Antileishmanial Carbasugars from Geosmithia langdonii

Lourin G. Malak, Mohamed Ali Ibrahim, Ahmed M. Moharram, Pankaj Pandey, Babu Tekwani, Robert J. Doerksen, Daneel Ferreira, Samir A. Ross

Abstract:

Two new carbasugar-type metabolites, (1S,2R,3R,4R,5R)-2,3,4-trihydroxy-5-methylcyclohexyl-2',5'-dihydroxybenzoate (1) and (1S,2S,3S,4R,5R)-4-[(2',5'-dihydroxybenzyl)oxy]-5-methylcyclohexane-1,2,3-triol (2), were isolated from the filamentous fungus Geosmithia langdonii isolated from cotton textiles from Assiut, Egypt. The structures of 1 and 2 were elucidated based on comprehensive 1D and 2D NMR and MS data. Compounds 1 and 2 showed antileishmanial activity against Leishmania donovani with IC50 values of 100 and 57 μM, respectively. The (1S,2R,3R,4R,5R) absolute configuration of carbasugar 1 was assigned via 2D NMR and experimental and calculated electronic circular dichroism (ECD) data. Similarly, the tentative structure of compound 2 was shown to possess a (1S,2S,3S,4R,5R) absolute configuration via comparing its experimental ECD data and the specific rotation with 1 as well as examining the energy-minimized 3D computational models of compounds 1 and 2.

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