

Taxonomy and Industry

Royal Botanic Gardens, Kew



Monique S.J. Simmonds

Vegetation Surveys

Rio Tinto (Simfer) – Guinea Simandou Iron Ore Project

Key activities:

- Pre-mining botanical inventory/vegetation mapping to identify species and habitats of conservation importance to minimise environmental damage
- Capacity building
- Propagation protocols for priority species
- Training of local botanists for monitoring of priority species
- Seed collection and banking
- Genetic fingerprinting and analysis priority species
- Economic uses/value of local species

Un-surveyed quarry



Vegetation surveys

- Identification of **Conservation Priority Species (CPS)**



- **Highlighting the CPS**

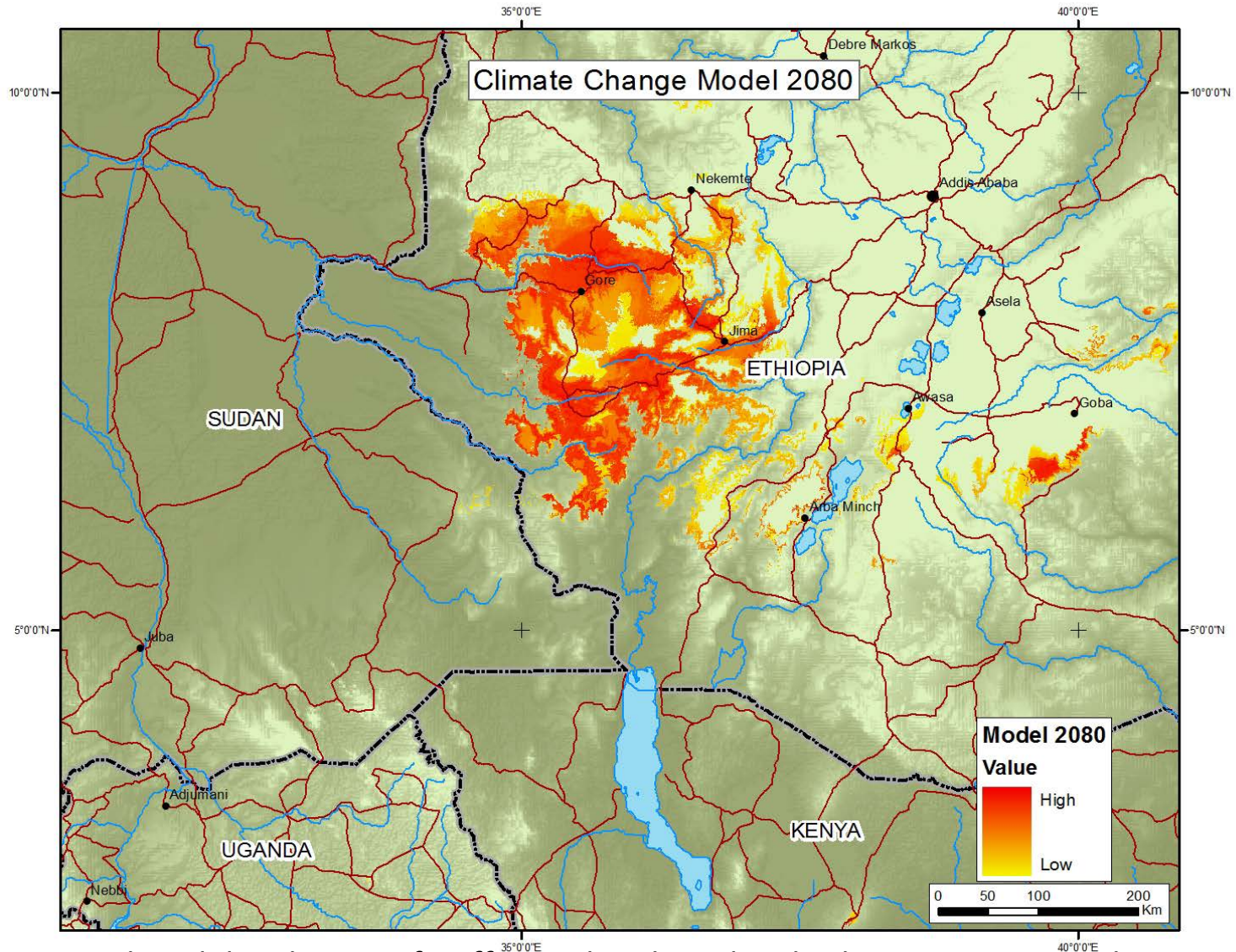


- **Capacity building**

- **CPS translocation & monitoring**



Baseline Data for Conservation of Coffee Species



Predicted distribution of *Coffea arabica* based on herbarium specimen data for the year 2080. Programme MaxEnt. Analysis by Justin Moat and Susana Baena

Authentication

“Examination of traded plant parts or extracts to determine they are fit for the purpose intended.”

Increased demand for plant based extracts in over the counter medicines/ cosmetics/herbal products.

Year	No.	Incorrect (%)	Toxic (No.)
1990	19	32	2
2000	998	30	15
2002	1321	33	21
2004	1454	32	19
2005	1645	30	17
2006	1756	26	21
2007	1684	25	15
2008	1564	23	10
2009	1768	29	9
2010	1760	28	7
2011	1679	38	3
2012	1166	21	38**

Santalum album

From:

Köhler's Medizinal-Pflanzen in naturgetreuen Abbildungen mit kurz erläuterndem Texte



Santalaceae
(Osyrideae)

Santalum album L.

WHAT DO WE MEAN BY SANDALWOOD

Which species?

