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In vitro anti-influenza virus activity of Rooibos tea

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Abstract

Background: Influenza virus is a major public health and its control continues to be a challenge. One of the possible sources of anti-influenza active agents might be Rooibos teas (RT), with various pharmacological actions.

Methods: We searched for anti-influenza activity using standard in vitro antiviral assays such as Inhibition of virus induced cytopathic effect (CPE) assay, inhibition of viral plaques, and hemagglutination assay. Time-of-addition assay was performed to target an event in the virus life cycle.

Results: RT crude extract showed anti-influenza activity and the 50% effective inhibitory concentration (CC50) was 4%, while IC50 for A/WSN/33 was 0.13%, when they were measured with both Crystal violet and Water-soluble tetrazolium salt (WST-1) assays. The virus-induced cytopathic effects were thus significantly reduced. Plaque assays demonstrated that RT extracts reduced virus infectivity markedly in dose dependent manner, when the viruses were treated with RT extract before exposure and post exposure to MDCK cells. In contrast, pretreatment of MDCK cells with RT extracts before influenza virus infection did not affect virus infectivity. The inhibitory effect of RT extract was observed against influenza A/PR/8/34 (H1N1), A/WSN/33 and A/HK/8/68 (H3N2) and influenza B. Our results suggest that RT extract contains anti-influenza virus substances that directly affects influenza virus particles and disrupts the function of virus adsorption to host cells.

Conclusions: These results have exposed the capability of the extracted RT for strongly inhibit influenza virus replication and offers an opportunity for the development of a new anti-influenza virus agent.

Biography:

Dr. Mona Timan is a lecturer of Microbiology in the Department of Pharmaceutical Microbiology, Faculty of Pharmacy, Imperial University, in Sudan. She is assistant professor, PhD studies in pharmaceutical microbiology (development of novel antiviral drugs from Sudanese plants and

Possible mechanism of action). She also worked as a Visiting Scientist in the department of Bimolecular Sciences, University of Mahidol, Thailand. Dr Mona participated in many projects with members of the Molecular virology laboratory in University of Nagasaki, Japan using molecular biology techniques.

Speaker Publications:

1. "In vitro anti-influenza virus Supported on Carbon Derived from Solid Olive Waste for Epoxidation of Cyclooctene"; Asian J. vaccine. / 2018 / 30(8) /pp 1731-1735
2. "Adsorption studies of safranin and methylene blue on an adsorbent based on phosphorylated sawdust"; Vol 151 (2017) 199–211
3. "In vitro anti-influenza virus productive of hydroxyl radicals for unconventional solar-driven premeditation of antibiotic enriched wastewater"; Journal of vaccine/ Vol 576, 2019, 129071.

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