Pharmacogn. Commn. 2019;9(4):149-151
A multifaceted peer reviewed journal in the field of Pharmacognosy and Natural Products
www.phcogcommn.org

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.

Traditional Botanical Treatments for Mycosis Show Promise as Novel Agents for the Treatment of a Variety of Fungal Skin Pathologies

A micro Review of: Inhibition of the growth of human dermatophytic pathogens by selected Australian and Asian plants traditionally used to treat fungal infections Noé, *et al.* 2019.[1]

John Hanna
Division of Environmental and Biomolecular Systems, Institute of Environmental Health, Oregon Health and Science University, Portland, Oregon, UNITED STATES OF AMERICA.
DOI: 10.5530/pc.2019.4.31.

Until the mid-20th century, most medicines were blends of pharmacological plants, minerals and extracts, of which some – and their corresponding methods – have been unchanged since pre-history. With the rise of resistance to our designed and derived antibiotics and drugs – which include anti-fungal, anti-protozoal and anti-helminthic medications – re-examinations of the usefulness of these remedies is warranted. Many early investigations have shown remarkable promise and across the world research is now, with increasing frequency, fully geared towards eventually putting new, plant derived drugs into use.

In a pioneering step towards this goal, the authors Noé *et al.* 2019,[1] proposed and tested the usefulness of natural plant extracts – from *T. lanceolata, T. ferdinandiana* and various *Syzgium* spp. - as antimicrobials against various "fungal" pathogens including: *C. albicans, M. gypseum* and *Trichophyton* spp. *C. albicans* is a yeast that acts as an opportunistic pathogen in humans, causing infections of the oral and vaginal mucosa in immunocompetent individuals, and causing potential lethal systematic infections in persons with compromised immunity, such as due to AIDS, chemotherapeutic treatment for cancer and persons who have undergone organ and bone marrow transplants. This is compounded by the fact that there currently exist few drugs effective in treating Candidiasis and that number is growing smaller as resistance to these medications grows.

Extracts tested by the authors proved highly effective in inhibiting growth of all tested pathogenic organisms and while further testing is needed to isolate the active compounds from the various extracts, the results show extreme promise. Given the demonstrable inhibitory effects, small concentration for efficacy and low toxicity displayed of many of the extracts the authors conclude – I believe correctly – that many of these traditionally used medicinal plants do indeed possess significant validity behind their use and that further investigation of plants used for traditional medicine such as *T. lanceolata*, *T. ferdinandiana* and various members of the genus *Syzgium* is warranted. The authors further propose, such investigations will likely bear fruit in combating antibiotic resistance and medical conditions with poor treatment options.

REFERENCE

1. Noé W, Murhekar S, White AR, Davis C, Cock IE. Inhibition of the growth of human dermatophytic pathogens by selected Australian and Asian plants traditionally used to treat fungal infections. International Journal of Cosmetic Science. 2019. DOI: 10.1016/j.mycmed.2019.05.003

Anticonvulsant activity of a Potassium Channel Activating Compound from *Coriandrum sativum* L. Leaves

Dr. Ian Edwin Cock[1,2,*]
[1]School of Natural Sciences, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland-4111, AUSTRALIA.
[2]Environmental Futures Research Institute, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland-4111, AUSTRALIA.
Phone no: +61 737357637
E-mail id: I.Cock@griffith.edu.au

A recent study published in The FASEB Journal identified a *C. sativum* leaf component which is a potent activator of KCNQ channels.[1] *C. sativum* leaves (Figure 1) have long been used as anticonvulsants to treat neurological conditions including epilepsy in traditional medicine systems, but their mechanism of action was unknown. The research by the UCI group isolated a lipophilic long chain fatty aldehyde component called dodecanal that binds to KCNQ potassium channels, thereby forcing them to remain open and active. Notably, dodecanal binds several ion channels including the predominant neuronal and cardiac channels. Therefore, dodecanal is not only responsible for the anticonvulsant action of *C. sativum* leaves but can also regulate cardiac activity. Interestingly, this plant also has several other reported therapeutic properties, including anticancer, antimicrobial and analgesic activities, although these yet to be rigorously examined.

Figure 1: Fresh C. *sativum* leaves. The photograph was taken by Thamizhpparithi Maari and is reproduced from Wikipedia Commons (https://commons.wikimedia.org/wiki/File:A_scene_of_Coriander_leaves.JPG) with reference to all conditions of reproduction and with all relevant permissions.

REFERENCE

1. Manville RW, Abbot GW. Cilantro leaf harbours a potent potassium channel activating anticonvulsant. The FASEB Journal. 2019. DOI: 10.1096/fj.201900485R

Elderberry Compounds Inhibit Cellular Entry of Influenza Virus, Thereby Decreasing Infectivity and Decreasing Flu Symptoms

Dr. Ian Edwin Cock[1,2,*]
[1]School of Natural Sciences, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland-4111, AUSTRALIA.
[2]Environmental Futures Research Institute, Nathan Campus, Griffith University, Nathan, Brisbane, Queensland-4111, AUSTRALIA.
Phone no: +61 737357637
Email id: I.Cock@griffith.edu.au

A Sydney research group recently reported that compounds found in elderberries (*Sambucus* spp.; Figure 2) can directly inhibit the entry of influenza virus into human cells. Specifically, the compound blocks key viral proteins that are vital for both viral attachment and cell entry. Furthermore, the study published in the Journal of Functional Foods[1] also determined that the compound inhibited viral replication within the cell. The ability of the elderberry compound to block the viral life cycle is interesting as this provides it with greater antiviral efficacy. Of further note, other compounds in the elderberry extract stimulate cytokine release, thereby stimulating the immune system and providing a coordinated response should the virus evade the cell entry and replication inhibitor activities of the elderberry extracts.

Figure 2: Fresh *Sambucus* spp. leaves and berries. The photograph was taken by Edal Anton Lefterov and is reproduced from Wikipedia Commons (https://commons.wikimedia.org/wiki/File:Sambucus-berries.jpg) with reference to all conditions of reproduction and with all relevant permissions.

REFERENCE

1. Torabian G, Valtchev P, Adil Q, Dehghani F. Anti-influenza activity of elderberry (*Sambucus nigra*). Journal of Functional Foods. 2019;54:353-60. DOI: 10.1016/j.jff.2019.01.031