Sandalwood

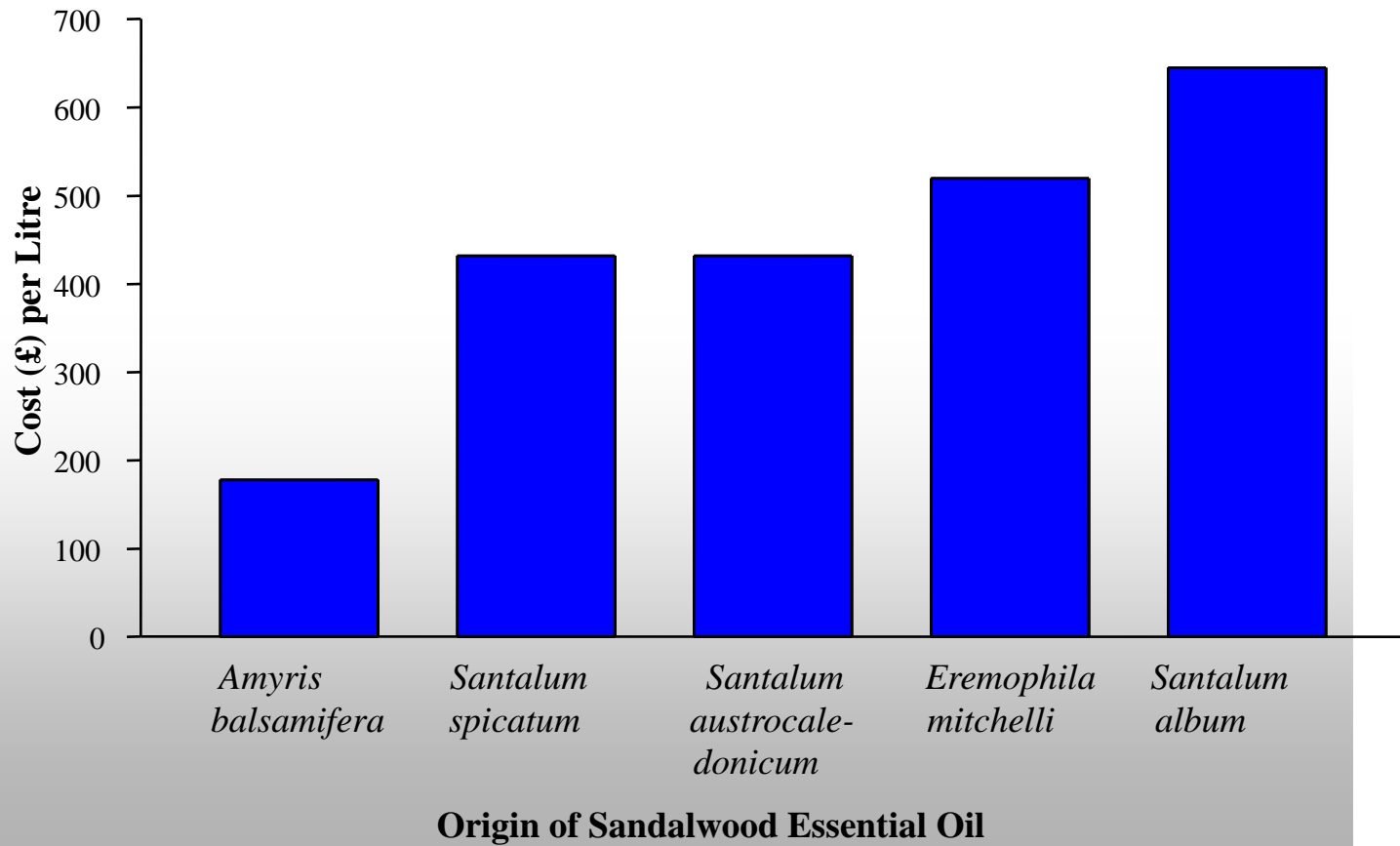
Family Santalaceae

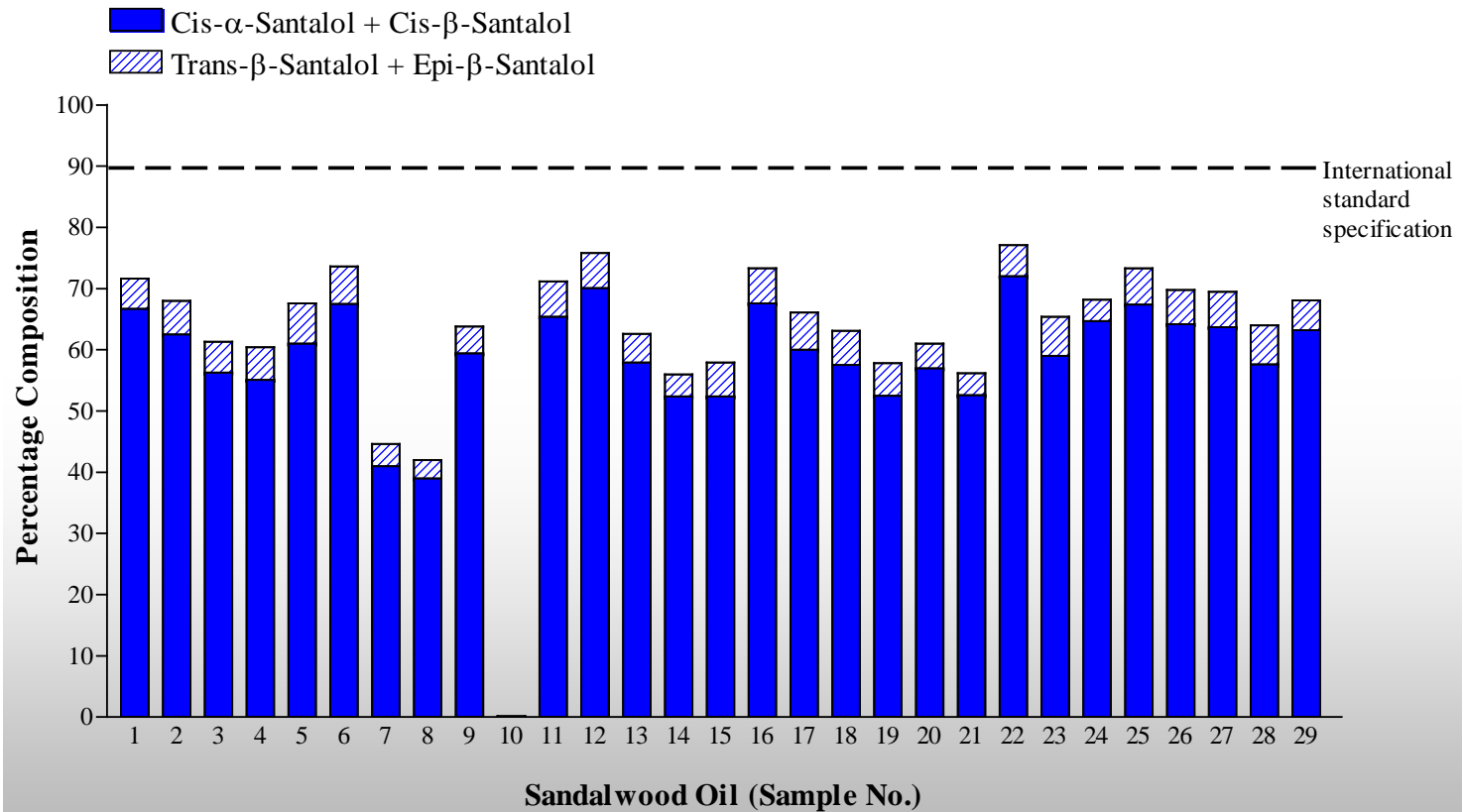
Genus *Santalum* (other names: *Fusanus*, *Eucarya*)
(over 100 different taxa names)

