Triterpenes from the Roots of Lantana montevidensis with Antiprotozoal Activity

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Abstract:

Bioassay guided fractionation of the roots of Lantana montevidensis (Verbenaceae) has resulted in the isolation and identification of three new triterpenoids; 13β-hydroxy-3-oxo-olean-11-en-28-oic acid (1), 12β,13β-dihydroxyolean-3-oxo-28-oic acid (2) and 12β,13β,22β-trihydroxyolean-3-oxo-28-oic acid (3) in addition to nine known compounds: oleanonic acid (4), oleanolic acid (5), 3β,25β-dihydroxy-olean-12-en-28-oic acid (6), lantadene A (7), 19β-hydroxy-3-oxo-olean-12-en-28-oic acid (8) pomolic acid (9), camaric acid (10) together with β-sitosterol (11) and β-sitosterol-3-O-β-D-glucoside (12). The structures of the isolated metabolites were elucidated based on comprehensive 1D and 2D NMR spectroscopic data as well as HR-ESI–MS. The extracts and the isolated metabolites were evaluated for their antiprotozoal and antimicrobial activities. Compound 2 showed antibacterial activity against Staphylococcus aureus and methicillin resistant S. aureus with IC50 values against both organisms of 2.1 µM and compound 10 showed activity against same organisms with IC50 values 8.74 and 8.09 µM, respectively, compared to the positive control ciprofloxacin (IC50 = 0.3 µM against S. aureus and MRSA). Compounds 1, 4, 5, 6, and 10 showed moderate antileishmanial activity with IC50 values ranging between (2.54–14.95 µM) and IC90 values ranging between (11.90–19.47 µM), using pentamidine as a control (IC50 values 2.09–16.8 µM) and IC90 values ranging between (4.72–16.8 µM). These compounds also showed highly potent antitrypanosomal activity with IC50 values ranging between (0.39–7.12 µM) and IC90 values ranging between (1.91–10.51 µM), which are more efficient than the DFMO, the antitrypanosomal drug employed as positive control (IC50 and IC90 values 11.82 and 30.82 µM).

Keywords:

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