Happy New Year!

12 December 2020

Herbal Analysis Reporter

HERBAL ANALYSIS SERVICES

SPECIAL THANK YOU:

- Research collaborators
- World-wide followers
- COVID-19 scientists



GREETINGS!

The year 2020 will be remembered for the coronavirus nemesis that crippled human activity. We briefly paused to adapt and shift priorities but the research has been going on as usual (...page 2).



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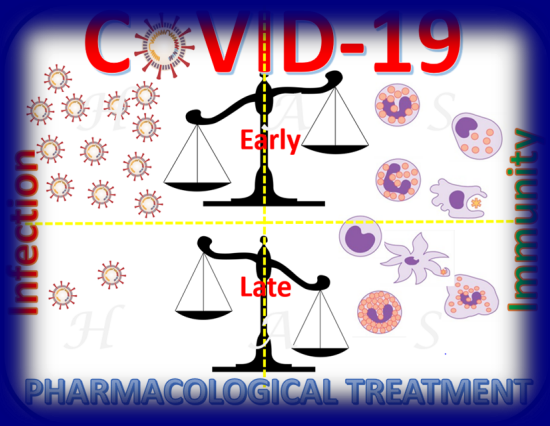
2020 – WHAT A YEAR!

For sure, it was the most challenging year in a life time. For many governments, it was a test of leadership at home and striking the balance between national interest and maintaining the democratic values that they stand for. For the public and scientists alike, it was a time of readjusting priorities to deal with the immediate challenge of the crisis. On the positive side, COVID-19 exposed our vulnerabilities and taught us that a virus pandemic can only be addressed through global efforts. Leaving aside how we got in to the crisis in the first place, the effort to solve the pandemic problem through cutting-edge global science /technology research was astonishing. What a delight was to witness the first vaccine being rolled out in the UK on 8 December 2020. One TV presenter described it as a great day for the world, the UK (for being first) and for the Philippines — as the vaccine was administered by a Filipino nurse. On that great day, one should also wonder when the first coronavirus vaccine will reach the Philippines? This pioneered vaccine by Pfizer/BioNTech, unlike the Oxford-AstraZeneca's vaccine, is costly and a –70°C material which has lots of challenge for global usage (... page 4).

COVID-19 THERAPEUTIC INSIGHT: A NEW PRIORITY

Have you done your bit of science to solve society's problem ?

By *February 2020,* we were sure that COVID-19 would become a global issue — Perhaps slightly ahead of our politicians? We set up a team to review how the virus evolves and to share our therapeutic insights. While the future holds on developing effective vaccines, which are currently being rolled out, therapeutics based on trials of existing drugs have already saved numerous lives. Starting from our critique on the rush to use chloroquine/ hydroxychloroquine as COVID-19 therapeutic option, we published over a dozen of papers so far. My own contribution in this field is recognised by the



Elsevier/Scopus COVID-19 expertise database showing my network of collaboration. We have done a lot of experimental work in this field too. Watch this space as there is more to come!

THE GUT MICROBIOTA RESEARCH



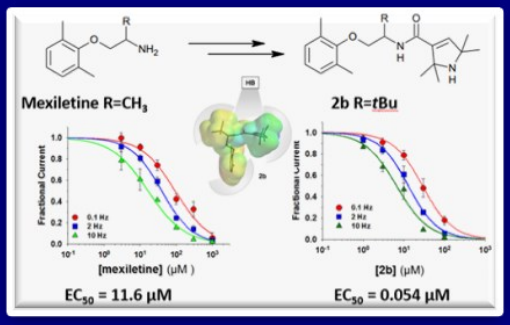
Dubbed as the hidden organ, the trillions of bacterial flora in our gut have emerged as the key to maintaining a healthy life, while changes in their composition and abundance explain the development of numerous pathologies. In addition to the Special Issue that I am editing for the journal '*Molecules*', we are looking for natural products that offer therapeutic option through modulation of the microbiota. As shown by my publication on berberine that appeared in the journal '*Pharmacological Research* (IF 5.893)', the therapeutic implication of such drugs (*image left*) is huge.

On the good, the bad and ugly of our gut microbes

MEDICINAL CHEMISTRY RESEARCH

If you can't isolate it from nature, get it through synthesis

Working with my good European friends, hopefully not much affected by Brexit, has always been a source of inspiration and high quality publications. Among the productive projects this year was my collaborative study with my Italian friend, Professor Giovanni Lentini. We have been particularly keen to synthesize multifunctional novel compounds and natural product mimics. We have effectively demonstrated in experimental models that this approach has a potential for treating complex diseases such as diabetes, cancer and cardiovascular disorders. One example is shown through our publication on novel derivatives of sodium channel blockers (*image above*) with dual effect as antiarrhythmic and antioxidant properties. Our current studies in this field in cancer and diabetes are mostly inspired by natural products from medicinal plants and medicinal foods (**... page 3**).



FOOD AND MEDICINAL FOOD RESEARCH



Our interest in food ingredients analysis continued this year despite the significant disruption of our research by the COVID-19 crisis. My Iranian collaborators have also been exceptionally productive and we have several papers submitted for publication in high impact factor journals. We are particularly interested in high value cereals and fermented products. Our publication entitled "The what and who of dietary lignans in human health: Special focus on prooxidant and antioxidant effects" was published in the journal of *Trends in Food Science & Technology* (IF 11.077). We were keen on flaxseed (*image above*) and many other cereals though the emphasis is on novel foods and food ingredients.