Red Sandalwood = *Pterocarpus santalinus*

Sandalwood = *Santalum album*

Cost (£) of Sandalwood Essential Oils of Different Plant Origin







TARGET
EXPRESS PARCELS
30 BUCK - BANGOR RD - BANGOR
Tel: 01246 360000
Fax: 01246 360000
www.target.co.uk

5

PIE-PAN CLASSIC
ATO-400



**Food
Security**

Illicium species
(Magnoliaceae / Illiciaceae)

- Species include:

I. anisatum L.

I. griffithii Hook.f.

I. majus Hook.f. & Thoms.

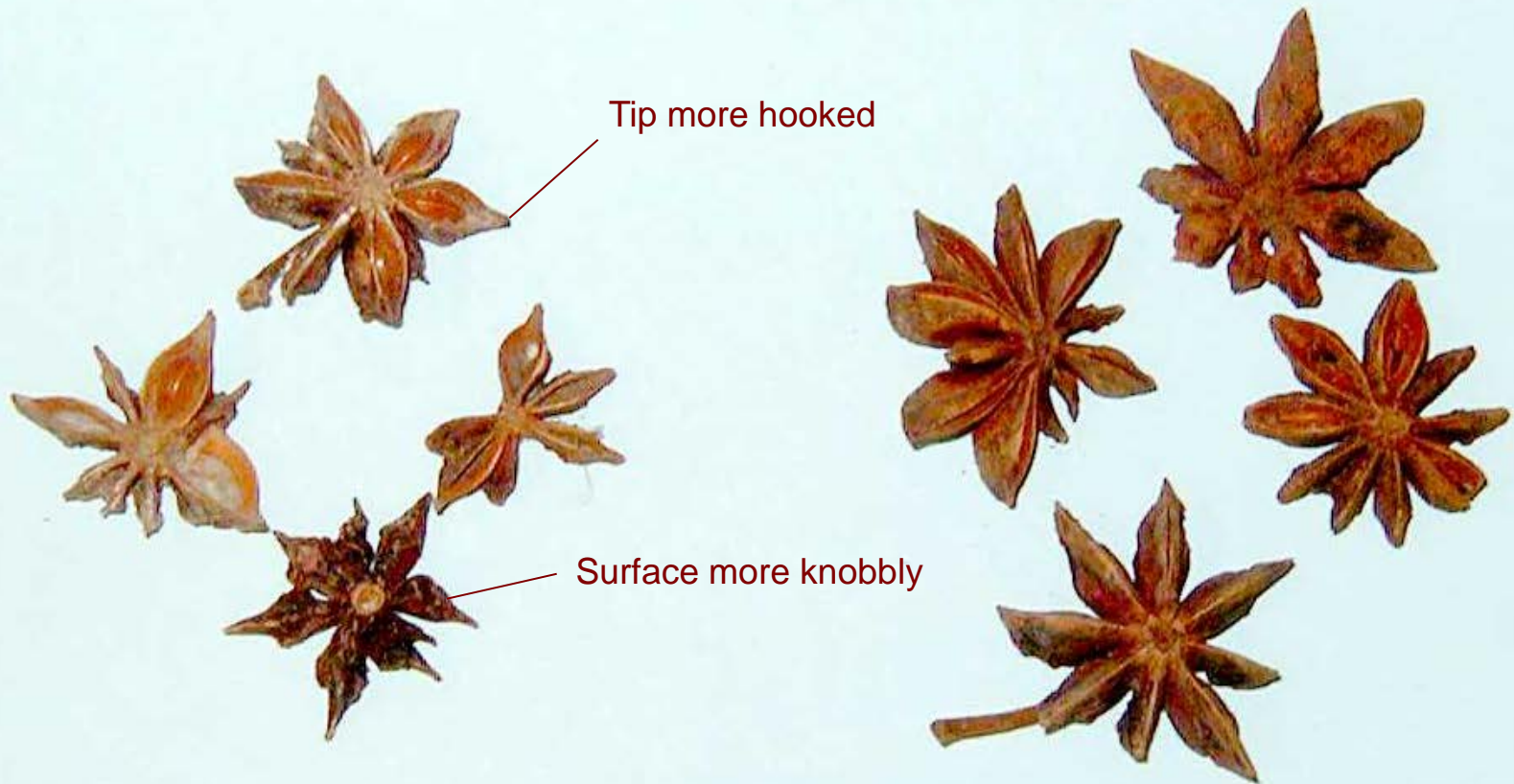
I. micranthum Dunn

I. verum Hook.f.

I. floridanum Ellis



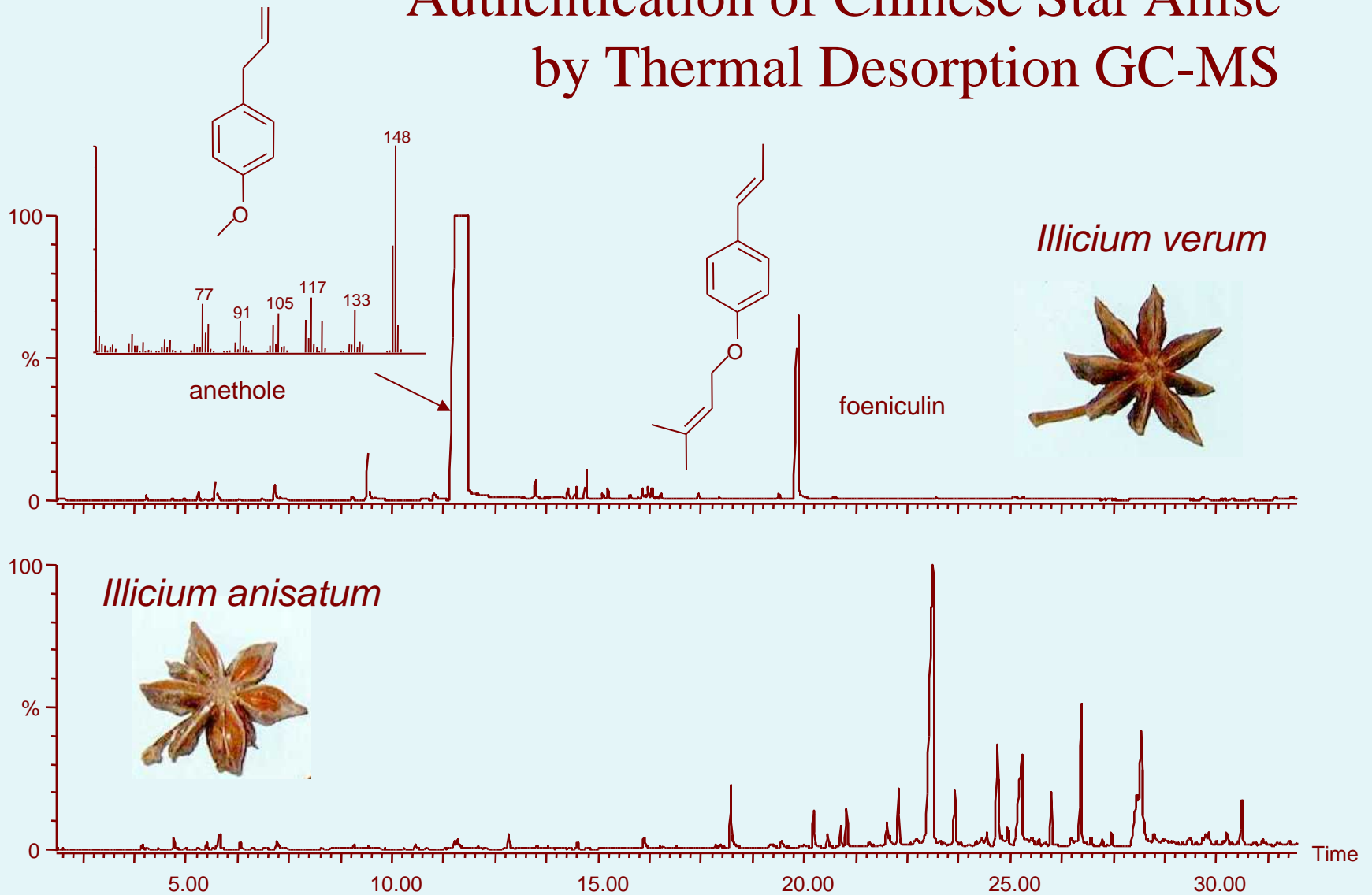
Authentication of Chinese Star Anise



