

# Searching for potential antiviral activity of medicinal plants against SARS-CoV-2

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## ABSTRACT

**Introduction:** COVID-19 is an infectious disease caused by the SARS-CoV-2, which severely affects the morbidity of people living with non-communicable diseases. Therefore, the Herbal Medicine Research Centre, Institute for Medical Research has taken the initiative to search for plant extracts and phytoconstituents with potential anti-SARS-CoV-2 properties *in vitro*. **Materials and methods:** The antiviral activities of potential plant-derived candidates against SARS-CoV-2 infection in Vero-E6 cells were assessed. The two steps viral induced-cytopathic effect (CPE) screening approach was used. Firstly, the SARS-CoV-2 was exposed with single doses (10  $\mu\text{g}/\text{mL}$  or  $\mu\text{M}$ ) of plant extracts and compounds after which the extracts and compounds with  $\geq 20\%$  viral inhibitory activities were evaluated for dose-response antiviral activities. The dose-response antiviral activity for each extract and compound was quantitatively analyzed via a dose response curve using the Graphpad Prism software. **Results and conclusion:** From more than 60 plant extracts and compounds screened against the SARS-CoV-2 infection *in vitro*, at single dose exposure, 8 plant extracts and compounds showed  $>20\%$  inhibition. Dose response analysis identified three plant extracts and one compound with potent antiviral activity ( $\text{EC}_{50} \leq 10 \mu\text{g}/\text{mL}$  or  $\mu\text{M}$ ) and high selectivity ( $\text{SI} \geq 10$ ) towards the SARS-CoV-2. One of the extracts with potent anti-SARS-CoV-2 activity was derived from the *E. longifolia* plant, a Malaysian medicinal plant. Further evaluation on the efficacy of this plant's extract and compounds in SARS-CoV-2 infected human lung cells and a COVID-19 animal model is warranted.