Antitubercular constituents of Valeriana laxiflora

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Abstract

Antitubercular bioassay-guided fractionation of the n-hexane- and CH2Cl2-soluble extracts of the above-ground biomass and roots of Valeriana laxiflora led to the isolation of a new iridolactone,
(4R,5R,7S,8S,9S)-7-hydroxy-8-hydroxymethyl-4-methyl-perhydrocyclopenta[c]pyran-1-one
(1), and a new lignan, (+)-1-hydroxy-2,6-bis-epi-pinoresinol (2), along with eleven known compounds, betulin (3), betulinic acid (4), 5,7-dihydroxy-3,6,4′-trimethoxyflavone (5), 23-hydroxyursolic acid (6), oleanolic acid (7), tricin (8), ursolic acid (9), ferulic acid, (+)-1-hydroxypinoresinol, prinsepiol, and 5,7,3′-trihydroxy-4′-methoxyflavone. The structures of compounds 1 and 2 were elucidated on the basis of spectroscopic evidence. The absolute stereochemistry of 1 was determined by chemical transformations and Mosher ester procedures. In a microplate alamar blue assay against Mycobacterium tuberculosis, compounds 2 - 9 exhibited minimum inhibitory concentrations (MIC) of 15.5 - 127 μg/mL, while the other isolates were regarded as inactive (MIC > 128 μg/mL). In addition, all the isolates were tested for cytotoxicity against African green monkey Vero cells in order to evaluate their selectivity potential.