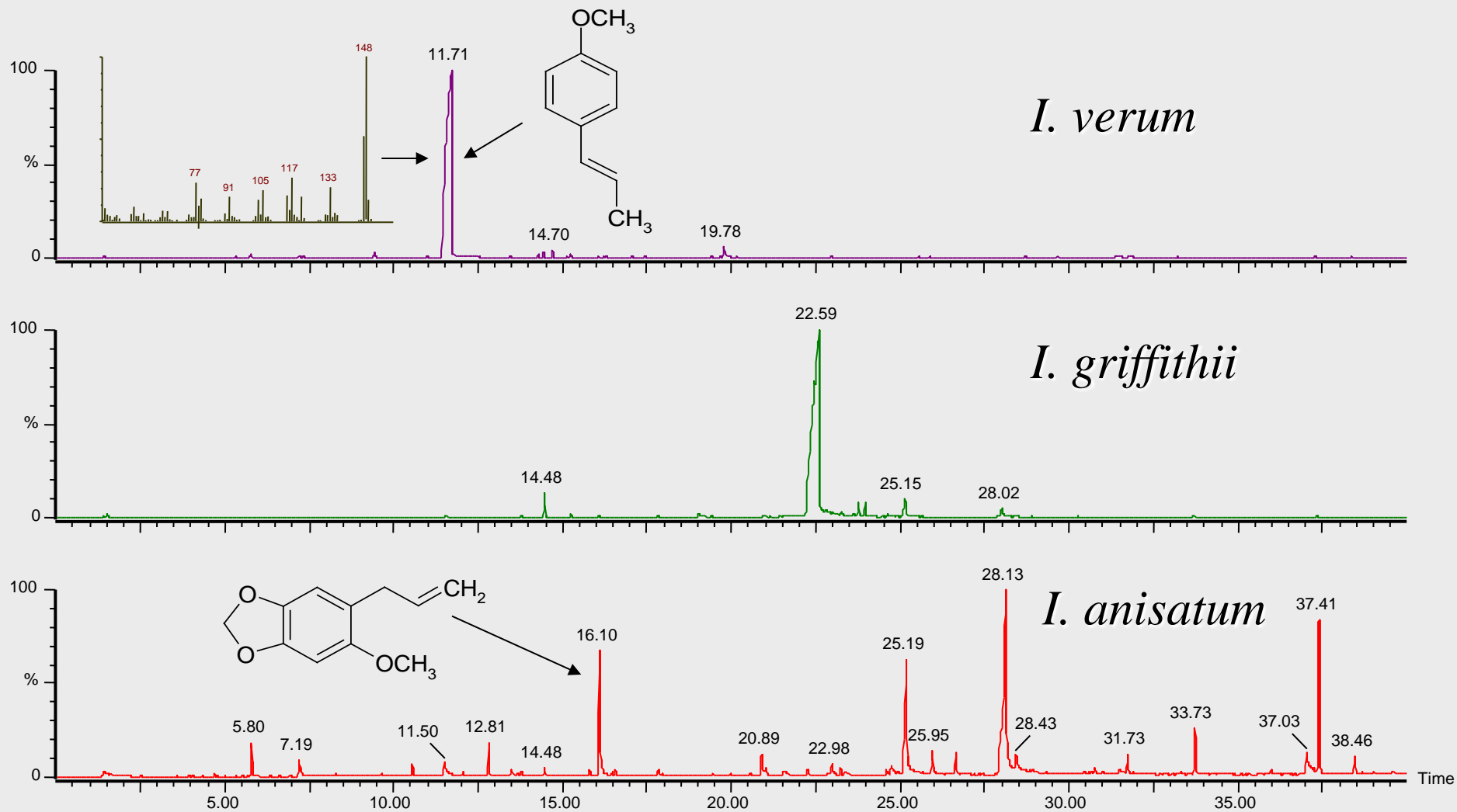
Illicium anisatum
Japanese Star Anise

Illicium verum
Chinese Star Anise

Authentication of Chinese Star Anise by Thermal Desorption GC-MS



TD-GC-MS chromatograms of three *Illicium* species



Plant Names: Legislation

EMA: European Regulator

EU Commission Decision #OJEC L 2.2.2002 L 33/31:

*“the botanical variety **Illicium anisatum** Lour is scientifically recognised as highly poisonous”*

and barred from import into Europe.



Ambiguity

‘Star Anise’

some synonyms in use

homonyms!

Illicium verum Hook.f.

Illicium anisatum Lour.

