Abstract

The bioactivity guided fractionation of the dichloromethane extract of Mitracarpus frigidus afforded the pyranonaphthoquinone psychorubrin. This compound, hitherto unknown in the genus Mitracarpus, had its biological activity evaluated against one panel of bacteria and two fungi, three tumor cell lines (HL60, Jurkat and MCF-7) and four Leishmania species. Its identity was confirmed unambiguously by 1H, 13C, 1H-COSY, IR and UV-Vis spectroscopy and mass spectrometry. Psychorubrin displayed a very promising antitumor with IC50 of 4.5, 5.6 and 1.1 µM for HL60, Jurkat and MCF-7 cell lines, respectively. Antimicrobial activity, mainly against Cryptococcus neoformans (MIC of 87.3 µM) was observed. A pronounced antileishmanial potential was also verified with IC50 varying from 1.7 to 2.7 µM for the Leishmania species tested. This is the first report of the presence of pyranonapthoquinones in the Mitracarpus genus, which may serve as a chemotaxonomical marker.

Keywords

Mitracarpus frigidus, psychorubrin, pyranonaphthoquinone, Rubiaceae.