

EU SUPPORTED AFRICAN MEDICINAL PLANTS STANDARDS PROJECT PAVES THE WAY TO DEVELOPMENT OF AFRICAN HERBAL PHARMACOPOEIA

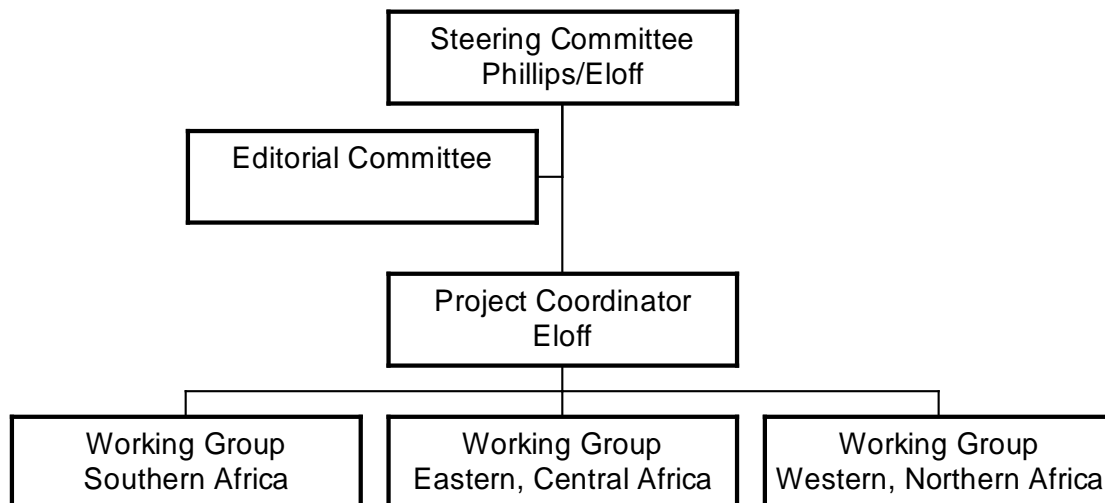
**BY DENZIL PHILLIPS
MEMBER AFRICAN MEDICINAL PLANT PROJECT STEERING COMMITTEE.**

28 experts on African herbal medicines from 14 different countries gathered at the Centurion Lake Hotel in South Africa from May 13th to 15th 2005 to review the problems and prospects of developing international standards for important African medicinal plants. The meeting hosted by Professor Kobus Eloff of the Phytomedicine Programme of the University of Pretoria included such eminent scientists as Professor Ermias Dagne from Ethiopia, Nigeria's Professor Charles Wambebe who has recently retired from WHO and Tom Chapman Chairman of UK's Essential Nutrition Ltd.

In a historic decision delegates at the meeting signed a declaration pledging Africa wide support for the preparation of African quality assurance and trading standards and the establishment of an association to help promote these standards and to develop an African Herbal Pharmacopoeia. The organisation called Association for African Medicinal Plants Standards (AAMPS) will have its headquarters in Mauritius. Membership will initially be drawn from those attending the Centurion Lake meeting but will soon embrace others committed to the cause of African quality standards and the development of an African Herbal Pharmacopoeia.

The Centurion meeting was organised as part of African Medicinal Plants Project (AMPS) This project is supported by EU-ACP Centre for Development of Enterprise and EU-ACP Technical Centre for Rural Co-operation. Lack of suitable technical specifications and quality control standards has been mentioned repeatedly by scientists and businessmen as a major constraint on regional and international trade in African medicinal plants and extracts and an important barrier to integrating traditional medicine into African public health services.

AMPS is a two-phase project designed to prepare standards for the most important African plants presently traded as well as others judged of long term importance. The profiles combine information normally contained in drug monographs with data usually found in medicinal plant trade specifications and quality control sheets.



AMPS has a steering committee responsible for the management of the project and an editorial committee to review profiles prepared by separate regional working groups lead by Professor Kobus Eloff. The Editorial Committee includes internationally renowned experts on herbal medicine; These include Professor Gurib Fakim from Mauritius, Professor Vlietinck from Belgium and Thomas Brendler from Germany.

The Centurion meeting reviewed the first twenty three plants selected by steering committee of the African Medicinal Plants Project (AMPS) and made recommendations on the selection of the remaining twenty nine plants to be tackled during Phase 2. These fifty two plants represent the most important medicinal plants used in African herbal medicine and international trade.

Selection of plants for the AMPS project posed significant methodological problems. The steering committee was deeply aware that their choice could have a major influence on the pace of research, development and trade of the chosen species

Experts were invited to submit lists of species they considered important for their region. Of an estimated 2,500 species used in traditional African medicine, 390 species were recommended for review taking into consideration the following

- The need to ensure more or less equal representation of regions of Africa
- The need to get roughly equal representation of species of Africa
- To include plants with well-established / commercialized international use
- To include plants with well-established / commercialized local use
- To include plants used locally based on tradition, anecdotal evidence only, but with interesting indications
- To include plants having important relevant indications / ailments
- To include plants considered to have strong international demand
- To include plants considered to have strong long term local market demands

The following species were eliminated

- species which were not endemic or at least indigenous to sub saharan Africa
- species which were toxic were eliminated (because of the extra difficulty in drug development)
- species which cannot be sustainably sourced
- species which are threatened with extinction
- species where wild crafting the parts used may destroy the plant

The remainder of these 390 plants were then subject to a detailed literature review which included online data bases such as Pharmel and Prelude, as well as commercial web based research using google etc.