Illicium san-ki Perr.

Bandianifera officinarum Kuntze

‘Japanese Star Anise’ (Toxic)

fish poison & horticultural

some synonyms in use

Illicium anisatum Linnaeus

Illicium religiosum S&Z.

Bandianifera anisatum Kuntze

2 further homonyms exist !!!

Illicium anisatum Bartr. ex. Michx

Illicium anisatum Gaertn.

Poor Communication gets into legislation

EMA: European Regulator

EU Commission Decision #OJEC L 2.2.2002 L 33/31:

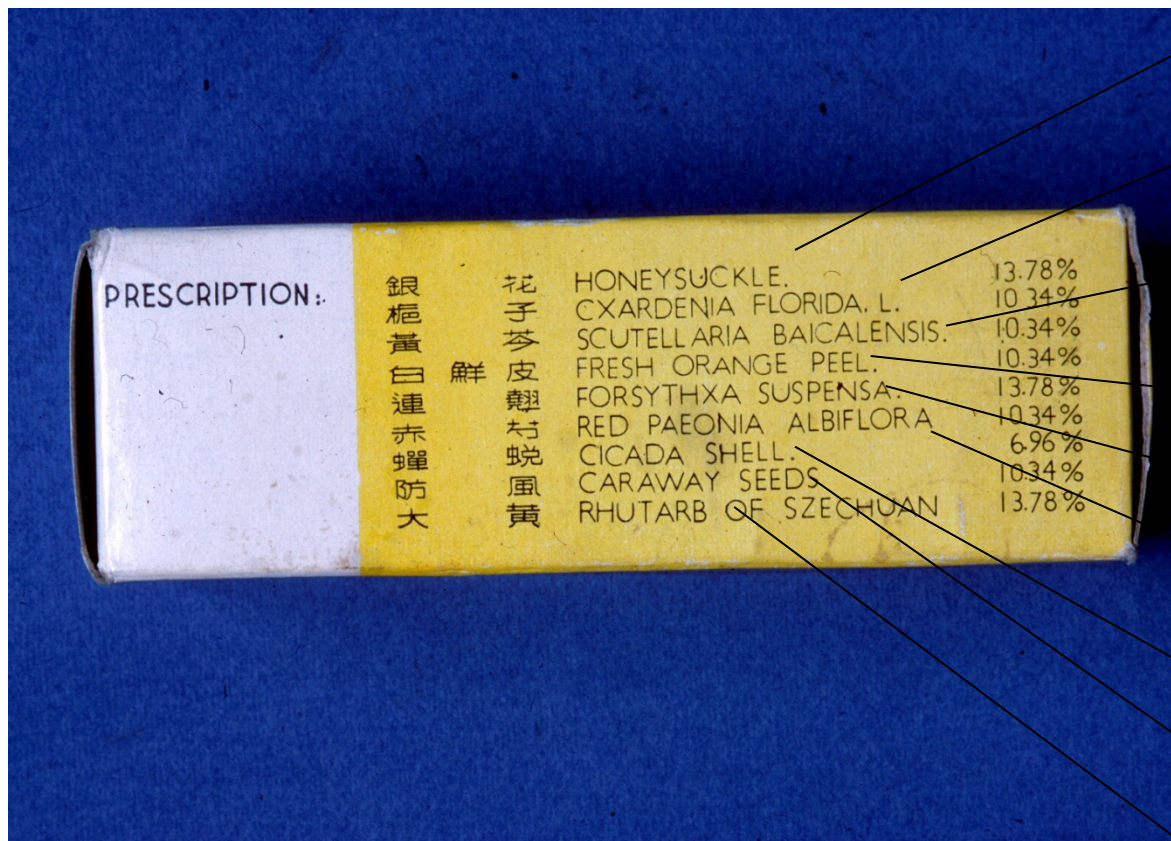
*“the botanical variety **Illicium anisatum** Lour is scientifically recognised as highly poisonous”*

and barred from import into Europe.

