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Coumarins from Myanmar edible fruit tree (*Casimiroa edulis)*

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This research expresses the phytochemical study from the Myanmar edible fruit tree, *Casimiroa edulis* (Rutaceae). The result revealed that the isolation and identification of two furanocoumarins (bergapten **1** and isopimpinellin **2)** from the stem bark of this plant. Their molecular structures were elucidated and identified by using NMR spectroscopy in combination with IR, UV and HRMS spectra data, respectively. Furthermore, these two compounds were investigated for their anti-diabetic activity. According to the result, bergapten **1** and isopimpinellin **2** are not essentially good for anti-diabetic activity**.** This is the first report of two furanocoumarins from the Myanmar edible fruit tree.

Keywords: *Casimiroa edulis*, furanocoumarins, NMR spectroscopy, anti-diabetic activity.

Introduction

Casimiroa eduis La Llave (Rutaceae) is a genus of comprising only 10 species which is distributed in tropical and subtropical regions, including Myanmar. Among then, *Casimiroa edulis* is the well-known species[1,2]. The traditional used and the pharmacological studies of the leaves and seeds of *Casimiroa edulis* displayed various biological activities. In Myanmar, this plant is named Thar-kyar-thee.

Phytochemical studied from genus *Casimiroa* assist to the separation of various chemical constituents such as 18 flavonoids (isolated from leaves, fruits, and seeds), 24 alkaloids (isolated from leaves, fruits, bark, and seeds), and 16 coumarins (isolated from leaves, fruits, and seeds). Pharmacological investigations of isolated flavonoids are antioxidant, anti-mutagenic, solid tumor selective cytotoxicity, vasodilation and radical-scavenging activities, the investigations of isolated alkaloids are anti-mutagenic, solid tumor selective cytotoxicity, anti-hypertensive, cardiovascular activities, and the investigations of isolated coumarins are anti-coagulant, vasodilation and radical-scavenging, adipogenesis, solid tumor selective cytotoxicity activities, respectively[3–14]. This paper deals with the structure elucidation of two furanocoumarins from the stem bark of *Casimiroa edulis*.

Experimental

General:

The infrared spectra (IR) were obtained on FTIR-8400S (Shimadzu) using KBr. UV spectra were examined in MeOH by using UV-Vis Shimadzu spectrometer. Column chromatography (CC) was achieved on silica gel (BW-820H). Analytical thin-layer-chromatography (TLC) was completed at room temperature on pre-coated Kieselgel silica gel 60 F_{254} (Merck) aluminium plates. Melting points were determined by fisher john melting point apparatus. All NMR spectra were checked in $CDCl_3$ by using a Bruker Avance 3 (^{1}H: 600 MHz and ^{13}C: 151 MHz) with TMS as an internal standard. Chemical shifts are described in part per million (δ, ppm) based on their solvent signal (chloroform-*d***:** δ_H 7.26, δ_C 77.16**)** coupling constants *J* value in Hertz (Hz). HR-FAB-MS was attained with a JEOL JMS HX-110 mass spectrometer.

Plant material:

Casimiroa edulis La Llave was collected from Namp-see