Some 160 species were short-listed. Eliminating synonymies, aliens etc and applying the selection criteria outlined above 73 species were identified as most relevant. From these 73 plants 23 were selected for profiling in Phase 1. (See Table 1)

The list includes many of the most well known plants used in Africa including well established export products like Rooibos and Devils Claw as well plants like African Potato and Warburgia, which although not yet in European drug stores are sold throughout much of Africa.

During the Centurion meeting the delegates were asked to select from the steering committee short list another 20 to 30 species for inclusion in Phase 2 of the project. Their selection had also to consider the guidelines, which the steering committee had drawn up and outlined above. After much debate 29 plants were voted as suitable for inclusion in Phase 2. The list of these plants is given in Table 2.

It was clear from this exercise that the depth and breadth of scientific research on some African medicinal plants like *Sutherlandia* (submitted to clinical trials in South Africa), or *Kigelia* (the subject of detailed pharmacological research at Kings College London) is far in excess of others like *Aframomum melegueta* and *Garcinia Kola* where very little scientific research has been recorded. This clearly poses challenges to the AMPS team in terms of how to maintain consistency of quality for all the species selected.

Each profile will have a similar format to many drug monographs found in Europe but will include supplementary information of value to growers, traders and national planners. AMPS has recently been offered access to an Africa wide GIS satellite mapping system developed by the International Centre for Agro-Forestry based in Nairobi. This hopefully will enable us to include maps of the actual distribution of the species at the present time.

Each profile will contain the following information

General Description

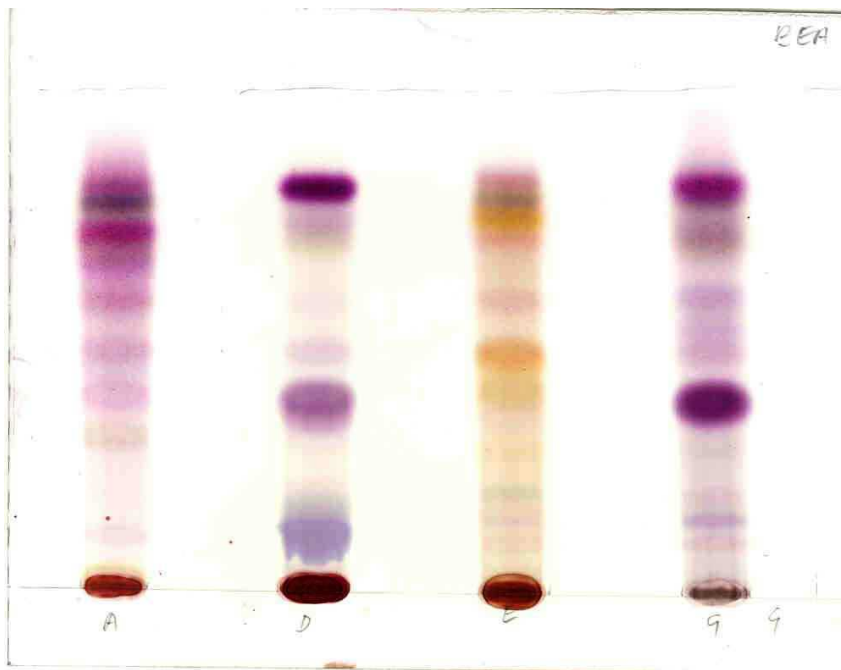
- Family, synonyms, vernacular names, geographical distribution including map of countries occurring-finer detail in text, conservation status, photographs line drawing

- Origin and preparation of plant material, [e.g. cultivation/wild crafting, plant parts used, flowering/harvesting times, parts used and preparation]

Identification and Quality Control

- Physical characteristics including general appearance, organoleptic properties, microscopic appearance
- Extractability in water, ethanol, acetone and identification by standardized TLC where possible validated by cited voucher specimens.
- Infra red scan of powder.
- Concentration active principle if known or marker compound.
- Possible adulteration and mistaken identity.
- Standard specifications applied to most herbal medicines e.g. WHO or ESCOP specification.
- Stability of product if known.

Typical Fingerprint analysis of African Medicinal Plant



Source: Phytomedicine Programme: University of Pretoria

Use and Efficacy

- Formulation and dosage
- Chemical constituents according to literature
- Medicinal uses [traditional uses and uses described in pharmacopoeias]
- Known biological activities [bioassays and pharmacological information]

- Clinical evidence for efficacy

Safety

- Toxicity according to literature
- Laboratory results [LD50 Brine shrimp assay, cellular toxicity].
- Warnings, contraindications and side effects and interactions with other drugs if known

- Evaluation of probable safety
- List species, use and probable efficacy for each use and safety on criteria of Goldberg et al. Botanical Safety Handbook

Phase 1 of the AMPS project should be completed in autumn 2005 while assuming suitable funding can be mobilised in time Phase 2 should be completed by mid 2006 when they will be publicised worldwide. The new formed Association of African Medicinal Plant Standards is committed to ensuring maximum access of these profiles to producers, traders, researchers and processors throughout the world. AAMPS will launch an interactive data base, a web site and will also publish both CDROM and print versions of the profiles and related material. Association members are also convinced that these profiles should form part of a living data base, which can be continually upgraded and enlarged rather than a stand alone publication, which will rapidly become out of date. (For more information see www.aamps.net)