in doing so they banned the import of Chinese Star
Anise!

Taxonomy in labels

Example of errors in the ingredient names of a herbal product



imprecise vernacular name

mispelt Latin scientific name:
unknown entity

correct TCM plant species;
but author missing

imprecise vernacular name

mispelt Latin scientific name;
author missing

corrupted Latin scientific name:
probably refers to the red roots of
Paeonia lactiflora Pall.

animal ingredient (now illegal
in UK)

imprecise vernacular name

imprecise & mispelt vernacular
name

Pin yin names: beware of intentional mis-labelling

example: Chuan Bei Mu 川贝母

bulbs of OFFICIAL species

Fritillaria cirrhosa

F. delavayii

F. unibracteata

bulbs of Look-alike (UNOFFICIAL) species

F. ussuriensis
- source of 'Ping Bei Mu'

F. anhuiensis
- local 'Anhui Bei Mu'
- not in ChP

1 cm

**top quality £60-100/kilo
over-harvested - declining**

**sourced from cheaper species
widely cultivated**

RAMIN ...is it in the frame?

WHAT IS RAMIN (*GONYSTYLUS* species)?

Ramin is trade or common name used for a number of species that are found in the genus *Gonystylus*. It is a timber that originates in Asia and is commonly used in furniture. It is listed under Annex C of the EU Wildlife Trade Regulations.

WHY LOOK OUT FOR IT?

The EU is a major importer of *Gonystylus* species and within the EU the UK is a major internal importer.

WHERE IS IT COMING FROM?

UK imports are likely to come from Malaysia, Singapore and Indonesia. There may also be re-exports from the United States and China, and also internal EU trade from Italy, Belgium, Denmark, France, Germany, the Netherlands and Spain.

WHAT COMMON OR TRADE NAMES ARE USED?

Commonly used names include Ramin, abim, ai ououa, kava gaw, gaw buala, melawis, ramon telur, lautanbagio, and bagio, but note that these are not reliable.

HOW DO I IDENTIFY IT?

Identifying tree species by eye is often unreliable. Wood samples should be identified by experts to ensure that the species is as stated on the permit. Please contact the CITES Team, Heathrow Airport, who will liaise with the Royal Botanic Gardens, Kew.

WHAT IS SUBJECT TO CONTROL?

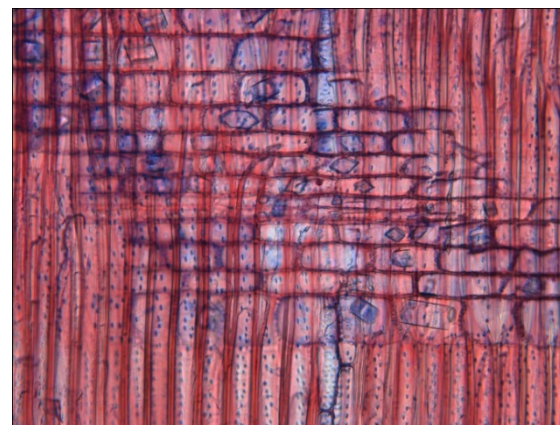
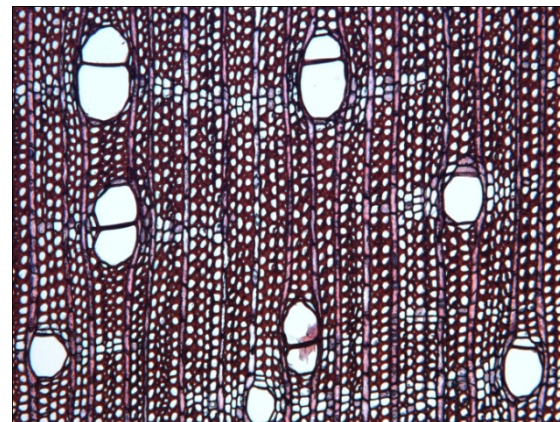
Item	Tariff Code
Rough Wood	44034100 to 44034995
Rough Trimmed Poles	44042000
Sawn wood >6mm in thickness	44072415 to 44072995 / 44079910 to 44079997
Veneers <6mm in thickness	44083111 to 44089095
Parquet flooring	44092011 to 44092098
Plywood	44121390 to 4412998090
Densified wood	44130000
Picture frames	44140010 to 44140090
French windows	44181010 to 44181090
Doors	44182010 to 44182080
Mosaic Floors	44183010 to 44183099
Table & Kitchenware	44201011 to 44190090
Wood packaging	44201011 to 44209099
Clothes hangers	44211000

WHO CAN I CONTACT?

