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

Khaled Rashed1,*, Xing-Jie Zhang2,3, Meng-Ting Luo2,3, Yong-Tang Zheng2

1National Research Centre, Pharmacognosy Department, Dokki, Giza, Egypt.
2Key Laboratory of Animal Models and Human Diseases Mechanisms of Chinese, Academy of Sciences and Yunnan Province, Kunming Institute of Zoology, Chinese Academy of Sciences, Laboratory of Molecular, Kunming, Yunnan 650223, China.
3Graduate School of the Chinese Academy of Sciences, Beijing100049, China.

*Corresponding Author: khalednabih2005@yahoo.com; Tel: 01003642233

Received: 3rd April 2012, Revised: 19 May 2012, Accepted: 20 May 2012

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-β-glucuronide, myricetin-3-O-α-rhamnoside, myricetin and quercetin were identified by different spectroscopic methods (UV, 1H-NMR, 13C-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