Happy New Year!

18 December 2019

Herbal Analysis Reporter

HERBAL ANALYSIS SERVICES

SPECIAL THANK YOU:

- ELSEVIER TEAMS
- OUR COLLABORATORS
- OUR WORLD-WIDE FOLLOWERS



GREETINGS!

As always, December is a month for reflection and looking forward to the new year. The year 2019 for me was one to remember and mostly devoted to book projects and editing special issues (...page 2)



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PHARMACOGNOSY RESEARCH IN THE 21ST CENTURY

You might recall my last year's Newsletter in December which highlighted my 20 years of pharmacognosy research here in London. As the subject continues its existence by any other name and mine with Herbal Analysis Services (*HAS*), there is a lot to celebrate. For the field, the grass is still green in many countries who use it as part of their undergraduate teaching. Most of my collaborative research is devoted to helping colleagues in these parts of the world to develop their capabilities in natural products' chemistry and pharmacology. A few years ago, we expressed our concern on the growing introduction of food supplements in the market with far less quality control scrutiny than modern drugs. Furthermore, numerous medicinal plants have been extensively rebranded for this market. Accordingly, pharmacognosy is now repurposed to fit into this new reality ... We establish the quality, safety and efficacy of medicinal foods and supplements (... page 3).

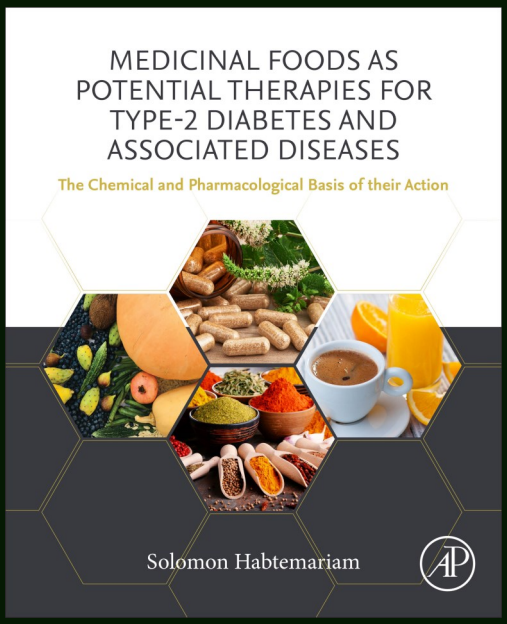
Books and Special Issues

My New Book

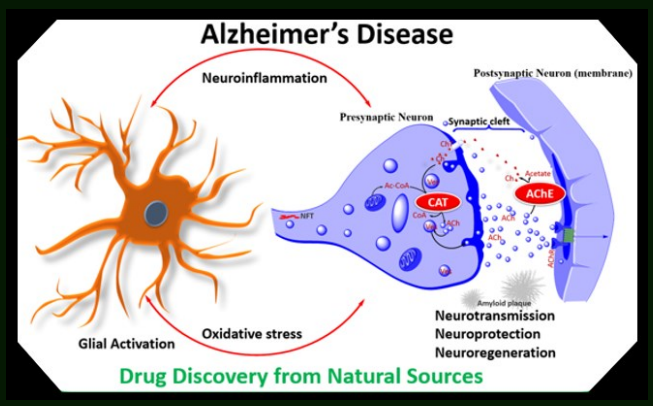
If the big names are known in their field for their books,

why shouldn't you be them? After completing my book on Moringa in 2017, I was inspired to make a far bigger impact in a popular field of scientific and social importance; DIABETES. As a self authored book (picture right) of over 1000 pages and 26 chapters, I honour 2019 as a great year of achievement in my career. The Elsevier (Academic Press) teams were also amazing to work with.

If anyone is inspired to do the same, I am here to help.



Alzheimer's Disease



Somehow, my interest in Alzheimer's disease is growing in recent years though I tend to believe it is nothing to do with my age! When there is no reliable drug therapy for the disease and the clinical trials keep failing, one must be keen to be involved. This topic is among the three special issues that I have been editing this year. My review article entitled "Natural Products in Alzheimer's Disease Therapy: Would Old Therapeutic Approaches Fix the Broken Promise of Modern Medicines"? has the full picture of the disease & its therapy.