HM Customs and Excise: CITES Team, Custom House, Nettleton Rd., LHR Airport, Hounslow, Middx. TW6 2LA. T: 020 8910 3830, F: 020 8910 3833, Email: guy.clarke@hmce.gsi.gov.uk

UK CITES Scientific Authority for Plants:

Madeleine Groves, Conventions and Policy Section, Royal Botanic Gardens, Kew, Richmond, Surrey TW9 3AE. T: 020 8332 5723, F: 020 8332 5757, Email: m.groves@kew.org





GUS
UK
MADE IN INDONESIA

738735
To

738735
To

522

HSCU 1236

(5)

GUS
UK
MADE IN INDONESIA

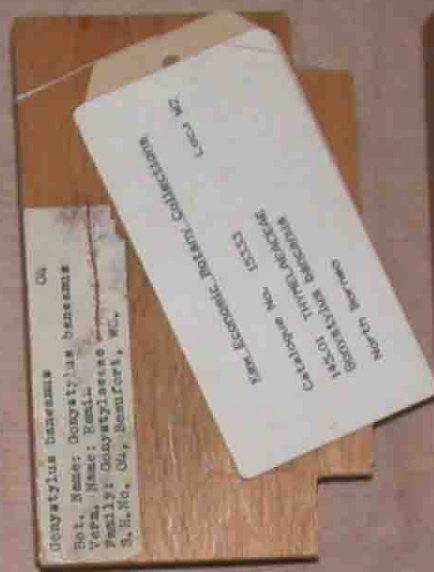
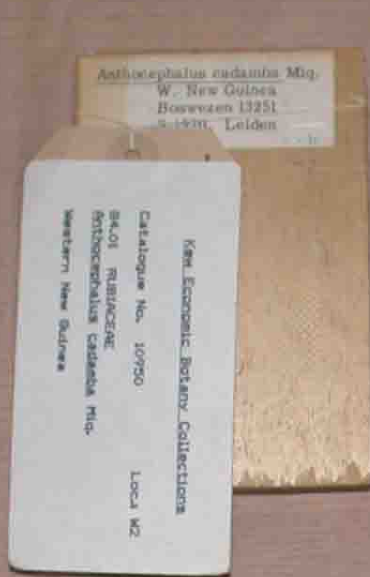
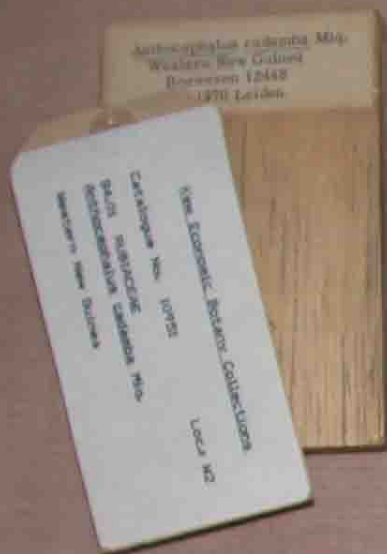
!
10.00 KG

GUS
UK
MADE IN INDONESIA

!
10.00 KG

GUS

Ramin and similar species





4. Cabana
Mimodaphnum nigrum
Dalbergia nigra;-
Brazil
Freire Allemã.

Mus. I.

Rosewood
Dalbergia nigra Allen. 57
Brazil
9.1985 F H Pierpont 85

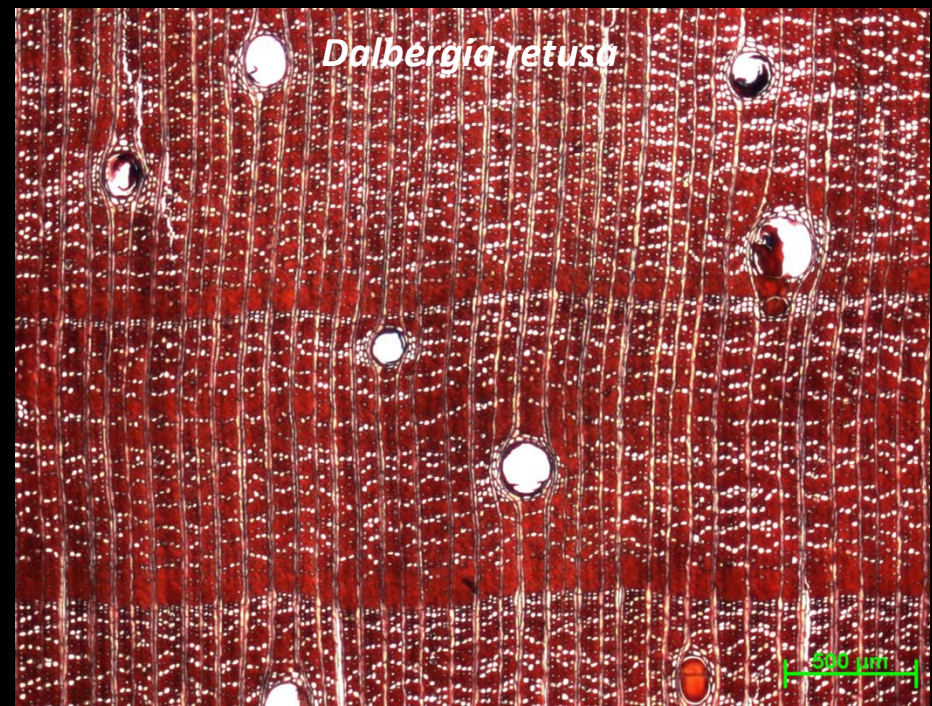
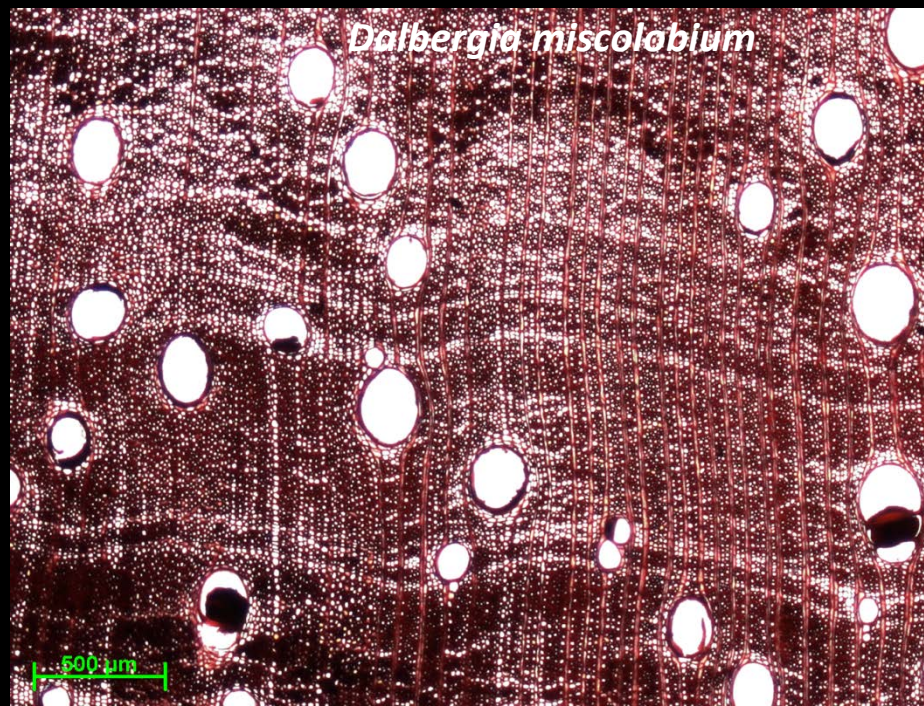
BRASIL
MINISTERIO DA AGRICULTURA
Secção "Reflorestamento", do S. I. R. C.
Legum. *Dalbergia nigra*
Dalbergia nigra
CABUNA
R. Santo D = 0,80

