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## Pharmacological evaluation of the *Hibiscus* herbal extract against herpes simplex virus-type 1 as an antiviral drug *in vitro*

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High prevalence of viral infections and constant emergence of resistant virus strains worldwide calls for an urgent need to discover/develop novel therapeutic agents to improve the global treatment of virus infection especially against Herpes Simplex Virus-type 1 (HSV-1). The objective of this study is to conduct phytochemical screenings to have an insight on the identification, the essential components of the methanolic/aqueous *Hibiscus* extracts, cell viability and cell proliferation assay as well as the antiviral activity of the methanolic/aqueous of *Hibiscus* were evaluated by reduction of the viral cytopathic effect, which showed a potential activity of both extracts against HSV-1 as indicated by selectivity index (SI) values of 8.0 and 7.7 for methanolic and aqueous *Hibiscus* extracts correspondingly. Different experiments like viral binding, viral adsorption, virucidal, and time of addition assays were designed to investigate the mechanism of antiviral activity of *Hibiscus* extract revealing that the extract not only prevented the virus particles from interacting with the Vero cells in the pre-treatment assay but also had a prophylactic effect blocking the replication of the virus causing prophylactic selectivity indices of 6.1 and 5.2 for methanolic and aqueous *Hibiscus* extracts correspondingly, confirming a maximum protection of Vero cells against HSV-1 attack. Results shown in this study demonstrate the potent and broad spectrum antiviral activity due to the multiple components contained in the *Hibiscus* extract from active ingredients. Fluorescence microscopy were used to demonstrate the viral kinetics which revealed that the antiviral activity of all *Hibiscus* extracts tested was effective during the first stages of the virus replication cycle and thus, *Hibiscus* extract may provide a novel treatment for HSV-1 infectivity.

### Biography

Dr.Zenab Torky is an Assistant Professor of Microbiology in the department of Microbiology, Faculty of Science, Ain Shams University, in Egypt. She also worked as a Visiting Scientist in the department of Biological Sciences, University of Louisville, USA. Dr.Zenab has also reviewed and edited many papers for the Food Safety Journal.

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