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ANTIVIRAL ACTIVITY OF PHYSTA®, STANDARDISED WATER EXTRACT OF *EURYCOMA LONGIFOLIA* AGAINST SARS-COV-2: AN *IN VITRO* STUDY

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ABSTRACT

Eurycoma longifolia Jack (Simaroubaceae) root extract is known to exhibit anti-inflammatory, antiviral and immunomodulatory activities. Therefore, E. longifolia, through a multimodal approach could potentially be used in COVID-19 management. However, to date there has been no investigation into the antiviral activity of E. longifolia root extract against severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). The objective of the study is to investigate the antiviral activity of Physta® (a standardised water extract of E. longifolia) against SARS-CoV-2. A mitochondrial metabolic activity assay using 3-(4,5-dimethylthiazol-2-yl)-5-(3-carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium (MTS) was used to determine the cytotoxicity of the Physta® extract in Vero cells, with concentrations ranging from 1.95 µg/mL to 1,000 µg/mL. Physta® was tested for antiviral activity at six different concentrations, ranging from 3.12 µg/mL to 50 µg/mL. The half maximal cytotoxic concentration (CC_{50}) value of Physta® against Vero cells was estimated at 1,117 µg/mL and the maximum non-toxic dose (MNTD) value was estimated at 60 µg/mL. Physta® inhibited SARS-CoV-2 replication in a dose-dependent manner, and the half maximal inhibition concentration (IC_{50}) was estimated to be 36.3 µg/mL. This study has demonstrated the antiviral activity of Physta® against SARS-CoV-2. Future evaluations in animal and clinical settings should be conducted to determine whether Physta® can be used alone or in combination with other antiviral agents to alleviate COVID-19.

Keywords: Physta®, *Eurycoma longifolia*, COVID-19, SARS-CoV-2, Anti-viral

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