Natural Product Sciences
24(4) : 284-287 (2018)
https://doi.org/10.20307/nps.2018.24.4.284

Acronyculatin P, A New Isoprenylated Acetophenone from the Stem Bark of *Acronychia pedunculata*

Mulyadi Tanjung[1,*], Intan Nurmalasari[1], Aisyah Kanti Wilujeng[1], Ratih Dewi Saputri[1], Fida Rachmadiarti[2], and Tjitjik Srie Tjahjandarie[1]

[1]*Natural Products Chemistry Research Group, Organic Chemistry Division, Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya, Indonesia*
[2]*Department of Biology, Faculty of Mathematics and Natural Sciences, Universitas Negeri Surabaya, Surabaya, Indonesia*

Abstract – A new isoprenylated acetophenone, acronyculatin P (**1**) as well as two known compounds, 3',5'-diisoprenyl-2',4'-dihydroxy-6'-methoxyphenylethanone (**2**) and 3'-isoprenyl-2',4',6'-trihydroxyphenylethanone (**3**) were isolated from the stem bark of *Acronychia pedunculata* (L.) Miq. The structures were determined by HRESIMS, 1D and 2D NMR. The inhibitory activity of the isoprenylated acetophenone derivatives against murine leukemia P-388 cells showed compound **1** moderate activity with IC_{50} 15.42 μM.
Keywords – Acronyculatin P, isoprenylated acetophenone, *Acronychia pedunculata*, P-388 cells

Introduction

Acronychia pedunculata is one species belongs to the Rutaceae family found in all of Indonesia. The stem bark have been used in traditional medicine for the treatment of fever, asthma, diarrhea, and rheumatism.[1] According to previous studies, the most common secondary metabolites isolated from *A. pedunculata* are alkaloids,[2] coumarins,[3] and isoprenylated acetophenone derivatives.[4,5] Isoprenylated acetophenone derivatives in the genus *Acronychia* indicate not their value as chemotaxonomic markers of the genus. Isoprenylated acetophenone derivatives were reported to possess cytotoxic,[4] anti-inflammatory,[6] and antioxidant[7] activities. In the present study, a phytochemical investigation is reported of the stem bark of *A. pedunculata* focused on the isolation and structural elucidation of a new isoprenylated acetophenone derivatives, acronyculatin P (**1**) along with two known compounds, 3',5'-diisoprenyl-2',4'-dihydroxy-6'-methoxyphenylethanone (**2**) and 3'-isoprenyl-2',4',6'-trihydroxyphenylethanone (**3**). The cytotoxic activity of compounds **1** - **3** against murine leukemia P-388 cells from this plant are also reported.

*Author for correspondence
Mulyadi Tanjung, Natural Products Chemistry Research Group, Organic Chemistry Division, Department of Chemistry, Faculty of Science and Technology, Universitas Airlangga, Surabaya, Indonesia
Tel: +62-31-5936501; E-mail: mulyadi-t@fst.unair.ac.id

Experimental

General experimental procedures – Column chromatography and radial chromatography were carried out using silica gel 60 and silica gel 60 PF_{254} (Merck, Darmstadt, Germany). UV spectra were recorded in MeOH on a Shimadzu series 1800 UV-VIS spectrophotometer (Kyoto, Japan). IR spectra were recorded in KBr on a One Perkin Elmer instrument (Waltham, MA, USA). NMR spectra were measured on a JEOL JNM-ECA 400 MHz FTNMR spectrophotometer (Tokyo, Japan) in $CDCl_3$ with TMS as the internal standard. Mass spectra were measured on an ESI-TOF Waters LCT Premier XE producing pseudo-molecular ions, $[M-H]^-$ negative ion mode (Santa Clara, CA, USA).

Plant materials – The dried and powdered of stem bark of *A. pedunculata* was collected in July 2017 from Gunung Salak, Bogor, West Java, Indonesia by Mr. Ismail Rachman. The plant material was identified at the Herbarium Bogoriense, Bogor. A voucher specimen (AP 60329) was deposited in Herbarium Bogoriense, Center of Biological Research and Development, National Institute of Science, Bogor, Indonesia.

Extraction and isolation – The stem bark of *A. pedunculata* (1.5 kg) was extracted with methanol at room temperature two times and then extracts were concentrated in vacuo. The methanol extract (350 g) was