Induction of Caspase-8 and Death Receptors by a New Dammarane Skeleton from the Dried Fruits of *Forsythia koreana*

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A new naturally occurring compound based on the dammarane skeleton, *i.e.* cabralealactone 3-acetate-24-methyl ether, was isolated from the aqueous methanolic extract of *Forsythia koreana* fruits, along with eight known compounds: cabralealactone 3-acetate, ursolic acid, arctigenin, arctiin, phillyrin, rutin, caffeic acid, and rosmarinic acid. The identification of the isolated compounds was based on their spectral analysis including: HREI-MS, 1D and 2D NMR spectroscopy. The selected compounds and the aqueous methanolic extract were evaluated for their cytotoxic activity against human solid tumour cell lines. Cabralealactone 3-acetate-24-methyl ether and ursolic acid were found to be active against human breast cancer cells (MCF-7). The cytotoxicity was associated with the activation of caspase-8, the induction of the death receptors DR4 and DR5, as well as DNA fragmentation, and was thus due to apoptosis rather than necrosis.

Key words: Forsythia koreana, Dammarane, Breast Cancer