Antimycobacterial Activity of Natural and Semi-Synthetic Lignans


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The antimycobacterial activity of (-)-cubebin (1), hinokinin (2), and some of their semi-synthetic derivatives, namely (-)-O-acetyl-cubebin (3), (-)-O-methyl-cubebin (4), (-)-O-(N,N-dimethylamine-ethyl)-cubebin (5) and (-)-6,6’-dinitrohinokinin (6), was evaluated against Mycobacterium tuberculosis (ATCC 27294), M. kansasii (ATCC 12478), and M. avium (ATCC 15769). The MIC values ranged from 31.25 to 2000 µg/mL. Among the evaluated compounds, 2 displayed a MIC value of 62.5 µg/mL against M. tuberculosis, while 3 and 4 displayed MIC values of 62.5 and 31.25 µg/mL, respectively, against M. avium. All compounds were inactive against M. kansasii. These are promising results concerning the search for biologically active natural products, highlighting that new approaches to the prevention, treatment, and cure of tuberculosis are extremely important.

Key words: Cubebin, Lignans, Antimycobacterial Activity