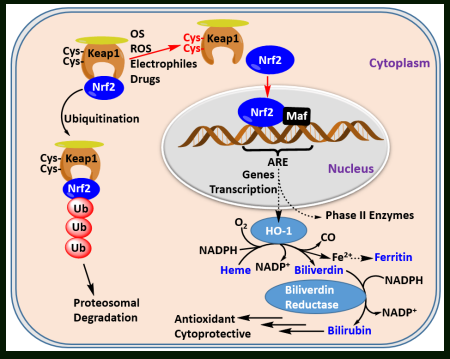
Am I getting old?

Reactive Oxygen Species (ROS)

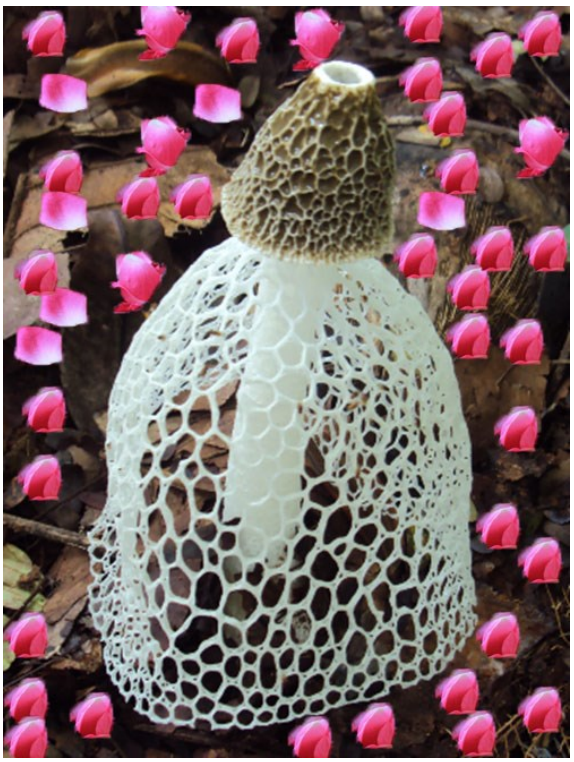
Oxidative stress is by far one of the most investigated areas of research in drug therapy. My special issue on this subject was to examine recent advances in the field for natural products. Traditionally, antioxidant activities are linked to polyphenolic compounds that scavenge free radicals at ease. Our understanding from animal and human studies however dictate that many compounds that are not optimized for direct ROS scavenging also induce antioxidant effects through indirect mechanisms.

As shown in my article for triterpenes such as ursolic acid, natural products can boost antioxidant defences in vivo. Comparative assessment of flavanones with a relatively weaker direct ROS scavenging effect than polyphenols with cathecholic or galloyl functional groups have shown similar indirect mechanisms of action. My article on the Nrf2 signalling mechanism (picture right) is a good example.

This is also our active area of research in the various pathological fields.

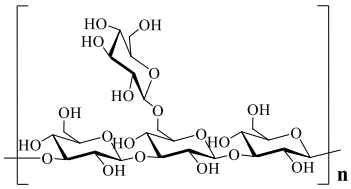


FROM THE MUSHROOMS FRONT



For the mushrooms, their queen has to dress to impress! The picture (left) is *Dictyophora indusiata* which is also known by its trivial name as 'bridal veil fungus,' 'veiled lady' or 'queen of the mushrooms'. I was obliged with honour to put a few flower petals around the picture of the bridal lady. Its therapeutic potential and mechanisms of action is reviewed in my latest publication.

Unlike the micro fungi, mushrooms are among the neglected corner of the natural world as sources of novel drugs. Their nutritional and therapeutic values especially for their polysaccharide components are only beginning to be acknowledged in recent years. Numerous mushrooms in Asia and Africa that are used for medicinal purposes are yet to be explored. Their polysaccharides with mostly beta-glucan backbone (see below) appear to be the main active principles with multiple bioactivity. We will have more to report on this next year.



