



USAf 2025 OPEN CALL FOR IMPACT CASE STUDIES

Title of the Impact Case Study: Maximising the socioeconomic benefits of the South African flora.

Submitting University: University of Johannesburg (UJ).

Name, position and email address of Contact Person: Prof Ben-Erik Van Wyk, National SARCHI Research Chair in Indigenous Plant Use, bevanwyk@uj.ac.za.

Summary of impact: Impact on agriculture (new crops based on indigenous plants); pharmaceutical industry (new branded products based on new indigenous crop plants); publishing industry (international and national series of best-seller, full-colour academic books covering practically all socially relevant plants of the world); education (development of academic leadership in the field of Indigenous Plant Use, in different language and cultural groups).

Underpinning academic work:

The commercial and social impacts of the work resulted from profound, new insights obtained through many years of dedicated study, focusing on the identity, chemistry, biological activity and traditional uses of indigenous plants. The research was conducted by the research group of Professor Van Wyk of the Department of Botany and Plant Biotechnology at UJ, in collaboration with local and international researchers, public entities and private companies, including pharmaceutical companies and both local and international leading publishers of full-colour reference books.

The research has resulted in the commercial development of several new crops and products, thus pioneering the indigenous green industry in South Africa. These successes were achieved through collaboration with industry and our own company, Phyto Nova Pty Ltd (see below).

Research fields include:

- (1) Agricultural Sciences (development of new indigenous crop plants, mainly medicinal and food plants, and one pasture plant);
- (2) Humanities and Social Sciences (transformation of the science of Ethnobotany and Indigenous Plant Use in South Africa, through teaching, conferences and reference books);
- (3) Medical and Health Sciences (development of new branded medicinal products based on plant species not previously commercialised); Natural Sciences (profound insights into the identity, chemistry, biological activity/toxicity and indigenous knowledge about traditional uses that guided the selection of plants with commercial potential).

Narrative description of the impact:

The outcomes of the research on indigenous plants have mainly impacted the **local Green Industry** and the **local and international publishing** industry. Green Industry in South Africa (both retail and export) is gaining momentum with considerable government support and private funding. Historically, Professor van Wyk was involved in developing the **government strategy and policy** that contributed to the process of the commercialisation of indigenous medicinal plants. The then-Minister of Health, Dr M E Tshabalala-Msimang, and State President, Mr Thabo Mbeki, appointed Professor van Wyk to serve on a four-member Presidential Task Team to develop a policy framework for African Traditional Medicine in South Africa. Professor van Wyk contributed most of the final policy document (published in the [Government Gazette Vol. 517 No. 31271 of 25 July 2008](#)).

Another major impact derives from 27 **annual national conferences** of the Indigenous Plant Use Forum, all of which were organised from Professor van Wyk's office (as annually re-elected chairman since 1996). These conferences focus on "maximising the socio-economic benefits of the rich South African flora" and provided delegates with the opportunity to interact with industry leaders and traditional healers alike, and to display their new products and product prototypes. It also had a major impact on the **transformation of science in South Africa**. The ratio of white to black delegates has reversed from 80:20 in 1996 to 20:80 within a few years). Education is not elaborated on here, but several MSc and PhD students of Indigenous Plant Use (ethnobotany) became the first indigenous intellectual leaders, experts and role models in their respective language and cultural groups. This extends to Mexico, with Professor van Wyk's role as visiting professor, with annual teaching visits (since 2014) to the Centre for Development of Biotic Products, National Polytechnic Institute, Morelos, Mexico.

Full-colour reference books have had a major impact locally and internationally, providing jobs in the publishing sector (overall retail turnover is estimated at more than R55 mil for more than 20 book titles and more than 60 editions, when counting translations, repeated revised editions and reprints (see amazon.com). Of particular relevance in South Africa are "[Medicinal Plants of South Africa](#)" and "[People's Plants – A guide to useful plants of southern Africa](#)", and "[Poisonous Plants of South Africa](#)". These full-colour books were repeatedly revised and reprinted, and are still serving as reference guides to entrepreneurs, traditional healers, policy makers, poison centres, academics and teachers ("Medicinal Plants of South Africa" have sold more than 40 000 copies).

