

New pyrano-pyrone from *Goniothalamus tamirensis* enhances the proliferation and differentiation of osteoblastic MC3T3-E1 cells

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Abstract: The new pyrano-pyrone, (+)-8-epi-9-deoxygonioppyrone (1) and (+)-9-deoxygonioppyrone (2) were isolated from a chloroform extract of *Goniothalamus tamirensis* leaves. Their absolute stereostructures were discussed and confirmed by using infrared (IR), Fourier transform ion cyclotron resonance mass spectrometry (FTICR- MS), one (1D) and two-dimensional (2D) nuclear magnetic resonance (NMR) spectra, Mosher's method, and comparison with the known compounds leiocapin A (3), deoxygonioppyrone A (4), and (-)-8-epi-9- deoxygonioppyrone (5). At concentrations of 2.67 μ M, compounds 1 and 2 significantly increased the growth of osteoblastic MC3T3-E1 cells and caused a significant elevation of collagen content, alkaline phosphatase activity, and nodule mineralization in the cells (pAuthor Keywords: (+)-8-epi-9-deoxygonioppyrone; *Goniothalamus tamirensis*; MC3T3-E1 cell; Osteoporosis; Pyrano-pyrone

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