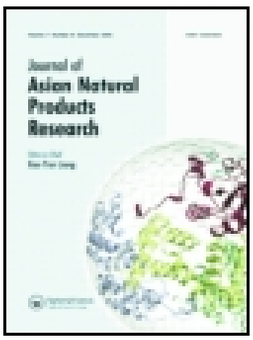

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Three new compounds from *Cinnamomum cassia*

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Three new compounds, including two new diterpenoids, named epianhydrocinnzeylanol (**1**) and cinnacasiol H (**2**), and one hydroxylasiodiplodin, (3R,4S,6R)-4,6-dihydroxy-de-*O*-methyllasiodiplodin (**3**), together with five known diterpenoids (**4**–**8**) and two known phenolic glycosides (**9**–**10**) were isolated from the barks of *Cinnamomum cassia*. Their structures were elucidated by extensive spectroscopic analysis and comparison of the chemical shift values with those of related known compounds. The anti-inflammatory activities of the isolates were evaluated on nitric oxide production in lipopolysaccharide-induced BV-2 microglial cells and the compounds showed weak inhibition activities.

Keywords: *Cinnamomum cassia*; chemical constituents; diterpenoids; hydroxylasiodiplodin; anti-inflammatory activity

1. Introduction

Cinnamomi Cortex, the barks of *Cinnamomum cassia*, known as "Rougui" in Chinese is not only used as a spice and flavoring agent, but also as a traditional medicine in the world. It has been widely cultivated in the tropical and subtropical areas, such as Yunnan, Guangdong, Guangxi, Hainan, Guizhou, and Taiwan in China, as well as India, Vietnam, Indonesia, Laos, Thailand, and Malaysia. It has often been used for the treatment of rheumatoid arthritis, amenorrhea, cardiac palpitation, diarrhea, and gastrointestinal neurosis in China [1]. Previous phytochemical investigations indicated that essential oils, diterpenoids, flavanols, lignans, and tannins were contained in the bark of *C. cassia* [2–9]. As a continuation of a search for bioactive components from *C. cassia*, an 85% aqueous ethanol extract was investigated to afford two new diterpenoids, named epianhydrocinnzeylanol (**1**) and cinnacasiol H (**2**), and one hydroxylasiodiplodin, 4,6-dihydroxy-de-*O*-methyllasiodiplodin (**3**), together with five known diterpenoids (**4**–**8**) and two known phenolic glycosides (**9**–**10**) (Figure 1). Herein, the isolation and structural elucidation of the new compounds are described. In addition, the anti-inflammatory activities of the isolates (**1**–**2**, **4**–**10**) were evaluated on nitric oxide (NO) production in lipopolysaccharide (LPS)-induced BV-2 microglial cells.

2. Results and discussion

Compound **1** was obtained as white amorphous powder. Its molecular formula was assigned as $C_{20}H_{30}O_6$ on the basis of a quasimolecular ion at *m*/*z* 365.1962 $[M - H]^-$ in its negative HR-ESI-MS. The IR spectrum indicated that **1** possesses hydroxy (3405 cm^{-1}) and carbonyl (1714 cm^{-1}) functionalities. The ^1H NMR spectral data (Table 1) showed signals for one oxymethine proton at δ_H 4.56 (1H, d, $J = 6.0$ Hz, H-1), five methyl groups at δ_H 1.76 (3H, s, H-17), 1.06 (3H, d, $J = 6.5$ Hz,

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