

Title : Efficacy and Mechanism of *Clinacanthus siamensis* Extract in Dengue Virus Inhibition.

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ABSTRACT

Dengue virus (DENV) is a major causative agent of dengue fever (DF), a significant global health concern. Severe cases of dengue fever can lead to life-threatening complications. DENV is transmitted from human to human via *Aedes aegypti* and *Aedes albopictus* mosquitoes, predominantly found in tropical and subtropical regions. The global incidence of dengue fever has increased substantially in recent decades, and currently, there is no specific antiviral treatment available. Notably, supportive care remains the primary approach for managing the disease. Natural extracts have gained considerable attention as alternative therapeutic agents due to their safety profile, minimal side effects, and low risk of bioaccumulation. This study aims to investigate the antiviral efficacy and inhibitory mechanisms of *Clinacanthus siamensis* extract against dengue virus serotype 2 (DENV-2) infection. Cytotoxicity of the extract was assessed in Vero cells using a cell viability assay. Results demonstrated that at concentrations ranging from 31.25 to 1000 $\mu\text{g/mL}$, cell viability remained above 80%. The antiviral activity of the extract was further evaluated using an Enzyme-Linked Immunosorbent Assay (ELISA). The extract at concentrations of 7.8125, 15.625, 31.25, and 62.5–250 $\mu\text{g/mL}$ inhibited viral protein production in infected cells by 7.65%, 36.51%, 72.71%, and 100%, respectively. These findings were consistent with Immunofluorescence assay (IFA) results, which demonstrated a reduction in the number of infected cells upon treatment with *C. siamensis* extract. Thus, this extract has the potential to serve as a promising candidate for the development of antiviral drugs and vaccines for dengue fever in the future.

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