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

Dorcas M. Lekganyane
Herman van der Bank, Ronny Kabongo, Michelle van der Bank
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
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
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
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
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

Red List Status

Percentage

Category

Endangered (EN) Vulnerable (VU) Near Threatened (NT) Least Concern (LC) Data Deficient (DD)

Scilla natalensis

Urginea sanguinea
Eucomis biscolor

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

- Financial support: University of Johannesburg
- Members of the ACDB lab
- Conference organisers