



PSYCHIC HEALER

HERBAL THERAPIST

USING AFRICAN REMEDIES

- **Get that promotion you have desired from work**
- **Bring you supernatural luck**
 - **Bring back lost lover-**
(even if lost for a long time)
- **Get married to the lover of your choice**

STOP SUFFERING IN SILENCE!!!

FOR APPOINTMENT CALL:

DR. NASA

0787897714

OPEN: MON-SAT 7:00am-6:00pm

“Muthi” from the wild:

**A survey of bulbous and perennial herbs traded at
Faraday Traditional Medicinal Market in
Johannesburg, South Africa using DNA barcoding
as an identification tool**



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The variation

WESTERN MEDICATION

- Prescription specific
- Cold and clinical
- Targets specific organs



TRADITIONAL MEDICATION

- More cultural and personal
- Herb and animal extracts
- Holistic approach



Traditional herbal medicine

AFRICA

- Increased usage
- Lack of infrastructure
- Easier to access in rural communities

SOUTH AFRICA

- Not inferior but an alternative
- 80% use traditional medicine
- Contribute to economy



Traditional herbal medicine

- Source of income
- Expansion influenced by:
 - *Unemployment
 - *HIV/AIDS
- “***Muthi***” used during hardships



Indigenous plants

- Primary source of herbal medicine
- Trained medicinal practitioners
- Overharvesting
- Untrained herbalists
- Large informal markets

- **FARADAY MEDICINAL MARKET**



trained

untrained

Faraday medicinal Market



- Taxi rank
- Train station
- Bus terminal
- “Friday only market”
- Over 5.4 hectares
- Second largest in South Africa
- More than **400** vendors











Stapelia gingatea

The medicinal plant market

- whole plant roots and bulbs:
 - 50% of species
 - 48% of plants sold
- Dug out or uprooted
- Left for dead



The medicinal plant market

- Method of conservation suggested
- **FAILED**
- More potent from the wild
- 50kg bags
- Amount of endangered species increases
- Trade is illegal
- No fruitful action taken
- Hard to get a permit



The medicinal plant market

- Traditionally use morphological characteristics
- Proven unreliable at the market
- Similar morphology
- Far degraded to identify solely
- EMI job efficiency delayed
- Regrow plant before arresting
- **DNA barcoding**



Aim

- Identify and compile a list of bulbous and perennial herbs traded at the Faraday medicinal market
- To analyse the efficacy of DNA barcoding in the rapid identification of bulbous and perennial herbs
- To provide the Department of Environmental Affairs a prioritized list and assessment of conservation status



Market sampling



Market sampling

Bheka mina

‘Look at me’

- Popular plant
- Ensure eyes only for you

Phunyuka

‘escape’

- Gets you out of any sticky situation



Talium caffrum

Market sampling

- **90** plant samples collected in 7 month
- Several new samples recorded monthly
- Variety increases after:
 - All major public holidays
 - During winter



Lab sampling



- Plants were:
 - Sampled
 - Stored in silica gel
 - Given a sample number



Lab analysis

Standard **DNA barcoding** methods:

- DNA extraction
- Amplification
- Cycle sequencing
 - barcoding regions *rbcLa* and *matK*

Checklist: Williams *et al.* (2003)



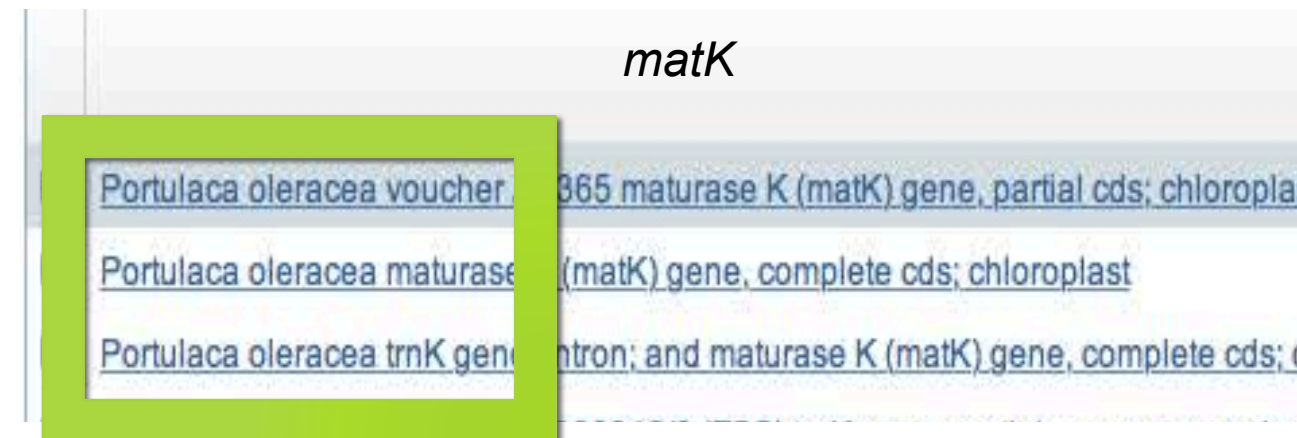
Findings

- **Williams *et al.* (2003):**
 - Used morphological features
 - Identified 68 species
 - Took 3 years
- **This study:**
 - Used DNA barcoding
 - Identified 61 species
 - Took less than 7 months