72717

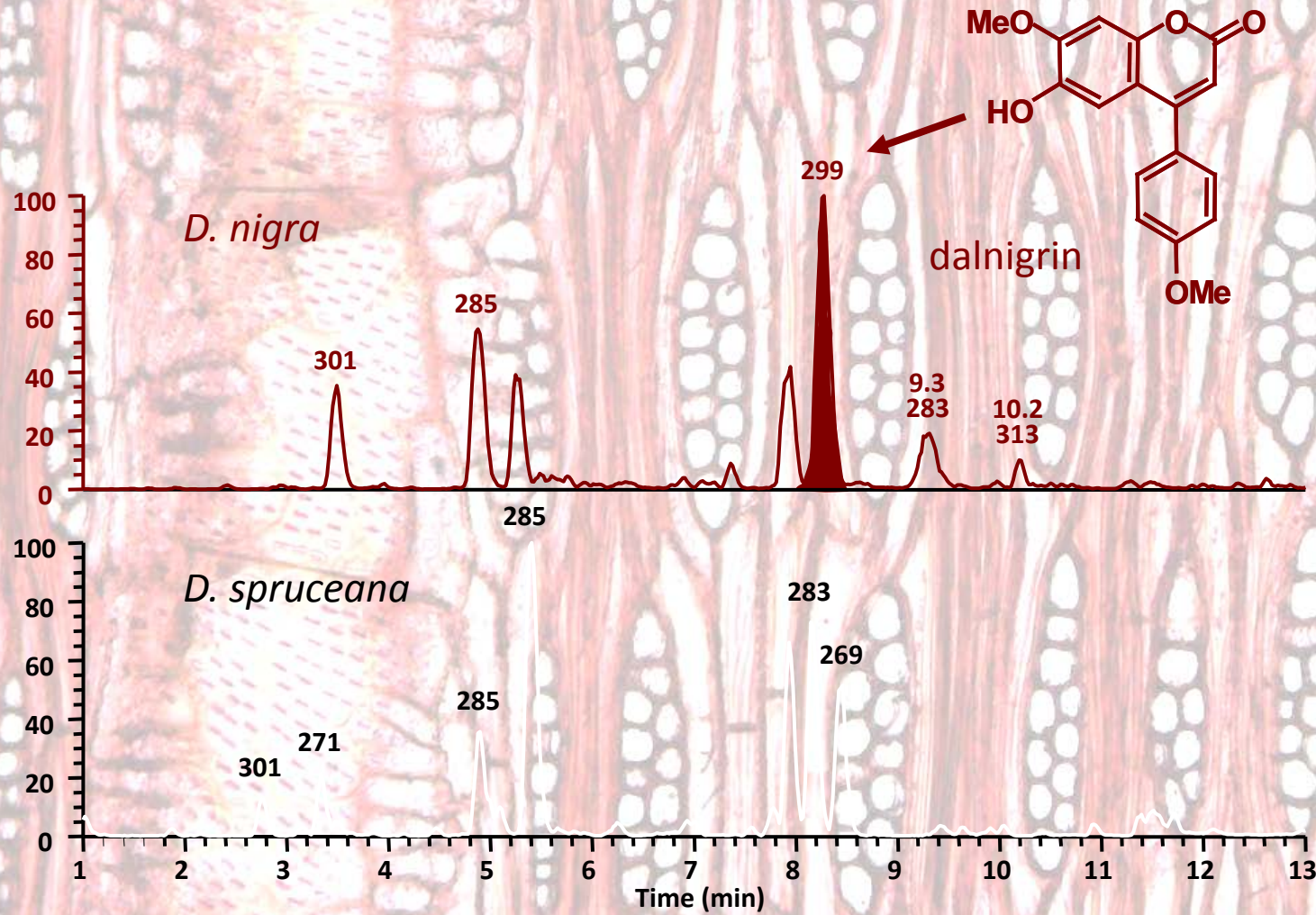
Dalbergia nigra

Confiscated veneers for guitar making suspected as being *D. nigra*





Chemical analysis distinguishes woods of *Dalbergia nigra* from *D. spruceana*



Taxonomic expertise needed by:

- Extractive industries
- Pharmaceutical
- Agrochemical/ agro industry
- Food Sector
- Cosmetic/household goods
- Forestry
- Regulators
- Land surveyors
- Legal System
- Health providers
- “consultants”