A155 Platelet anti-aggregating aporphine alkaloids of *Magnolia obovata*

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Magnolia obovata (Magnoliaceae) has long been used for the treatment of thrombotic stroke, typhus fever, headache, gastrointestinal disorders, asthma and urinary problems in Oriental countries. In the course of the continuous work for the discovery of anti-platelet and anti-thrombotic constituents from plants, six aporphine alkaloids, liriodenine, lanuguinosine, N-acetylanonaine, N-acetylxylopine, N-formylanonaine, magnoflorine were isolated from the methanol extract of leaves of *M. obovata*. The structures of the compounds were identified from the spectroscopic data (1-3). N-acetylxylopine, N-formylanonaine were isolated from genus *Magnolia* for the first time. The anti-aggregating effects of the alkaloids were evaluated on rat platelet rich plasma. Aggregations of platelets were induced either one of the following inducing agents; collagen, epinephrine, arachidonic acid and U46619. N-acetylanonaine, N-acetylxylopine, N-formylanonaine were 60 – 260 folds more inhibitory than acetylsalicylic acid, a known anti-platelet agent, to rat platelet aggregation. Magnoflorine, liriodenine and lanuguinosine showed only very mild inhibitory effects.

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References: 1. Nonato, M. G. et. al. (1990) J. Nat. Prod. 53: 1623-1627. **2.** Pachaly, P. et. al. (1992) Planta Med. 58: 184-187. **3.** Nozaka, T. et. al. (1988) Chem. Pharm. Bull. 36: 2259-2262. **4.** Dabrah, T. and Sneden, T. (1983) J. Nat. Prod. 46: 436.

A156 Novel *ent*-kaurane diterpenoids and anti-platelet aggregation action from Formosan *Annona squamosa*

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The phytochemical investigation on the stems of *Annona squamosa* led to the isolation of six novel *ent*-kaurane diterpenoids: annosquamosin C (16β-hydroxy-*ent*-kauran-19-al-17-yl 16β-hydro-*ent*-kauran-19-al-17-oate) (**1**), annosquamosin D (16β-hydro-17-hydroxy-19-nor-*ent*-kauran-4α-ol) (**2**), annosquamosin E (16β-acetoxy-17-hydroxy-19-nor-*ent*-kauran-4α-ol) (**3**), annosquamosin F (16β-hydroxy-17-acetoxy-19-nor-*ent*-kauran-4α-formate) (**4**), annosquamosin G (16β-hydroxy-17-acetoxy-18-nor-*ent*-kauran-4β-hydroperoxide) (**5**), annosquamosin H (16β,17-dihydroxy-18-nor-*ent*-kauran-4β-hydroperoxide) (**6**), along with 14 known *ent*-kaurane diterpenoids. Their structures were elucidated by mass and spectroscopy analyses. The systematic NMR methods were developed to determine the stereochemistry of C-16 on the *ent*-kaurane diterpenoids. *Ent*-kaur-16-en-19-oic acid (**9**) and 16α-hydro-19-al-*ent*-kauran-17-oic acid (**17**) showed complete inhibitory effect on rabbit platelet aggregation.

References: 1. Wu, Y. C.; Hung, Y. C. et al. (1996) J. Nat. Prod. 59, 635-637. **2.** Chen, C. Y.; Chang, F. R. et al. (2000) J. Nat. Prod. 63, 1000-1003. **3.** Costa, G. M.; Lemos, T. L. G. et al. (1999) J. Nat. Prod. 62, 1044-1045.