

## Anti-HIV-1 activity of phenolic compounds isolated from *Diospyros lotus* fruits

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### Abstract

Phenolic compounds represent an important natural source of antiretrovirals for AIDS therapy due to their significant anti-HIV-1 activity and low toxicity. In our search for potent anti-HIV-1 agents from plants, phenolic compounds isolated from methanol (70%) extract of *Diospyros lotus* fruits were tested for anti-HIV-1 activity. Seven compounds, ellagic acid, methyl gallate, gallic acid, myricetin-3-O- $\beta$ -glucuronide, myricetin-3-O- $\alpha$ -rhamnoside, myricetin and quercetin were identified by different spectroscopic methods (UV, <sup>1</sup>H-NMR, <sup>13</sup>C-NMR and MS). Gallic acid was the most active compound against HIV-1 with Therapeutic Index (TI) value of >32.84 and the other compounds were less potent active. *Diospyros lotus* fruits could provide a chemical reservoir of anti-HIV agents.

**Keywords:** *Diospyros lotus*; flavonoids; cytotoxicity; anti-HIV-1 activity

### Introduction

The use of ethnomedicines to manage HIV/AIDS has recently gained public interest. Plants and other natural products present a large repertoire from which to isolate novel anti-HIV active compounds. Acquired immunodeficiency syndrome (AIDS) is a clinical syndrome that is the result of infection with human immunodeficiency virus (HIV), which causes profound immuno-suppression. HIV-1 is the cause of the world epidemic and is mostly commonly referred as HIV. It is a highly variable virus, which mutates readily. There are many different strains of HIV-1, which can be classified according to groups and subtypes; there are two groups, M and O. Within group M, there are currently known to be at least ten genetically distinct subtypes of HIV-1. These are subtypes A to J. In addition, Group O contains another distinct group of heterogeneous viruses. HIV begins its infection of a susceptible host cell by binding to the CD4 receptor on the host cell. CD4 is present of the surface of many