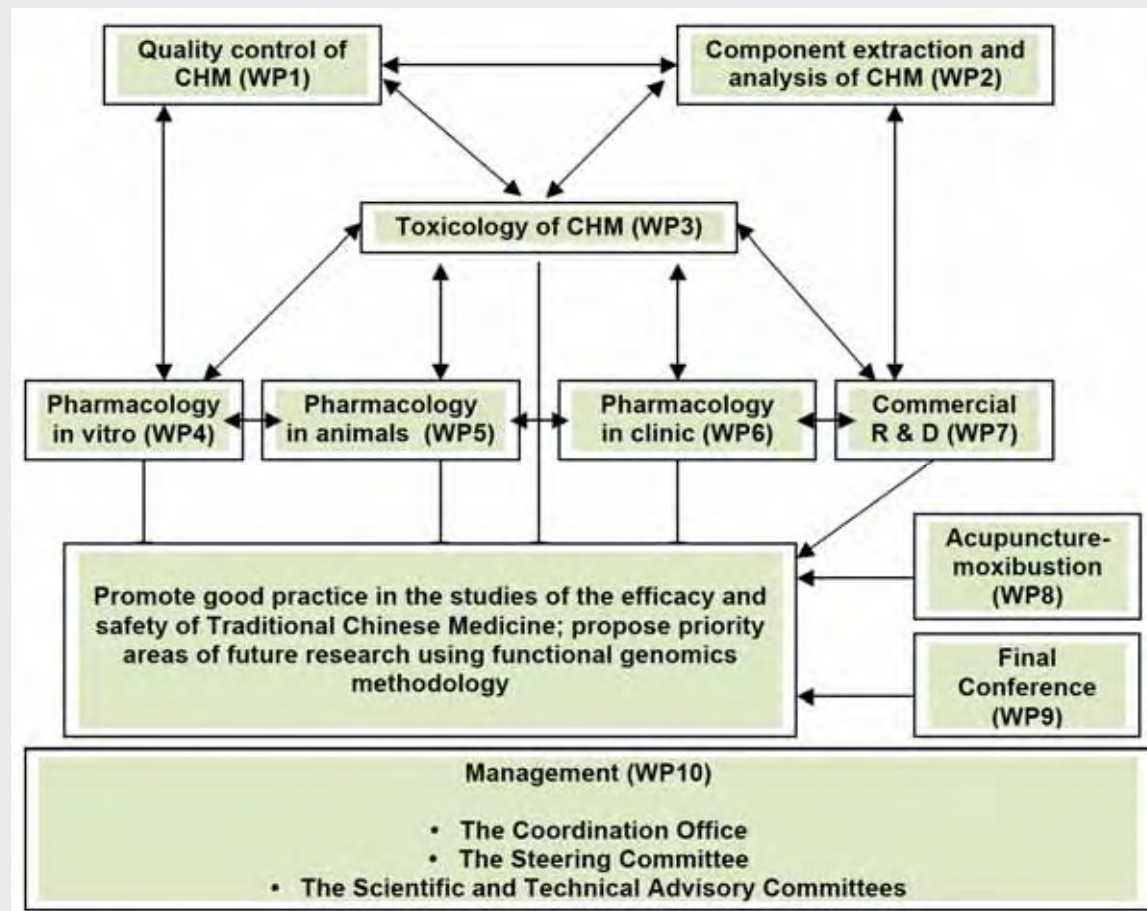
Good Practice in Traditional Chinese Medicine Research in the Post-genomic Era (GP-TCM)

- inform best practice and
- harmonise research of the safety and efficacy of Traditional Chinese Medicine (TCM) in the European Union





Work Packages (WPs):





Objectives:

“Gap analysis” of what is needed for TCM drugs to be used as “drugs” in Europe

Propose “best practice” protocols for evaluating TCM drugs

Propose priority areas of future research

<http://www.gp-tcm.org/>





Have you the “accepted” name for the plant?

Mu Xiang

widely used in TCM

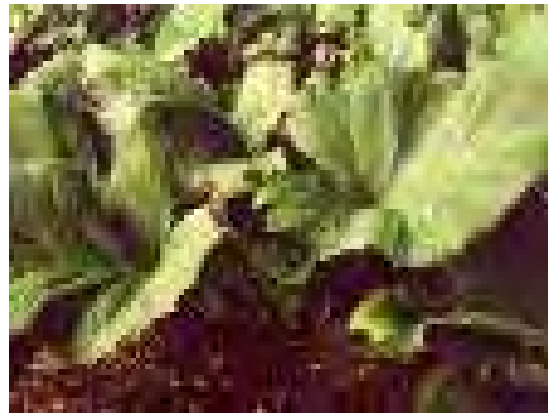
(has anti-inflammatory activity)

Saussurea costus (Falc.) Lipschitz

- many scientific synonyms
- **different** names in national pharmacopoeia
- Chinese Pharmacopoeia uses one name only:

Aucklandia lappa Decne.

Example: Search Google for *“Saussurea costus”*”



Entrez cross-database search - Microsoft Internet Explorer provided by RBG Kew

File Edit View Favorites Tools Help

Address <http://www.ncbi.nlm.nih.gov/gquery/gquery.fcgi>

NCBI Entrez, The Life Sciences Search Engine

HOME SEARCH SITE MAP PubMed All Databases Human Genome BLAST

Search across databases GO CLEAR Help

Searching with Accepted name

51	PubMed: biomedical literature citations and abstracts	none	Books: online books
14	PubMed Central: free, full text journal articles	none	OMIM: online Mendelian Inheritance in Man
none	Site Search: NCBI web and FTP sites	none	OMIA: Online Mendelian Inheritance in Animals
215	Nucleotide: sequence database (GenBank)	none	UniGene: gene-oriented clusters of transcript sequences
23	Protein: sequence database	none	CDD: conserved protein domain
1	Genome: whole genome sequences	none	3D Domains: domains from Entrez
none	Structure: three-dimensional macromolecular structures	none	UniSTS: markers and mapping
none	Taxonomy: organisms in GenBank	23	PopSet: population study data sets
none	SNP: single nucleotide polymorphism	none	GEO Profiles: expression and molecular abundance profiles

51 PubMed Records 43 ??

215 GenBank Records at least 75%??

The Future

- Scientific justification for plants being used in health care and wellbeing
- Quality of plants and extracts used improved
- Novel leads identified – new drugs/ products
- Increased diversity of plants being grown and used
- Increased justification to support the conservation and sustainable use of our plants