A249 ACAT, DGAT and FPTase inhibitory sesquiterpene lactones from *Ixeris dentata* forma *albiflora*

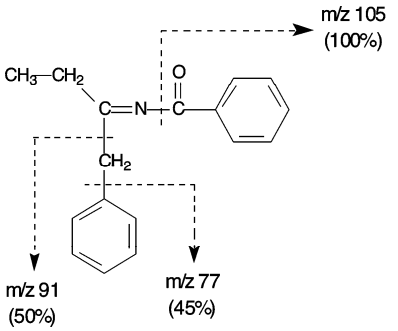
Myun-Ho Bang [a], *Tae-O Jang* [a], *Byoung-Mog Kwon* [b], *Young-Kook Kim* [b], *Hyun-Seon Lee* [b], *Nam-In Baek* [a]
[a] Graduate School of Biotechnology & Plant Metabolism Research Center, Kyung Hee University, Suwon, 449-701, Korea, [b] Korea Research Institute of Bioscience & Biotechnology, P.O. Box 115, Taejon, 305-600, Korea.

Ixeris dentata forma *albiflora* is a perennial herb (chrysanthemum) widely distributed in Korea, the root of which has been preferably ingested as fresh vegetables or fermented foods "Kimchi" in a Korean diet. Though the *Ixeris* genus plants have been used for remedy of renal calculus or pneumonia, and several sesquiterpene lactones were isolated from the genus plants, no report on constituents or activities of *I. dentata* forma *albiflora* has been found in the literature. Therefore, phytochemical and pharmacological study on the plant was carried out.
Repeated column chromatography using silica gel, ODS and Sephadex LH-20 for EtOAc and *n*-BuOH fractions obtained from *I. dentata* forma *albiflora* led to isolation of a new guaiane sesquiterpene lactone glycoside (**5**) along with five known ones, zaluzanin C (**1**), 9α-hydroxyguaian-4(15),10(14),11(13)-triene-6,12-olide (**2**), ixerin M (**3**), glucozaluzanin C (**4**) and 3βO-βD-glucopyranosyl-8βhydroxyguaian-4(15),10(14)-diene-6,12-olide (**6**). The chemical structure of compound **5** was determined as a 3β-O-(6'-*p*-hydroxyphenylacetyl-β-D-glucopyranosyl)-8β-hydroxyguaian-4(15),10(12)-diene-6,12-olide in the basis of interpretation of physical and spectral data including g-HSQC or g-HMBC and comparison of the data with those of literature. Some of them showed the inhibitory effects on ACAT (Acyl-CoA: cholesterol acyltransferase), (IC_{50} values of **3**, **4**, **5**: 0.33, 0.08, 0.06 mM) and DGAT (Diacylglycerol acyltransferase), (IC_{50} values of **1**, **2**: 0.19, 0.09 mM) the catalyzing enzymes of the intracellular esterification of cholesterol or diacylglycerol, and FPTase (Farnesyl-protein transferase), (IC_{50} values of **1**, **2**: 0.30, 0.35 mM) the farnesylation enzyme for Ras protein in charge of cancer promotion.

A250 Towards elucidating the structure of *Sesuvium verrucosum* active ingredient

Ahmed Taha
Department of Chemistry, College of Science, University of Bahrain, PO Box 32038 Isa Town, Bahrain. Email: ahmedabd@sci.uob.bh

Activity-guided chromatographic fractionation of the ethanol extracts of *Sesuvium verrucosum*, a medicinal plant from Bahrain, lead to the isolation of an active constituent showing a marked significant activity (LC_{50} =21.4 µg /mL) in the brine shrimp experiment (1). The plant extracts was reported (2) to contain alkaloids, coumarins, sterols and tannins. An earlier screening bioassay experiment (3) showed the plant, in comparison to other plants tested, to possess significant cytotoxicity in the crude extract. In this paper we report deconvolution steps of the active ingredient of the plant. The crude extract has been separated into four major fractions (F001-F004). The activity was shown to be residing in fraction F004 (3.5 g). This was subjected to column chromatography on silica gel (60-120 mesh) using gradient elution from hexane-$CHCl_3$ (9:1) to $CHCl_3$- EtOH (1:9) (10 fractions, I-X) followed by TLC (SiO_2, GF_{254}) analysis. Only fractions VII and VIII (F005) (0.95 g) showed bioactivity (LC_{50}= 21.4 µg/mL). Both fractions were then separated by preparative TLC (SiO_2, 1.5 mm layers) into 2 major bands (I and II); only band II (72 mg) was shown to be active. The chemical structure of the solid separated from band II was elucidated by GC-MS (figure). GC-MS analysis showed the compound to possess a molecular ion at m/z 251 (5%) indicative of a N-containing compound and a base peak at *m/z* 105 indicative of phenyl ketone fragment. Fragments at *m/z* 77 and *m/z* 91 are due to a phenyl ring and a tropylium ion, respectively. The tentative structure shown is suggested.



References: 1. McLaughlin, J.L et al (1982). Planta Med., 45, 31-34. **2.** Rizq, A.M. (1986). The Phytochemistry of the Flora of Qatar, Kingprint, Richmond, UK. **3.** Al sayed, H. and Taha, A. (2000), Phytother. Res. 14, 48-50.