New Cycloartane Saponin and Monoterpenoid Glucoindole Alkaloids from Mussaenda luteola

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Abstract:

A new cycloartane-type saponin with unusual hydroxylation at C-17 and a unique side chain, 9 (R), 19, 22 (S), 24 (R) bicyclolanost-3β, 12α, 16β, 17α tetrol-25-one 3-O-β-D-glucopyranosyl-(1→2)-β-D-glucopyranoside (1) and two new monoterpenoid glucoindole alkaloids, 10-methoxy pumiloside (2) and the previously chemically synthesized, 10-methoxy strictosidine (3) along with other five known compounds, 7β-morroniside (4), 7-epiloganin (5), (7β)-7-O-methylmorroniside (6), 5(S)-5-carboxystrictisidine (7) and apigenin-7-Oneohesperidoside (8) were isolated from the aerial parts of Mussaenda luteola (Rubiaceae). The structural elucidation of the isolates was accomplished by extensive (1D and 2D NMR) spectroscopic data analysis and HR-ESI-MS. Compounds 4–8 were reported for the first time from the genus Mussaenda. Interestingly, this is the first report for the occurrence of the monoterpenoid glucoindole-type alkaloids in the genus which might be useful for the chemotaxonomic evaluation of the genus Mussaenda. All isolates were evaluated for their antiprotozoal activities. Compound 7 showed good antitrypanosomal activity with IC50 and IC90 values of 13.7 and 16.6 μM compared to IC50 and IC90 values of 13.06 and 28.99 μM for the positive control DFMO, difluoromethylornithine.

Keywords:

Mussaenda luteola, Rubiaceae, Antitrypanosomal, Cycloartane-type saponin, Monoterpenoid glucoindole alkaloid

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