At the junction between foods and medicines are medicinal foods. In this regard, our research that was originally planned to dominate this year was that on medicinal mushrooms. These are underexploited resources at global level and we hope to expand our research in this area next year. My publication on the anticancer potential of the iconic higher fungi, *Trametes versicolor* (*image below*) appeared in the journal of "*biomedicines* IF 4.717".

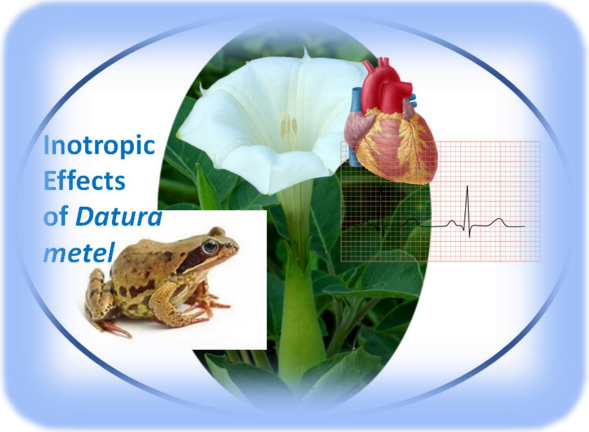


MEDICINAL PLANTS RESEARCH

We continue providing the scientific evidence for traditional plant medicines

My collaborative research with my African colleagues continued to be fruitful. My Ghanaian (Kumasi) pharmacognosy colleagues studying on the antidiabetic effect of one plant medicine, *Myrianthus arboreus* (*image right),* was exemplary. This publication in the journal of "*Biomedicine & Pharmacotherapy* IF 4.545" included a detailed study using *in vitro* and murine animal model of the disease both for the crude plant extract and isolated active principles.





Using amphibian cardiac model allowed us to demonstrate the medicinal value of African plants. My Cameroonian collaborators continued this path of research as exemplified by our publication on inotropic effect of *Datura metel* (*image left*). My collaborative research with South African and Nigerian colleagues were also productive and we did show this year, including through our publications, the potential medicinal value of various traditional medicines.

My collaborative research with my Iranian colleagues in this field included application of essential oils in various diseases such as cancer, diabetes and coronavirus infection which we will be publicising in the coming weeks.



Dr Solomon Habtemariam



info@herbalanalysis.co.uk

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)...

INEQUALITY IN HEALTH AND DISEASE

(... from page 1) If pandemics like COVID-19 have to be overcome, there should be a global mechanism for transparent research, appropriate funding and full representation of the world population. Otherwise, our gain would be temporary.

The COVID-19 research on vaccine and therapeutics so far have been conducted exclusively in high-income countries. There have been extensive redundancies and useless clinical trials. So much money has been wasted on individual efforts of studies that only gave inconclusive data. On the other hand, the UK's leadership like the RECOVERY trial study was exemplary. The Oxford-AstraZeneca's type of vaccine that has potential for global application also offers a great promise. Ultimately, the WHO's kind of platform that guarantees the development and equitable sharing of a vaccine for the entire world population is the only solution. The virus originating from Wuhan didn't respect geographical boundaries and will return with vengeance from anywhere on earth unless our approach is global.

In the year 2020, coronavirus was not the only cause of breathing problem. George Floyd's last words "**I can't breathe**" have been reverberating around the world. For the rest of the world that used to look (and made to believe) into the USA as a beckon of democracy, it was a vivid reality of the extent of racism in our modern society. Unfortunately, it is only major tragedies like this that seems to awaken people who are otherwise ignorant.



Our lives matter
Whoever we are &
Wherever we may be!

I often wonder how racism can be tolerated in Western democracy. For the UK, the murder of Stephen Lawrence in 1993 exposing the extent of institutional racism within its police force should have been the last stimulus for lasting change. The UK higher education which represents the global intellectual powerhouse should have also been the last place to tolerate racism. At least, this was what I really believed when I joined it young and naïve. It is not any different from other sectors however.

The higher rate of death from COVID-19 among the Black and Asian Minority Ethnic (BAME) group further exposed the existing fault line in our society today. Though the social and medical reasons for this will continue to be debated, BAME appears to be a vulnerability to COVID-19 deaths. Sadly, inequality will remain to be a global issue both in health and disease.

SCIENCE HAS NO BOUNDERIES

At least 28 of the scientific papers that I published this year have coauthors from across the world at large. Science indeed has no boundaries and I will be continuing my collaborative work post-Brexit with my European friends. Special thank you goes to my Italian colleagues particularly the team led by Prof. Lentini, the diverse Iranian groups championed by Prof. Nabavi, my Cameroonian, Ghanaian, Nigerian and various other collaborators. To guarantee the online security of the hundreds of thousands of my website (Herbal Analysis Services) visitors annually, I am now using an encrypted technology with an SSL certificate that links browsers with my servers. I welcome you all to exchange views, ideas, collaborative research and consultancy *via* my secure website.

I WISH YOU ALL A VERY MERRY CHRISTMAS & A HAPPY NEW YEAR!

THANK YOU!