Mushroom polysaccharides with1,3-β-glucan backbone

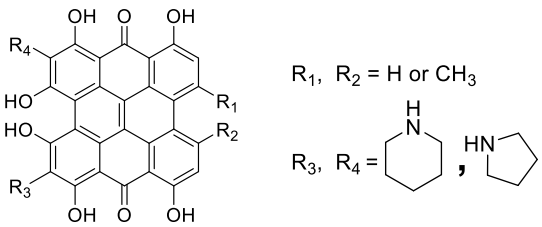
FOOD AS MEDICINE

and thy medicine be thy food continues

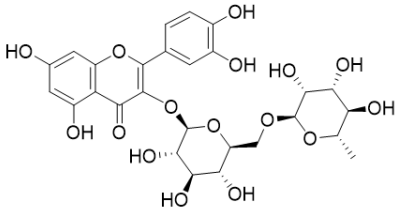
(... from page 1) Medicinal foods and potential nutraceutical development have been the focus of research in our labs. The picture on the right is the common buckwheat, *Fagopyrum esculentum* Moench.



I grew buckwheat from the seeds and studied the synthesis of its main active component, rutin, at different developmental stages (picture right). To this day, I have not come across another plant matching the high rutin content of buckwheat greens. On the basis of this study, my lab is working to maximise the extraction of the goodies while avoiding the potentially phototoxic fagopyrins (see below).



Fagopyrins



Rutin



Dr Solomon Habtemariam

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Herbal Analysis Services has been founded & exclusively owned by Dr. Solomon Habtemariam. Its mission is three-fold: to discover novel drugs from natural sources; employ phytochemical and pharmacological assays to standardise plant medicines and provide expert advice and services on the subject area. The website also provides resources and news on our progress both on modernisation of herbal medicines and the discovery of novel pharmacologically active compounds. Dr. Habtemariam has published over 200 papers in peer review journals and regularly hosts experts from all over the world who come for research visits and training. We welcome all requests on natural medicine research and businesses.

***Elected Fellow**:*

the Royal Society of Medicine (2007); the Royal Society of Chemistry (2009); the African Scientific Institute (2014); the African Academy of Sciences (2015).

CATCHING UP WITH OLD FRIENDS

As I was swimming in a big ocean of paperwork this year, my constant battle to keep my head up did not allow a distraction by frequent foreign trips. Even my usual fieldtrips to India and Africa were to be kept at the bare minimum.

The AAS's move to create working groups this year allowed us to closely work with good friends and colleagues (picture top right). Their generous support for our meeting and productive workshop organized by the International Science Council in Nairobi was memorable.

The unique flora and fauna of Africa always deliver an ultimate remedy for a restless mind. I enjoyed watching the big and small in action as well (picture right) — including a lion killing a giraffe which was a bit distressing to watch.





I always cite two iconic African scientists of inspiration (Professors Ermias Dagne and Berhanu Abegaz) who I was lucky enough to know and work with when I first started my career. It is a blessing that I met Prof. Dagne (picture below) and his colleagues again this year in Addis Ababa. The botanical garden, though on the move to a different location at Science Campus, has a good collection of plants that they researched on. To my great satisfaction, the interest in natural products research there is as good as when I knew it some 30 years ago.



MY COLLABORATORS AND FOLLOWERS

It is a privilege that I have research collaborators across all continents and our projects this year have led to many publications including in *Biotechnology Advances*, *Pharmacological Research, Biomedicine & Pharmacotherapy*, *Schizophrenia Research*, *ACS Sustainable Chemistry & Engineering, Antioxidants, Oxidative Stress and Cellular Longevity, Molecules,* etc. I always say that one more paper does not change my career ... but one more paper with my collaborators still makes my smile bigger. My website Herbal Analysis Services was visited by 374,191 people this year — up by 1,665 visitors from last year.

My usual thanks goes to all good friends, collaborators and followers - I wish you all a happy New Year.

Thank You!