International full-colour books of commercial relevance exported through co-productions (estimated retail turnover exceeding R30 mil.) with leading international publishers such as Kew Publishers / Royal Botanic Gardens Kew, University of Chicago Press and CABI, UK, with German and Polish editions by Medpharm/ WVG in Germany and Korean editions by Shinil Books. Prof Van Wyk, in collaboration with Briza Publications, arranged the co-productions through participation at the Frankfurt Book Fair for more than 20 years in a row. The inclusion of South African plants in the international best-selling "[Medicinal Plants of the World](#)" created a published (legal) starting point.

Pioneering commercial research has been conducted since 1996, resulting in novel commercial products (then produced for the first time) that have now become sizeable industries. Collaboration with South African Druggists (now Aspen Pharmacare) resulted in the first branded medicinal plant tinctures (the "Healers Choice" range) based on chemosystematic studies at UJ. The project involved crop development (on a farm at Gouda) and the development of a tincture manufacturing facility (with quality control procedures) on a farm in Wellington.

In 1999, Prof Van Wyk started a private company called Phyto Nova (Pty) Ltd, with Dr Nigel Gericke, Dr Carl Albrecht, Tr Dr Credo Mutwa and Mr Isaac Mayeng and himself as directors. The primary aim was to demonstrate, through production, branding and marketing, the commercial potential of several important indigenous medicinal plant species that have not previously been used in products. Prof Van Wyk was responsible for the large-scale cultivation, procurement and quality control of raw materials. The branded products were Sutherlandia tablets, Sutherlandia gel, Sceletium tablets, African ginger tablets, African wormwood tablets and Pepperbark tablets. These species are *Lessertia frutescens*, *Mesembryanthemum tortuosum*, *Siphonochilus aethiopicus*, *Artemisia afra* and *Warburgia salutaris*, respectively, and were traded on a commercial scale for the first time. Sutherlandia was the first herbal product in South Africa to be subjected to a comprehensive safety study (by Phyto Nova) at Tygerberg Hospital. These plants have now become household names and the basis for many small to medium enterprises.

Thebe Pharmaceuticals took over Phyto Nova in 2004 but retained the brand name and extended the product range. It was sold to Bioscience Brands but later reverted to Thebe. Initial turnover was in the six figure per annum range, but later fully commercialised by Thebe (turnover not revealed). The real impact was to stimulate many other companies to develop new products from the same species. A google search will reveal the plethora of new products that are now available based on the plant species and product concepts listed above.

In 2006, Prof Van Wyk was the founding director and elected chairman of the “[Aloe Council of South Africa](#)” (Pty) Ltd, an NPC (non-profit company) aimed at uniting and improving the competitive edge of the South African aloe industry (vs the international aloe vera industry). To simulate exports and create quality criteria, he helped develop the very first National Standard for a herbal product in South Africa (for aloe raw materials) through the South African Bureau of Standards, SA National Standard 368, Edition 1, published in 2007. This strategy is now followed for several other indigenous herbs (e.g. rose geranium).

Evidence and sources to corroborate the impact:

Evidence of products:

<https://www.sciencedirect.com/science/article/pii/S0254629911001190>

See photographs of branded products in Figure 1.

See also <https://www.ben-erikvanwyk.com/Webpage%20publications.html>).

IPUF conferences: see <https://ipuf.co.za/>

Books: https://www.amazon.com/stores/Ben-Erik-Van-Wyk/author/B001JS1RUY?ref=ap_rdr&isDramIntegrated=true&shoppingPortalEnabled=true

Any other information considered relevant:

The knowledge and experience gained resulted in regular advice and interventions in later years (up to the present). Examples include identifying the cause of toxic alkaloid contamination that threatened the survival of the rooibos tea industry

(<https://www.sciencedirect.com/science/article/pii/S0254629916303933>);

guiding the selection of potentially suitable candidates for developing a new pasture crop (*Lebeckia ambigua*) for Western Australian agriculture (<https://link.springer.com/article/10.1007/s13593-019-0558-2?fromPaywallRec=false>). This resulted in one of the first international bioprospecting and biotrade agreements involving an indigenous South African plant. Regular advice is provided to poison centres at hospitals and private doctors to help identify the cause of human (sometimes fatal) poisonings. Regular advice is given to both established and startup companies involved in the herbal industry.

At a recent international conference (GA, Naples), Prof Van Wyk was referred to as “the grandfather of herbal medicines in South Africa”.

Signed off on behalf of the University by:



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