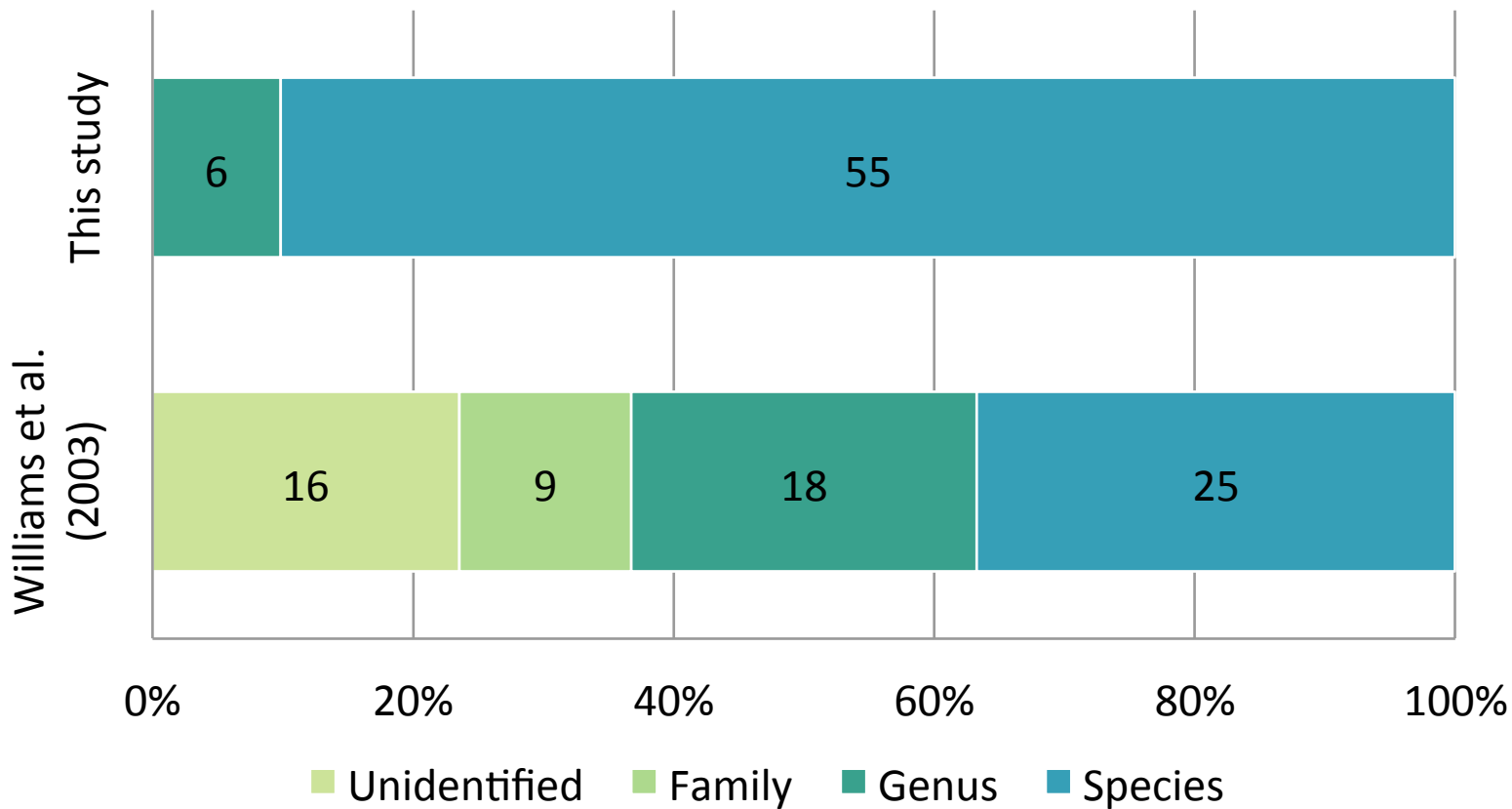


Identification

- PCR Amplification:
 - 100% success
- Sequencing
 - High success for *rbcLa* than *matK*
- BLAST algorithm
 - *rbcLa* = highly ambiguous
 - *matK* = confirms species



