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The Janus Corner

This occasional section within the journal surveys visions and achievements, often not on the main track of the developing biomedical sciences, but all relating to discoveries and developments of medicinals – both ancient and modern. What they have in common, in one way or another, is providing further background and glances around the edges of the core discipline of pharmacognosy, as it has been and continues to evolve within our times.

Pharmacogenetic Investigations of Various Medicinal Plants against the Zoonotic Bacterium *Bacillus anthracis*

Amelia Joy Toll Scheider[1,2]
[1]Maseeh College of Engineering and Computer Science, Portland State University, Portland, Oregon, USA.
[2]Envato Pty Ltd, Melbourne, Victoria, AUSTRALIA.
E-mail: dana.scheider@envato.com
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Made famous in the early 2000s for its use in biological warfare, anthrax is a deadly disease caused by the sporulating bacterium *Bacillus anthracis*. In addition to the danger it poses to humans, anthrax also infects livestock with an extremely high mortality rate. Bacterial spores can then put farmers at risk, who encounter diseased carcasses, at risk of infection.

Research by Dr. Mitchell Wright (A postdoctoral researcher at Griffith University) and Dr. Ian Cock (Senior lecturer and principal investigator of the project) into natural therapies for anthrax has generated significant results. This research has been featured in several journal articles and are as followed:

Article	Reference
Growth inhibition of the zoonotic bacteria *Bacillus anthracis* by high antioxidant Australian plants: New leads for the prevention and treatment of anthrax	1
Inhibition of *Bacillus anthracis* growth by Australian native plants used traditionally as antibacterial medicines	2
Growth Inhibitory Activity of Indian *Terminalia* spp. against the Zoonotic Bacterium *Bacillus anthracis*	3
Bacillus anthracis growth Inhibitory Properties of Australian *Terminalia* spp.: Putative Identification of Low Polarity Volatile Components by GC-MS Headspace Analysis	4
GC-MS Headspace Analysis of Terminalia ferdinandiana Fruit and Leaf Extracts which inhibit Bacillus anthracis Growth	5

A thorough discussion of the research findings is beyond the scope of this review; however, the researchers indicate that growth of the bacterium could be significantly inhibited by several plant extracts. Furthermore, the fact that these extracts can be prepared in water means they can be practical to use in farming applications. Many of the extracts were determined as being non-toxic when tested on brine shrimp at similar concentrations, suggesting that these may provide safe alternatives to chemical disinfectants that are currently used. Lastly, the research has identified specific compounds within the extracts that are believed to be the active antimicrobial agents, opening the door to additional research into the therapeutic potential of these.

In conclusion, these articles provide a comprehensive and rigorous look at natural therapies to combat anthrax. They highlight new techniques for treating anthrax that are likely to spur further research as well as having extensive practical applications.

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The Potential of South African Plants as Anti-Parasitic Agents

Heba Arafeh[1], Mitchell Henry Wright[2,*]
[1]School of Chemistry and Molecular Biosciences, The University of Queensland, Queensland, AUSTRALIA.
[2]Department of Research and Development, First Choice College, Gold Coast, Queensland, AUSTRALIA.

Correspondence:
Dr. Mitchell Henry Wight
Department of Research and Development, First Choice College, Gold Coast, Queensland- 4214, AUSTRALIA.
E-mail: mitchell@fcc.edu.au

Parasitic infections, particularly in regions where medical resources are limited, are of interest from both therapeutical and economic standpoints. In recent years, pharmacognostic research has become paramount in developing successful treatment approaches, as pathogens are adapting and developing resistances to traditional strategies. Dr. Ian Cock is a foremost authority on the medicinal potential of countless plant species. Recently, Dr. Cock and South African collaborators published an article summarising existing knowledge pertaining to the medicinal properties of South African plants.[1] Specifically, the review highlights the potential that South African plants have in the prevention and treatment of significant parasitic infections, as well as identifying gaps that warrant future research. Numerous parasites are covered within the text, including, but not limited to: intestinal parasitic infections such as worms/helminths; gastrointestinal protozoal parasites (including the extensively-studied giardiasis); ectoparasites and *Schistosoma haematobium*, the causative pathogen of bilharzia. The history and associated symptoms of each disease, the pathogenesis of the parasite and known remedies are discussed when available and avenues for further investigation are highlighted. The broad conclusion of the review is that, whilst there is an abundance of research that highlights the antimicrobial potential of South African plants, this does not extend to parasites and further investigation is required to address the treatment of parasitic infections. Overall, the review is well-structured, comprehensive and highlights the importance and potential of treating parasitic infections through the utilisation of natural resources that have been well-documented for their therapeutic properties.

REFERENCE

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