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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.

A Natural Compound Isolated from an Indian Medicinal Plant Inhibits the Action of Botulinium Neurotoxin

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The neurotoxins (BoNTs) produced by the anaerobic bacterium *Clostridium botulinium* are amongst the most poisonous proteins known. These toxins block neurotransmitter release by cleaving N-ethylmaleimide-sensitive factor attachment receptor (SNARE) proteins, inducing paralysis. In a recent study published in Applied and Environmental Microbiology,[1] 300 natural compounds isolated from a panel of Indian medicinal plants were screened by biochemical and cellular assays for the ability to antagonise the catalytic active site of BoNT, thereby inhibiting the activity of the protein. Nitrophenyl psoralen (NPP) was identified as a potent inhibitor of BoNT activity, with an IC_{50} of <4 μM. Furthermore, NPP can also reverse BoNT associated muscle paralysis in a murine model and have low toxicity in humans. Indeed, multiple psoralen derivative drugs are already approved by the US FDA, thereby potentially simplifying the drug approval process for NPP.

REFERENCE

1. Patel KBI, Cai S, Adler M, Singh BK, Parmar VS, Singh BR. Natural compounds and their analogues as potent antidotes against the most poisonous bacterial toxin. Applied and Environmental Microbiology. 2018;15;84(24):e01280-18. DOI: 10.1128/AEM.01280-18

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Aryl Azide Compounds Based on Isatisine a Inhibit HSV and Zika Virus

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Zika virus has caused serious concerns since a major outbreak of the disease in 2015 and particularly worrisome for pregnant women. Similarly, Human respiratory syncytial virus (HSV) is a major cause of lower respiratory tract infections in children is is responsible for a, major % of infections in children. To date, treatment for both of these diseases has been limited to supportive measures. However, a recent Canadian study has reported that the natural compound isatisine A (an compound isolated from a traditional Chinese medicine (TCM) plant) has good activity against these viral pathogens. The group also tested a series of modified aryl azide compounds based on the isatisine A structure against these viruses and reported that the compounds were generally good inhibitors of viral infectivity. Whilst this study is promising, further studies are required to further modify the compounds to enhance bioavailability whilst maintaining potency.

REFERENCE

1. Atienza BJP, Jensen LD, Norton SL, Ansalem AKV, Hobman T, Fearns R, *et al.* Dual catalytic synthesis of antiviral compounds based on metallocarbene-azide cascade chemistry. Journal of Organic Chemistry. 2018;83(13):6829-42.

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Ambrosia artemisiifolia L. Compounds Inhibit the Development of Alzheimer's Disease

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Alzheimer's disease (AD) is a neurodegenerative disorder that is characterised by loss of memory and cognition and may also result in impaired judgement and behavior. The degenerative nature of the disease is linked to the accumulation of amyloid-β (AB) peptides in brain cells to form neuronal plaques. Several drugs are currently available to treat AD by delaying the accumulation of AB. However, these are all only effective for a relatively short time. A recent Korean study screened 300 plant extracts for anti-AD activity and highlighted *Ambrosia artemisiifolia* (common ragweed) is particularly noteworthy. The group isolated and identified 14 compounds from the *A. artemisiifolia* extracts with neuro-protective properties.

REFERENCE

1. An JP, Ha TKQ, Kim HW, Ryu B, Kim J, Park J, *et al*. Eudesmane glycosides from *Ambrosia artemisiifolia* (common ragweed) as potential neuroprotective agents. Journal of Natural Products. 2019;82:1128-38.