Identification Success



- **Williams *et al.* (2003):**

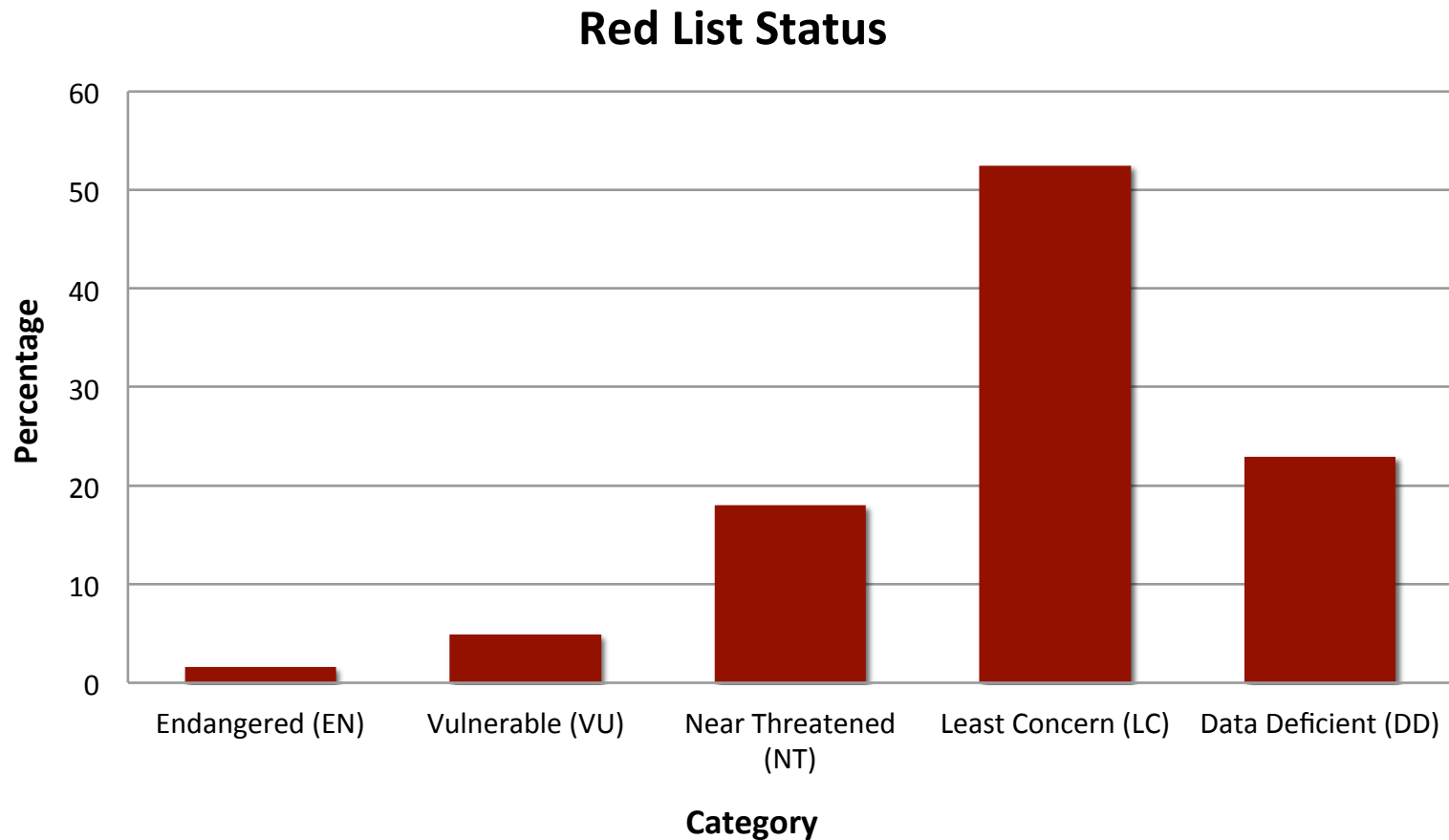
- 25 to a species level
- 18 to a genus level
- 9 to a family level
- 16 unidentified

- **This study:**

- 55 to a species level
- 6 to a genus level

53% increased efficiency

Conservation Status



Scilla natalensis



Urginea sanguinea





Eucomis biscalor



Drimia elata



Ledebouria cordifolia



Conclusion

- South Africa is *diverse* with:
- 11 official languages
- One of the six Floral Kingdoms
- One of the 7 wonders of Nature
- Insensitivity to our indigenous species
- No effective legal action taken
- **<20 metres away!**



Acknowledgements

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- **Members of the ACDB lab**
- **Conference organisers**

