Antiproliferative constitutients isolated from *Dendrobium nobile* stem on hepatic stellate cells

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Hepatic stellate cells have been known to play a key role in the pathogenesis of liver fibrosis [1]. In the course of screening for antifibrotic activity of natural products using HSC-T6, an immortalized rat hepatic stellate cell line as an in vitro assay system [2], the methanolic extract of *Dendrobium nobile* Lindl. stem (Orchidaceae) showed significant inhibitory activity on cell proliferation. Activity-guided fractionation resulted in the isolation of seven new phenanthrenes (1-7) along with twenty four known compounds (8-31). By spectroscopic analysis, the structures of compounds 1-7 were determined as 2,2'-dihydroxy-3,3',4,4'-tetrahydroxy-9,9'-biphenanthrene (1), 3-hydroxy-2,4,7-trimethoxy-9,10-dihydrophenanthrene (2), 2,8-dihydroxy-3,4,7-trimethoxy-9,10-dihydrophenanthrene (3), 2'-hydroxy-4,7-dimethoxy-9,10-dihydrophenanthrene (4), 2,5-dihydroxy-3,4,8-trimethoxyphenanthrene (5), 2,8-dihydroxy-3,4,7-trimethoxyphenanthrene (6) and 2,3,5-trihydroxy-4,9-dimethoxyphenanthrene (7), respectively. Antifibrotic activity of compounds 1-31 was evaluated employing HSC-T6 cells by assessing cell proliferation. Among them, compounds 3, 7, desibobinin (12), fimbriat B (15), coelochalin B (21), 3-methylbipigianol (23) and gigantol (24) significantly inhibited the proliferation of HSC-T6 cells (IC₅₀ values of 35.7, 9.0, 15.2, 110, 26.2, 34.8 and 25.5μM respectively). Acknowledgements: Seoul R&D Program (10541) References: 1. Friedman, S. L. (1993) New Eng. J. Med. 328: 1828 – 1935. 2. Vogel, S. et al. (2000). J. Lipid. Res. 41: 882 – 893.

Studies on the constituents of Chloanthus spicatus (Thunb.) Makino

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Our studies on the Chinese ethnological herbal medicines used by minor ethnic groups in Yunnan Province aimed at searching new leads for therapeutic agents. There are ca. 17,000 plants growing in Yunnan Province, many of which are used medically. As a part of this research program, we have investigated on the roots of *Chloanthus spicatus*, which are used for the treatment of high-blood pressure in combination with several herbal plants by Tai ethnic group. The EtOAc-soluble fraction from the MeOH extract of *C. spicatus* roots was separated by repeated column chromatography to give two new and one known compounds. These compounds are dimeric lignane-type sesquiterpenes, and their structures were characterized by the 1D and 2D NMR spectroscopic analyses. Their absolute stereostructures were elucidated by CD spectroscopic analyses. The dimeric lignane-type sesquiterpenes, in which two lignane units are bound at C-6-C-8' and C-15-C-9' by endo Diels-Alder cycloaddition, with a unique 18-membered macrocyclic trilactone ring, are characteristic compounds in the genus *Chloanthus*, and several biological activities have been reported so far.

New saponins from the roots of *Toecoyena formosa* (Rubieaceae)

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*Toecoyena formosa* (Cham. et Sch.) K. Schum. popularly known as “genipapo do campo”, is a small ornamental tree that grows spontaneously in Brazilinan Cerrado, a floristically and physiognomically diverse savanna vegetation [1]. In earlier communications, the isolation of iridoids from the leaves and stems of *Toecoyena formosa* with antifungal properties, as well as the known triterpe saponin (3-O-D-glucopyranosyl-28-O-D-glucopyranosyl quinic acid) has been reported [2,3]. In continuation of our studies with species of Rubieaceae family, the n-butanol soluble fraction of the ethanolic extract of the roots of *Toecoyena formosa* was chromatographed over Sephadex LH-20 and HPLC to yield five other triterpene saponins. Their structures were determined using a combination of homonuclear and heteronuclear 2D NMR techniques and HR-ESIMS, and were established as 3-O-D-glucopyranosyl-(28-1)-β-D-glucopyranosyl quinic acid (1) 3-O-D-glucopyranosyl-(28-1)-α-L-rhamnopyranosyl-(28-1)-β-D-glucopyranosyl quinic acid (2), 3-O-D-glucopyranosyl-(28-1)-β-D-glucopyranosyl (28-1)-α-L-rhamnopyranosyl-(28-1)-β-D-glucopyranosyl quinic acid (3), 3-O-D-glucopyranosyl-(28-1)-α-L-rhamnopyranosyl-(28-1)-β-D-glucopyranosyl quinic acid (4) and 3-O-D-glucopyranosyl-(28-1)β-D-glucopyranosyl quinic acid (5). Acknowledgements: FAPESP, CNPq. References: 1. Goodland, R.; Ferri, M.G. (1979) Ecologia do Cerrado, 1st edn. EDUSP-Ed. Sao Paulo, p. 173. 2. Bolzani, V.S. et al. (1996). J. Braz. Chem. Soc. 7:157 – 160. 3. Bolzani, V.S. et al. (1997). Phytochemistry 46: 305 – 308.

Chemical constituents from a cytotoxic root extract of *Anneslea lanceolata*

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*Anneslea lanceolata* (Hayata) Kaniehira.(Theaceae) is an endemic evergreen tree, distributed in broad-leaved forests in southern Taiwan. In a series of studies on the cytotoxic constituents of Formosan plants, 1,300 species were screened for in vitro cytotoxicity and *A. lanceolata* was one of the active species. Its root showed significant cytotoxic activity against MCF-7, NCI-H460, and SF268 cancer cell lines. There are only seven *Anneslea* species in the world and the chemical characteristics of this genus have never been analysed. The aim of this study is the isolation of cytotoxic constituents from the root of this species. Investigation of the active ethyl acetate-soluble fraction of the root led to the isolation of three new polyphenol glucosides including 1-O-(3-hydroxy-4,5-dimethoxyphenyl)-6-O-(4-hydroxy-3,5-dimethoxybenzyolyl)-β-D-glucoside (1), and two dihydro-chalcone glucosides, anneselleide A (2), and anneselleide B (3), along with twelve known compounds, comprising of two dihydrochalcone glucosides, davidigенин (4), 4-O-methylidavidigenin (5), two dihydrochalcones, davidigенин (6), 4-O-methylidavidigenin (7), one flavanone, 3',4',7-trihydroxyflavone (8), one lignan, lyonresinol (9), one coumarin, scopoletin (10), and five benzenoids, 4-hydroxybenzoic acid (11), 4-methoxybenzoic acid (12), 2-hydroxy-4-methoxybenzoic acid (13), 3-(4-hydroxyphenyl)-propionic acid (14), methyl 3-(4-hydroxyphenyl)-propionate (15). Their structures were elucidated on the basis of spectroscopic evidences. The analysis of the cytotoxic activity of the isolates are in progress. Acknowledgements: National Science Council of the Republic of China.