INHIBITION OF INFLUENZA A VIRUS INFECTIVITY AND RNA-DEPENDENT RNA POLYMERASE ACTIVITY BY *ANDROGRAPHIS PANICULATA* ETHANOL EXTRACT

Hang Ding, Xiaokai Chen, Weilie Ma and Zhizhen Zhang

Department of Biochemistry and Molecular Biology, Guangdong Medical University, Dongguan, Guangdong, PR China

Abstract. *Andrographis paniculata* extracts exhibit many pharmacological properties, such as antibacterial, antioxidant, anti-inflammation, antipyretic and antiviral activities, the latter against Epstein-Barr virus, flavivirus, herpes simplex virus, and human immunodeficiency virus. Anti-influenza A virus (IAV) properties of *A. paniculata* ethanol extract (APE) were investigated in IAV-infected Madin-Darby canine kidney cells. APE at >0.5 mg/ml exhibited anti-IAV effect in a dose-dependent manner using CCK-8 and cytopathic assays. APE pre-treatment demonstrated better antiviral activity than post-treatment. APE in the same dose range significantly inhibited viral RNA-dependent RNA polymerase activity. In conclusion, ethanol extract of *A. paniculata* inhibited influenza A virus infectivity and replication in Madin-Darby canine kidney cells, the latter effect through, in part, inhibition of viral RNA-dependent RNA polymerase activity. The study demonstrates chemical constituents in APE could have potential for discovery and development of novel anti-influenza agents.

Keywords: *Andrographis paniculata*, antiviral activity, ethanol extract, influenza A virus

Correspondence: Zhizhen Zhang, Department of Biochemistry and Molecular Biology, Guangdong Medical University, Dongguan, Guangdong 523808, People's Republic of China.
Tel/Fax: +86 769 22896339
E-mail: jery2018@hotmail.com